National Transportation Statistics

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

National Transportation Statistics

2013

Bureau of
Transportation
Statistics

U.S. Department of Transportation

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U.S. Department of Transportation
Research and Innovative Technology Administration
Bureau of Transportation Statistics
National Transportation Statistics
http://www.bts.gov/publications/national_transportation_statistics/

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Appendix E. Data Source and Accuracy Statements

Introduction

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

The report has four chapters:

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

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

Table A: Social and Economic Characteristics of the United States

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

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

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

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

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

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

[e] Fiscal year ending September 30.

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

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

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

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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	2007	2008	2009
Highway[a]	3,545,693	3,689,666	3,730,082	3,838,146	3,859,837	3,863,912	3,866,926	3,883,920	3,901,081	3,905,211	3,906,595	3,912,226	3,919,652	3,945,872	3,906,290	3,917,243	3,936,222	3,948,335	3,966,485	3,974,107	3,981,512	3,995,635	4,016,741	4,032,126	4,042,778	4,050,717
Class I rail[b,c]	207,334	199,798	196,479	191,520	164,822	145,764	119,758	116,626	113,056	110,425	109,332	108,264	105,779	102,128	100,570	99,430	99,250	97,817	100,125	99,126	97,662	95,664	94,801	94,313	94,082	93,921
Amtrak[c]	N	N	N	N	24,000	24,000	24,000	25,000	25,000	25,000	25,000	24,000	25,000	25,000	22,000	23,000	23,000	23,000	23,000	22,675	22,256	22,007	21,708	21,708	21,178	21,178
Transit[d]																										
Commuter rail[c]	N	N	N	N	N	3,574	4,132	4,038	4,013	4,090	4,090	4,160	3,682	4,417	5,172	5,191	5,209	5,209	6,831	6,809	6,875	7,118	6,972	7,135	7,261	7,561
Heavy rail	N	N	N	N	N	1,293	1,351	1,369	1,403	1,452	1,455	1,458	1,478	1,527	1,527	1,540	1,558	1,572	1,572	1,597	1,596	1,622	1,623	1,623	1,623	1,623
Light rail	N	N	N	N	N	384	483	551	558	537	562	568	638	659	676	802	834	897	960	996	1,187	1,188	1,280	1,341	1,397	1,477
Navigable channels[e]	25,000	25,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	25,320	25,320	25,320
Oil pipeline[f,g]	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	158,248	160,990	159,889	163,469	162,919	162,887	166,256	169,586	172,048
Gas pipeline[h]	630,950	767,520	913,267	979,263	1,051,774	1,110,785	1,270,374	1,217,451	1,216,081	1,277,069	1,335,530	1,331,676	1,314,663	1,331,775	1,372,644	1,364,336	1,377,320	1,413,555	1,462,579	1,432,144	1,484,813	1,484,374	1,503,791	1,523,411	1,532,713	1,539,911

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

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

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

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

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

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

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

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

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

NOTE

Eno Transportation Foundation has discontinued its oil pipeline data for years prior to 2001

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Gas pipeline:

1960-80: American Gas Association, *Gas Facts* (Washington, DC: Annual Issues), table 5-1 and similar tables in earlier editions, personal communication, May 07, 2009.
1985-2009: U.S. Department of Transportation, Pipeline and Hazardous Materials Administration, Office of Pipeline Safety *Pipeline Statistics*, available at http://ops.dot.gov/stats.htm as of Nov. 30, 2010.

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

	1960	1965	1970	1975	1980	1985	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Air carriers[a]	N	N	39	36	63	102	70	96	96	96	96	94	91	87	83	72	80	85	87	87	88	76	77
Major air carriers	N	N	N	N	N	13	14	11	12	13	13	13	15	15	15	14	15	17	21	22	22	23	21
Other air carriers	N	N	N	N	N	89	56	85	84	83	83	81	76	72	68	58	65	68	66	65	66	53	56
Railroads	607	568	517	477	480	500	530	541	553	550	559	555	560	571	552	549	556	560	559	563	565	563	565
Class I railroads	106	76	71	73	39	25	14	11	10	9	9	9	8	8	7	7	7	7	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	556	558	556	558
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	692,789	711,792	715,011	726,928	739,421
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	707	652	628	603
Pipeline operators[d]	N	N	1,123	1,682	2,243	2,163	2,198	2,367	2,327	2,281	2,236	2,238	2,157	2,135	2,186	2,216	(R) 2,274	(R) 2,329	(R) 2,375	(R) 2,395	(R) 2,364	(R) 2,376	(P) 2,219
Hazardous liquid[e]	N	N	N	N	N	171	171	197	205	216	219	215	220	220	217	234	(R) 282	(R) 308	(R) 338	343	350	(R) 356	(P) 350
Natural gas transmission	N	N	420	432	474	724	866	975	971	957	889	885	844	837	920	948	946	975	1,004	1,012	(R) 997	(R) 1,039	(P) 981
Natural gas distribution[f]	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	1,311	(R) 1,372	(R) 1,388	(R) 1,384	(R) 1,394	(R) 1,370	(R) 1,341	(P) 1,241

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

[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] 1960-2005 figures are for the fiscal year, October through September. 2006-09 figures are snapshots dated Dec. 22, 2006; Dec. 21, 2007; Dec. 19, 2008, and Dec. 18, 2009. 2010 figure is the U.S. DOT number of active interstate motor carriers as of the end of December 2010. The numbers of *Interstate motor carriers* are based on 'active' U.S. DOT Numbers. 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. However, some companies may go out of business without de-activating their U.S. DOT Number. 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] The value given for 1985 is actually for 1986. The number of *Hazardous liquid pipeline operators* is not available for prior years.

[f] 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, Research and Innovative Technology Administration, 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".

2003-10: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Accounting and Reporting Directives, All Carrier Groupings* (Washington, DC), nos. 263, 270, 276, 279, 281, 284, 290 and 291, available at http://www.bts.gov/programs/airline_information/accounting_and_reporting_directives/ as of Feb. 1, 2012.

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.

1999-2010: 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.

2002-10: 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, January 2010, January 2011, and January 2012.

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, available at http://www.ndc.iwr.usace.army.mil/veslchar/veslchar.htm as of Jan. 30, 2012.

Pipeline operators:

U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Pipeline Safety Office, *Gas Distribution Systems* , *Gas Transmission & Gathering Systems and Hazardous Liquid Pipeline Systems Annual Reporting* , personal communication, September 2009, January 2011 and January 2012.

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

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TOTAL airports[b]	**15,161**	**16,319**	**17,490**	**17,581**	**17,846**	**18,317**	**18,343**	**18,224**	**18,292**	**18,345**	**18,770**	**19,098**	**19,281**	**19,356**	**19,572**	**19,581**	**19,820**	**19,854**	**19,983**	**20,341**	**19,930**	**19,750**	**19,802**	**19,782**
Public use, total	**4,814**	**5,858**	**5,589**	**5,551**	**5,545**	**5,538**	**5,474**	**5,415**	**5,389**	**5,357**	**5,352**	**5,324**	**5,317**	**5,294**	**5,286**	**5,286**	**5,288**	**5,270**	**5,233**	**5,221**	**5,202**	**5,178**	**5,175**	**5,172**
Lighted runways, percei	66.2	68.1	71.4	71.9	72.3	72.8	73.5	74.3	74.5	74.6	74.8	76.1	75.9	76.2	76.1	76.2	76.3	76.8	77.2	U	U	U	U	U
Paved runways, percen	72.3	66.7	70.7	71.5	71.6	72.2	72.9	73.3	73.7	74.0	74.2	74.2	74.3	74.6	74.5	74.5	74.5	74.8	75.3	U	U	U	U	U
Private use, total	**10,347**	**10,461**	**11,901**	**12,030**	**12,301**	**12,779**	**12,869**	**12,809**	**12,903**	**12,988**	**13,418**	**13,774**	**13,964**	**14,062**	**14,286**	**14,295**	**14,532**	**14,584**	**14,757**	**14,839**	**14,451**	**14,298**	**14,353**	**14,339**
Lighted runways, percei	15.2	9.1	7.0	6.8	6.6	6.3	6.2	6.4	6.4	6.4	6.3	6.7	7.2	8.0	8.3	8.6	9.0	9.2	9.5	U	U	U	U	U
Paved runways, percen	13.3	17.4	31.5	32.0	32.2	32.7	33.0	33.0	32.9	33.0	33.2	31.8	32.0	32.4	32.4	32.7	32.8	33.2	33.3	U	U	U	U	U
Military	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	**281**	**277**	**274**	**274**	**271**
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**	**19,930**	**19,750**	**19,802**	**19,782**
Certificated[c], total	**730**	**700**	**680**	**669**	**664**	**670**	**672**	**667**	**671**	**660**	**660**	**655**	**651**	**635**	**633**	**628**	**599**	**575**	**604**	**565**	**560**	**559**	**551**	**547**
Civil	U	U	U	U	U	U	577	572	577	566	566	565	563	560	558	555	542	U	U	U	U	U	U	U
Military	U	U	U	U	U	U	95	95	94	94	94	90	88	75	75	73	57	U	U	U	U	U	U	U
General aviation, total	**14,431**	**15,619**	**16,810**	**16,912**	**17,182**	**17,647**	**17,671**	**17,557**	**17,621**	**17,685**	**18,110**	**18,443**	**18,630**	**18,721**	**18,939**	**18,953**	**19,221**	**19,279**	**19,379**	**19,776**	**19,370**	**19,191**	**19,251**	**19,235**

KEY: U = data are unavailable.

[a] Includes civil and joint-use civil-military airports, heliports, STOL (short takeoff and landing) ports, and seaplane bases in the United States and its territories. Sole-use military airports are included beginning in 2007.

[b] *Total airports* in 2006 does not sum from Public and Private based on the source data.

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

SOURCE

U.S. Department of Transportation, Federal Aviation Administration, *Administrator's Fact Book* (Washington, DC), available at http://www.faa.gov/about/office_org/headquarters_offices/aba/admin_factbook/ as of Aug. 15, 2012.

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

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

KEY: N = data do not exist.

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

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

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

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

NOTES

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

Numbers may not add to totals due to rounding.

SOURCES

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

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

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

	1990	1991	1992	1993	1994	1995	1996	1997	(R) 1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
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**	**3,906,292**	**3,917,243**	**3,936,222**	**3,948,335**	**3,966,486**	**3,974,107**	**3,981,512**	**3,995,635**	**4,016,741**	**4,032,126**	**4,042,778**
Urban mileage, total	**744,644**	**749,862**	**785,066**	**805,877**	**813,785**	**819,706**	**826,765**	**836,740**	**841,643**	**846,085**	**852,243**	**877,004**	**894,725**	**940,969**	**981,276**	**1,009,839**	**1,029,366**	**1,044,368**	**1,065,556**
Principal arterials, Interstates	11,527	11,602	12,516	12,877	13,126	13,164	13,217	13,247	13,276	13,343	13,379	13,411	13,491	14,460	15,129	15,703	16,044	16,312	16,555
Principal arterials, other freeways, and expressways	7,668	7,709	8,491	8,841	8,994	8,970	9,027	9,063	9,163	9,132	9,140	9,121	9,323	9,870	10,246	10,560	10,748	10,913	11,335
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	63,282	64,557
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	104,033	106,172
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	109,555	113,848
Local	520,568	526,139	548,560	559,776	564,609	568,935	574,728	583,973	588,505	592,974	598,421	622,741	638,814	668,767	696,623	713,991	727,936	740,273	753,089
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**	**3,064,649**	**3,071,158**	**3,083,979**	**3,071,331**	**3,071,761**	**3,033,138**	**3,000,236**	**2,985,796**	**2,987,375**	**2,987,758**	**2,977,222**
Principal arterials, Interstates	33,547	33,677	32,951	32,631	32,457	32,580	32,820	32,817	32,808	32,974	33,048	33,061	32,992	32,048	31,443	30,905	30,586	30,360	30,196
Principal arterials, other	83,802	86,747	94,947	96,770	97,175	97,948	98,131	98,257	98,858	98,838	98,919	99,185	98,853	97,038	95,946	95,156	94,937	94,766	94,949
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	135,296	135,024
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	419,437	418,229
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	262,899	262,607
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	2,045,000	2,036,217

KEY: R = revised.

[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.

NOTES

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

Beginning in 2005, approximately 4,085 miles of federal agency and local government owned roads are excluded.

Other *Principal arterials* rural mileage for 2009 includes 888 miles of other freeways and expressways.

SOURCE

1990-2010: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table HM-220, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Spet. 25, 2012.

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

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
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	8,251,865	8,295,171	8,315,121	8,338,821	8,371,718	8,420,589	8,457,353	8,483,969	8,542,163	8,581,158	8,567,618
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	1,967,044	2,006,436	2,108,650	2,199,155	2,263,360	2,308,602	2,343,858	2,392,026	2,442,735	2,463,373	2,460,509
Interstate	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	74,482	75,107	79,591	82,926	85,986	87,944	89,270	90,763	90,949	92,302	92,714
Other arterial[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	457,545	462,855	484,171	505,328	523,838	532,933	540,189	552,377	568,591	570,521	561,471
Collector[c]	145,128	162,377	167,770	165,288	176,137	179,653	183,353	185,032	186,923	188,850	187,533	186,334	188,570	189,538	190,843	207,356	217,650	225,548	231,853	233,853	242,715	252,483	257,285	252,041
Local	867,986	951,018	1,041,136	1,052,278	1,097,120	1,119,552	1,129,218	1,137,870	1,149,456	1,167,946	1,177,009	1,185,948	1,196,840	1,245,479	1,277,631	1,337,532	1,393,251	1,427,988	1,455,872	1,480,546	1,506,171	1,530,712	1,543,265	1,554,283
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	6,284,821	6,288,735	6,206,471	6,139,666	6,108,358	6,111,987	6,113,495	6,091,943	6,099,428	6,117,785	6,107,109
Interstate	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	134,659	134,570	130,384	127,889	125,564	124,380	123,512	122,825	121,878	123,601	123,835
Other arterial[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	530,121	530,476	530,606	537,392	542,150	538,283
Collector[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	1,368,471	1,369,500	1,366,079	1,378,933	1,382,653	1,369,424
Local	4,457,584	4,366,954	4,259,770	4,283,164	4,263,712	4,235,904	4,223,864	4,238,096	4,238,524	4,270,970	4,182,252	4,194,553	4,219,031	4,193,670	4,201,402	4,153,294	4,099,020	4,079,891	4,089,015	4,090,007	4,072,433	4,061,225	4,069,380	4,075,567

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

[b] *Urban other arterial* includes other freeways and expressways, other principal arterial, and minor arterial. *Rural other arterial* includes other principal arterial and minor arterial prior to 2009 and other freeways and expressways, other principal arterial and minor arterial for 2009 and later.

[c] *Collector* is the sum of major and minor collectors.

NOTES

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

2009 data exclude 823 miles of federal agency owned roads and 71 miles of other non federal agency owned roads. 2008 data exclude 788 miles of federal agency owned roads. 2007 data exclude 788 miles of federal owned roads and 437 miles of local government owned roads. 2006 data exclude 788 miles of federal owned roads and included 274 miles of miscoded roads. 2005 data exclude 770 miles of federal agency owned roads.

SOURCES

1980-95: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Information Management, *Highway Statistics Summary to 1995* (Washington, DC), table HM-260, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 11, 2011.

1996-2011: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table HM-60, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 12, 2013.

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

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Amtrak	510	503	491	487	498	504	516	523	524	535	540	530	542	516	508	510	515	512	515	514	517	518	503	497	527	527	529
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	2,618	2,777	2,787	2,899	2,936	2,975	2,987	3,017	3,091	3,114

NOTES

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

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

SOURCES

Amtrak:

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

1999-2010: Amtrak, *Annual Report* (Washington, DC: Annual Issues), p. 67 and similar pages in previous editions, available at http://www.amtrak.com/servlet/ContentServer?c=Page&pagename=am%2FLayout&cid=1241245669222 as of Nov. 2, 2011.

Rail transit:

U.S. Department of Transportation, Federal Transit Administration*National Transit Database* (Washington, DC: Annual Issues), table 21, and similar table in earlier editions, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Nov. 2, 2011.

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

Year	Small buses			Medium buses			Large buses			Articulated buses			Total buses		
	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	(R) 7,206	(R) 6,613	(R) 91.8	(R) 5,938	(R) 5,154	(R) 86.8	(R) 46,163	(R) 33,519	(R) 72.6	1,566	1,071	68.4	(R) 60,870	(R) 46,357	(R) 76.2
1999	(R) 9,833	(R) 8,902	(R) 90.5	(R) 1,967	(R) 1,503	(R) 76.4	(R) 49,178	(R) 36,014	(R) 73.2	(R) 1,967	(R) 1,503	(R) 76.4	(R) 67,808	(R) 52,388	(R) 77.3
2000	(R) 10,531	(R) 9,681	(R) 91.9	(R) 7,674	(R) 6,946	(R) 90.5	(R) 49,693	(R) 37,553	(R) 75.6	(R) 2,078	(R) 1,712	(R) 82.4	(R) 69,976	(R) 55,892	(R) 79.9
2001	(R) 11,517	(R) 10,617	(R) 92.2	(R) 8,121	(R) 7,387	(R) 91.0	(R) 50,500	(R) 40,484	(R) 80.2	(R) 2,133	(R) 1,712	(R) 80.3	(R) 72,271	(R) 60,200	(R) 83.3
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
2007	13,699	13,471	98.3	11,306	11,207	99.1	46,125	45,023	97.6	2,267	2,267	100.0	73,397	71,968	98.1
2008	14,326	14,104	98.5	2,340	2,340	100.0	46,460	45,616	98.2	11,537	11,452	99.3	74,663	73,512	98.5
2009	14,856	14,613	98.4	12,084	11,974	99.1	44,820	44,162	98.5	3,767	3,767	100.0	75,527	74,516	98.7
2010	15,170	14,930	98.4	12,082	11,974	99.1	44,057	43,481	98.7	4,158	4,158	100.0	75,467	74,543	98.8

KEY: ADA = Americans with Disabilities Act of 1992; R = revised.

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

1993-2010: U.S. Department of Transportation, Federal Transit Administration, *National Transit Summaries and Trends* (Washington, Annual Issues), pp. 61-62 and similar tables in earlier editions, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Dec. 1, 2011.

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

		Number of stations															Percent of Stations Not ADA-Accessible														
Type of rail transit / agency	Primary city served	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Heavy rail																															
San Francisco Bay Area Rapid Transit District	San Francisco, CA	36	39	39	39	39	39	39	43	43	43	43	43	43	43	43	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Los Angeles County Metropolitan Transportation Authority	Los Angeles, CA	5	8	8	13	16	16	16	16	16	16	16	16	16	16	16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Washington Metropolitan Area Transit Authority	Washington, DC	74	75	75	76	78	83	83	83	83	86	86	86	86	86	86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Miami-Dade Transit	Miami, FL	21	21	21	21	21	21	21	22	22	22	20	22	22	22	22	100.0	100.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Metropolitan Atlanta Rapid Transit Authority	Atlanta, GA	36	36	36	36	36	38	38	38	38	38	38	38	38	38	38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chicago Transit Authority	Chicago, IL	140	141	141	142	142	144	144	144	144	144	144	144	143	143	143	100.0	100.0	100.0	90.1	62.0	55.6	55.6	54.2	50.0	50.0	47.9	44.4	39.9	37.8	37.1
Massachusetts Bay Transportation Authority	Boston, MA	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	37.7	37.7	37.7	30.2	30.2	28.3	24.5	20.8	20.8	20.8	20.8	7.5	7.5	7.5	7.5
Maryland Transit Administration	Baltimore, MD	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Metropolitan Transportation Authority New York City Transit	New York, NY	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	94.0	93.6	93.6	93.4	91.2	91.2	90.6	89.3	88.5	86.1	85.3	84.0	82.9	82.3	81.2
Port Authority Trans-Hudson Corporation	New York, NY	13	13	13	13	13	13	11	13	13	13	13	13	13	13	13	53.8	53.8	53.8	53.8	53.8	53.8	54.5	46.2	46.2	46.2	46.2	46.2	46.2	46.2	46.2
Metropolitan Transportation Authority Staten Island Railway	New York, NY	22	22	22	22	22	23	23	23	23	23	23	23	23	23	23	90.9	90.9	90.9	90.9	90.9	87.0	82.6	82.6	82.6	78.3	78.3	78.3	78.3	78.3	78.3
The Greater Cleveland Regional Transit Authority	Cleveland, OH	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	77.8	66.7	66.7	61.1	55.6	55.6	50.0	50.0	44.4	44.4	33.3	27.8	27.8	27.8	27.8
Southeastern Pennsylvania Transportation Authority	Philadelphia, PA	76	76	76	76	76	76	53	75	75	75	75	75	75	75	75	94.7	94.7	94.7	94.7	94.7	94.7	75.5	77.3	76.0	76.0	76.0	68.0	62.7	61.3	60.0
Port Authority Transit Corporation	Philadelphia, PA	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	76.9	76.9	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5	61.5
Commuter rail																															
Altamont Commuter Express	San Jose, CA	U	U	U	U	U	U	10	10	10	10	10	10	10	10	10	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North San Diego County Transit District	San Diego, CA	U	U	U	U	U	U	8	8	8	8	8	8	8	8	8	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Peninsula Corridor Joint Powers Board	San Francisco, CA	U	U	U	U	U	U	34	34	34	33	32	32	32	32	32	NA	NA	NA	NA	NA	NA	35.3	29.4	29.4	27.3	28.1	25.0	21.9	18.8	18.8
Southern California Regional Rail Authority	Los Angeles, CA	U	45	46	46	47	49	51	53	53	54	54	54	55	55	55	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Connecticut Department of Transportation	New Haven, CT	U	U	U	U	U	U	8	8	8	8	8	8	8	9	9	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	11.1
Virginia Railway Express	Washington, DC	U	U	U	U	U	U	18	18	18	18	18	18	18	18	18	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Florida Regional Transportation Authority	Miami, FL	U	U	U	U	U	U	18	18	18	18	18	18	18	18	18	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Northeast Illinois Regional Commuter Railroad Corporation	Chicago, IL	226	226	226	227	227	227	227	227	230	231	238	239	239	240	240	59.7	54.0	54.0	51.1	49.3	44.9	42.3	41.0	39.6	37.2	33.2	31.8	31.0	30.0	29.6
Northern Indiana Commuter Transportation District	Chicago, IL	18	18	18	18	18	18	20	20	20	20	20	20	20	20	20	61.1	61.1	61.1	61.1	61.1	61.1	45.0	45.0	40.0	40.0	35.0	35.0	35.0	35.0	35.0
Massachusetts Bay Transportation Authority	Boston, MA	U	U	117	119	120	121	124	125	126	126	126	126	133	133	133	NA	NA	42.7	(R) 42.0	38.3	38.0	37.1	35.2	34.9	34.9	33.3	30.2	28.6	28.6	27.8
Maryland Transit Administration	Baltimore, MD	U	U	U	U	U	U	42	42	42	42	42	42	42	42	42	NA	NA	NA	NA	NA	NA	47.6	47.6	47.6	47.6	47.6	42.9	42.9	42.9	42.9
Northern New England Passenger Rail Authority (NNEPRA)	Portland, ME	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10	10	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0
Metro Transit	Minneapolis/St. Cloud, MN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0
Rio Metro Regional Transit District	Albuquerque/Santa Fe, NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0
New Jersey Transit Corporation	New York, NY	158	158	158	162	162	162	167	168	167	167	162	162	164	164	164	86.1	86.1	74.1	71.6	71.6	71.6	69.5	69.0	59.3	59.3	58.6	58.6	57.3	57.3	56.1
Metropolitan Transportation Authority Long Island Rail Road	New York, NY	134	134	124	124	124	124	124	124	124	124	124	124	124	124	124	88.8	88.8	29.0	21.8	21.8	21.8	20.2	20.2	20.2	20.2	20.2	20.2	19.4	16.1	16.9
Metropolitan Transportation Authority Metro-North Railroad	New York, NY	106	106	106	106	108	108	109	109	109	109	109	109	109	110	110	84.0	82.1	81.1	81.1	81.5	74.1	73.4	70.6	70.6	70.6	65.1	65.1	61.5	60.9	60.9
Pennsylvania Department of Transportation	Pennsylvania, PA	U	U	U	U	U	U	14	12	12	12	12	12	12	12	12	NA	NA	NA	NA	NA	NA	71.4	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7
Southeastern Pennsylvania Transportation Authority	Philadelphia, PA	181	177	177	177	177	177	153	156	156	156	156	156	154	154	154	86.2	83.1	83.1	83.1	83.1	83.1	68.6	67.3	67.3	65.4	64.7	64.7	64.3	64.3	64.3
Regional Transity Authority (RTA)	Nashville, TN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	6	6	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0
Capital Metropolitan Transportation	Austin, TX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0
Dallas Area Rapid Transit	Dallas, TX	U	U	U	U	U	U	4	4	4	4	4	4	4	5	10	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fort Worth Transportation Authority	Fort Worth,TX	U	U	U	U	U	U	5	5	5	5	5	5	5	5	U	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	U
Utah Transit Authority	Salt Lake City, UT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8	8	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0
Central Puget Sound Regional Transit Authority	Seattle, WA	U	U	U	U	U	U	7	9	9	9	9	9	10	10	10	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Light rail																															
Valley Metro Rail	Phoenix, AZ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0
Los Angeles County Metropolitan Transportation Authority	Los Angeles, CA	36	36	36	36	36	36	36	36	49	49	49	49	49	49	53	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	0.0
North County Transit District	San Diego, CA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15	15	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0
San Francisco Municipal Railway	San Francisco, CA	11	11	11	11	11	11	9	9	9	9	9	9	9	9	9	100.0	100.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sacramento Regional Transit District	Sacramento, CA	28	28	28	29	29	29	29	31	41	41	41	48	48	48	48	100.0	100.0	100.0	0.0	0.0	0.0	0.0	3.2	2.4	2.4	2.4	2.1	2.1	2.1	2.1
San Diego Trolley, Inc.	San Diego, CA	38	41	49	49	49	49	49	49	49	49	53	53	53	53	U	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	U
Santa Clara Valley Transportation Authority	San Jose, CA	33	34	34	34	47	49	44	44	57	57	65	65	65	65	65	84.8	85.3	85.3	85.3	55.3	53.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denver Regional Transportation District	Denver, CO	15	15	15	15	20	20	20	24	23	23	36	36	36	36	36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hillsborough Area Regional Transit Authority	Tampa-St. Petersburg, FL	NA	NA	NA	NA	NA	NA	NA	8	8	8	8	8	8	8	8	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Orleans Regional Transit Authority	New Orleans, LA	2	9	9	9	9	9	9	9	9	NA	9	9	9	9	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.0	0.0	0.0	0.0	0.0
Massachusetts Bay Transportation Authority	Boston, MA	95	95	95	95	95	78	78	70	70	70	70	74	74	74	74	90.5	90.5	90.5	87.4	87.4	79.5	79.5	64.3	64.3	64.3	64.3	62.2	62.2	52.7	51.4
Maryland Transit Administration	Baltimore, MD	24	24	32	32	32	32	32	32	32	33	33	33	33	33	33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
City of Detroit Department of Transportation	Detroit, MI	NA	NA	NA	NA	NA	8	8	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100.0	100.0	100.0	NA	NA	NA	NA	NA	NA	NA
Metro Transit	Minneapolis, MN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	17	19	19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	47.1	0.0	0.0	0.0
Bi-State Development Agency	St. Louis, MO	18	18	18	18	18	26	26	28	28	28	28	37	37	37	37	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Charlotte Area Transit System	Charlotte, NC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19	19	19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0
New Jersey Transit Corporation	Newark, NJ	11	11	11	11	11	11	26	27	49	52	52	60	60	60	60	100.0	100.0	100.0	100.0	100.0	100.0	42.3	44.4	14.3	13.5	13.5	10.0	10.0	10.0	10.0
Niagara Frontier Transportation Authority	Buffalo, NY	14	14	14	14	14	14	15	15	15	15	15	15	15	15	15	50.0	50.0	50.0	50.0	50.0	50.0	53.3	53.3	53.3	53.3	53.3	53.3	0.0	0.0	0.0
The Greater Cleveland Regional Transit Authority	Cleveland, OH	33	33	33	34	34	34	34	34	34	34	34	34	34	34	34	93.9	84.8	84.8	79.4	79.4	76.5	76.5	76.5	76.5	76.5	76.5	73.5	73.5	73.5	73.5
Tri-County Metropolitan Transportation District of Oregon	Portland, OR	27	27	29	47	47	47	52	52	62	63	63	63	30	30	38	3.7	3.7	3.4	2.1	2.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Port Authority of Allegheny County	Pittsburgh, PA	13	13	13	13	13	13	14	14	25	25	25	25	27	23	23	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Southeastern Pennsylvania Transportation Authority	Philadelphia, PA	64	64	64	64	64	64	68	46	46	46	46	45	45	45	45	100.0	100.0	100.0	100.0	100.0	100.0	95.6	100.0	97.8	97.8	97.8	97.8	95.6	95.6	95.6
Memphis Area Transit Authority	Memphis, TN	20	20	27	28	28	28	28	1	7	7	7	7	7	7	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dallas Area Rapid Transit	Dallas, TX	14	20	20	20	20	22	29	34	34	34	34	34	34	39	39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Island Transit	Galveston, TX	3	3	3	U	U	U	3	3	3	3	3	3	U	U	U	0.0	0.0	0.0	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	U	U	U
Metropolitan Transit Authority of Harris County	Houston, TX	NA	NA	NA	NA	NA	NA	NA	NA	16	16	16	16	16	16	16	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Utah Transit Authority	Salt Lake City, UT	NA	NA	NA	16	16	20	20	23	23	24	25	25	28	28	28	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central Puget Sound Regional Transit Authority	Seattle, WA	NA	NA	NA	NA	NA	NA	NA	6	6	6	6	6	6	19	19	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
King County Department of Transportation	Seattle, WA	14	14	14	9	9	9	9	9	9	9	9	NA	11	11	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.0	0.0	0.0
Kenosha Transit	Kenosha, WI	NA	NA	NA	NA	1	1	2	2	2	2	2	2	2	2	2	NA	NA	NA	NA	100.0	100.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0

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

NOTES

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

SOURCE

U.S. Department of Transportation, Federal Transit Administration *National Transit Database* (Washington, DC: Annual Issues), table 21, available at http://www.ntdprogram.gov as of Dec. 13, 2011.

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

	1960	1965	1970	1975	1980	1985	(R) 1990	1991	1992	1993	1994	1995	(R) 1996	(R) 1997	1998	1999	2000	2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	2010	2011
Oil pipeline, total[a]	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	154,877	149,619	139,901	142,200	131,348	140,861	147,235	146,822	148,622	147,524	149,571
Crude lines	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	52,386	52,854	50,149	50,749	46,234	47,617	46,658	50,214	49,585	50,198	50,004
Product lines	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	85,214	80,551	75,565	76,258	71,310	81,103	85,666	84,914	87,788	86,889	86,699
Gas pipeline[b], total	630,900	767,500	913,300	979,300	1,051,800	1,110,785	1,270,295	1,217,451	1,216,081	(R) 1,276,303	1,335,530	(R) 1,331,788	1,290,163	1,331,606	(R) 1,372,639	(R) 1,364,281	1,377,320	(R) 1,412,876	1,462,214	1,432,045	1,485,049	1,489,219	1,506,233	1,524,403	1,533,569	1,546,157	1,548,999	1,557,606
Distribution mains	391,400	494,500	594,800	648,200	701,800	784,852	945,964	890,876	891,984	(R) 950,984	1,002,669	(R) 1,003,910	976,945	1,002,829	1,040,765	1,035,946	1,050,802	1,101,485	1,136,473	1,107,553	1,157,055	1,164,997	1,185,011	1,203,296	1,209,725	1,221,183	1,224,796	1,233,000
Transmission pipelines	183,700	211,300	252,200	262,600	266,500	290,464	291,925	293,862	291,468	293,263	301,545	296,947	284,672	294,370	(R) 302,709	(R) 296,059	298,957	(R) 289,994	302,999	301,493	303,002	300,468	300,325	301,066	303,182	304,600	304,683	304,571
Gathering lines[c]	55,800	61,700	66,300	68,500	83,500	35,469	32,406	32,713	32,629	32,056	31,316	30,931	28,546	34,407	29,165	32,276	27,561	(R) 21,397	22,742	22,999	24,992	23,754	20,897	20,041	20,662	20,374	19,520	20,035

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

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

NOTES

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

SOURCES

Oil pipeline:

2001-11: PennWell Corporation, *Oil and Gas Journal: Transportation Special Report* (Houston, TX), pp. 76 and 120, and similar tables in earlier editions.

Gas pipeline:

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

1985-2011: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, *Natural Gas Transmission, Gas Distribution, and Hazardous Liquid Pipeline Annual Mileage* , available at http://phmsa.dot.gov/pipeline/library/data-stats as of Feb. 13, 2013.

Section B
Vehicle, Aircraft, and Vessel Inventory

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Air																											
Air carrier[a]	2,135	2,125	2,679	2,495	3,808	4,678	6,083	6,054	7,320	7,297	7,370	7,411	7,478	7,616	8,111	8,228	8,055	8,497	8,194	8,176	8,186	8,225	8,089	8,044	7,856	7,771	7,431
General aviation[b] (active fleet)	76,549	95,442	131,743	168,475	211,045	210,654	198,000	196,874	185,650	177,120	172,935	188,089	191,129	192,414	204,710	219,464	217,533	211,446	211,244	209,708	219,426	224,352	221,943	231,607	228,663	223,877	223,370
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	243,010,550	247,421,120	250,844,644	254,403,081	255,917,664	254,212,610	250,272,812
Light duty vehicle, short wheel base	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	129,726,341	129,746,704	131,838,538	132,432,044	133,621,420	137,633,467	135,920,677	135,699,897	136,430,651	136,598,083	135,399,945	196,491,176	196,762,927	193,976,654	190,202,782
Motorcycle	574,032	1,381,956	2,824,098	4,964,070	5,693,940	5,444,404	4,259,462	4,177,365	4,065,118	3,977,856	3,756,555	3,897,191	3,871,599	3,826,373	3,879,450	4,152,433	4,346,068	4,903,056	5,004,156	5,370,035	5,767,934	6,227,146	6,678,958	7,138,476	7,752,926	7,929,724	8,212,267
Light duty vehicle, long wheel base	U	U	14,210,591	20,418,250	27,875,934	37,213,863	48,274,555	53,033,443	57,091,143	59,993,706	62,903,589	65,738,322	69,133,913	70,224,082	71,330,205	75,356,376	79,084,979	84,187,636	85,011,305	87,186,663	91,845,327	95,336,839	99,124,775	39,186,974	39,685,228	40,488,025	40,241,658
Truck, single-unit 2-axle 6-tire or more[d,3]	U	13,999,285	3,681,405	4,231,622	4,373,784	4,593,071	4,486,981	4,480,815	4,369,842	4,407,850	4,906,385	5,023,670	5,266,029	5,293,358	5,734,925	5,762,864	5,926,030	5,703,501	5,650,619	5,848,523	6,161,028	6,395,240	6,649,337	8,116,672	8,288,046	8,356,097	8,217,189
Truck, combination[d,3]	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	2,635,347	2,585,229	2,617,118	2,552,865
Bus	272,129	314,284	377,562	462,156	528,789	593,485	626,987	631,279	644,732	654,432	670,423	685,503	694,781	697,548	715,540	728,777	746,125	749,548	760,717	776,550	795,274	807,053	821,959	834,436	843,308	841,993	846,051
Transit[e]																											
Motor bus	49,600	49,600	49,700	50,822	59,411	64,258	58,714	60,377	63,080	64,850	68,123	67,107	53,339	54,946	55,661	57,352	58,578	60,256	60,719	61,659	61,318	62,284	64,025	63,359	63,151	63,343	63,108
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	1,097	1,062	1,061	1,160	1,306	1,359	1,448	1,482	1,622	1,645	1,801	1,802	1,948	2,059	2,096
Heavy rail cars	9,010	9,115	9,338	9,608	9,641	9,326	10,567	10,478	10,391	10,282	10,282	10,166	10,243	10,228	10,296	10,362	10,311	10,718	10,849	10,754	10,858	11,110	11,052	11,222	11,377	11,461	11,510
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	609	559	590	531	571
Commuter rail cars and locomotives	U	U	U	U	4,500	4,035	4,982	5,126	5,164	4,982	5,126	5,164	5,239	5,425	5,535	5,549	5,497	5,528	5,631	5,866	6,130	6,290	6,300	6,279	6,494	6,722	6,768
Demand response	U	U	U	U	U	14,490	16,471	17,879	20,695	23,527	28,729	29,352	17,738	19,820	20,042	20,761	22,087	24,668	24,808	25,873	26,333	28,346	29,406	29,433	30,773	34,235	33,555
Other[f]	U	U	U	U	U	867	1,176	1,568	1,821	2,268	2,462	2,809	5,344	6,245	7,105	7,467	7,705	8,137	8,033	8,626	10,544	11,622	12,454	12,953	14,953	17,766	18,066
Rail																											
Class I, freight cars	1,658,292	1,478,005	1,423,921	1,359,459	1,168,114	867,070	658,902	633,489	605,189	587,033	590,930	583,486	570,865	568,493	575,604	579,140	560,154	499,860	477,751	467,063	473,773	474,839	475,415	460,172	450,297	416,180	397,730
Class I, locomotive	29,031	27,780	27,077	27,846	28,094	22,548	18,835	18,344	18,004	18,161	18,505	18,812	19,269	19,684	20,261	20,256	20,028	19,745	20,506	20,774	22,015	22,779	23,732	24,143	24,003	24,045	23,893
Nonclass I freight cars	32,104	37,164	29,787	29,407	102,161	111,086	103,527	97,492	90,064	88,513	86,120	84,724	87,364	116,108	121,659	126,762	132,448	125,470	130,590	124,580	120,169	120,195	120,688	120,463	109,487	108,233	101,755
Car companies and shippers freight cars	275,090	285,493	330,473	334,739	440,552	443,530	449,832	458,679	477,883	497,586	515,362	550,717	582,344	585,818	618,404	662,934	688,194	688,806	691,329	687,337	693,978	717,211	750,404	805,074	833,188	839,020	809,544
Amtrak, passenger train car	U	U	U	1,913	2,128	1,854	1,863	1,786	1,796	1,853	1,852	1,722	1,730	1,728	1,962	1,992	1,894	2,084	2,896	1,623	1,211	1,186	1,191	1,164	1,177	1,214	1,274
Amtrak, locomotive	U	U	U	355	419	291	318	316	336	360	338	313	299	332	345	329	378	401	372	442	276	258	319	270	278	274	282
Water																											
Nonself-propelled vessels[g,h]	16,777	17,033	19,377	25,515	31,662	33,597	33,597	U	30,899	30,785	30,730	31,209	32,811	33,011	33,509	33,387	31,360	33,042	32,381	31,335	31,296	33,152	32,211	31,654	31,238	31,008	31,412
Self-propelled vessels[h,i]	6,543	6,083	6,455	6,144	7,126	7,522	8,236	U	8,311	8,323	8,334	8,281	8,293	8,408	8,523	8,379	8,202	8,546	8,621	8,648	8,994	8,976	8,898	9,041	9,063	9,101	9,100
Oceangoing self-propelled vessels (1,000 gross tons and ove[j]	2,926	2,376	1,579	857	864	737	636	619	603	565	543	509	495	477	470	463	454	443	426	418	423	366	344	275	272	196	U
Recreational boats[k]	2,450,484	4,138,140	5,128,345	7,303,286	8,577,857	9,589,483	10,996,253	11,068,440	11,132,386	11,282,736	11,429,585	11,734,710	11,877,938	12,312,982	12,565,930	12,738,271	12,782,143	12,876,346	12,854,054	12,794,616	12,781,476	12,942,414	12,746,126	12,873,091	12,692,892	12,721,541	12,438,926

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

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

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

[c] In 1960, this category includes all *Trucks* and *Other 2-axle 4-tire vehicles*.
[d] 1965: *Other 2-axle 4-tire vehicle* data included in all *Trucks*.
[e] Prior to 1984, excludes most rural and smaller systems funded via Sections 18 and 16(b)(2), Urban Mass Transportation Act of 1964, as amended. Also prior to 1984, includes total vehicles owned and leased.
[f] Other includes aerial tramway, automated guideway transit, cable car, ferry boat, inclined plane, monorail, and vanpool.
[g] *Nonself-propelled vessels* include dry-cargo barges, tank barges, and railroad-car floats.
[h] Data for Jan. 1, 1991-June 30, 1991 included in 1990 figure.
[i] *Self-propelled vessels* include dry-cargo and/or passenger, offshore supply vessels, railroad-car ferries, tankers, and towboats.
[j] 1960-2006 data includes private and government owned vessels of 1,000 gross tons and over. Beginning in 2007, data are reported only for privately-owned vessels of 1,000 gross tons and over. Calendar Year 2009 includes privately owned vessels of 10,000 deadweight tons and above not including the Great Lakes vessels. All the data are year-end data.
[k] *Recreational vessels* that are required to be numbered in accordance with Chapter 123 of Title 46 U.S.C.

NOTES

Data for 2007-10 were calculated using a new methodology developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category *Light duty vehicle, short wheel base* replaces the old category *Passenger car* and includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. The new category *Light duty vehicle, long wheel base* replaces *Other 2-axle, 4-tire vehicle* and includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches. This edition of 1-11 is not comparable to previous editions.

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

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

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

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

SOURCES

Air:

Air carrier:

1960-65: U.S. Department of Transportation, Federal Aviation Administration *FAA Statistical Handbook of Aviation, 1970* (Washington, DC: 1970), table 5.3.
1970-75: Ibid., *1979 edition* (Washington, DC: 1979), table 5.1.
1980-85: Ibid., *Calendar Year 1986* (Washington, DC: 1986), table 5.1.
1990-94: Ibid., *Calendar Year 1997* (Washington, DC: unpublished), table 5.1, personal communication, Mar. 19, 1999.
1995-2008: Aerospace Industries Association, *Aerospace Facts and Figures* (Washington, DC), p. 94 and similar tables in earlier editions.
2009-10: U.S. Department of Transportation, Federal Aviation Administration, Quality Assurance Division, personal communications, Nov. 2, 2011, and Mar. 08, 2012.

General aviation:

1960-65: U.S. Department of Transportation, Federal Aviation Administration *FAA Statistical Handbook of Aviation, 1969* (Washington, DC: 1969), table 9.10.
1970-75: Ibid., *Calendar Year 1976* (Washington, DC: 1976), table 8-6.
1980: Ibid., *General Aviation Activity Survey, Calendar Year 1980* (Washington, DC: 1981), table 1-3.
1985: Ibid., *Calendar Year 1985* (Washington, DC: 1987), table 2-9.
1990-2010: Ibid., *General Aviation and Air Taxi Activity Survey* (Annual Issues), table 1.2, available at http://www.faa.gov/data_research/aviation_data_statistics/general_aviation/ as of Mar. 8, 2012.

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, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Nov. 14, 2011.

Light duty vehicle, short wheel base:

2007-10: U.S. Department of Transportation, Federal Highway Administration *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

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.
1995-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues) table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

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, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Nov. 14, 2011.

Light duty vehicle, long wheel base:

2007-10: U.S. Department of Transportation, Federal Highway Administration *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

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.
1995-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues) table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

Transit:

1960-1995: American Public Transit Association, *Public Transportation Fact Book, Appendix A: Historical Tables* (Washington, DC), table 17 available at http://www.apta.com/RESOURCES/STATISTICS/Pages/transitstats.aspx as of May 3, 2010.
1996-2010: U.S. Department of Transportation, Federal Transit Administration *National Transit Database*, Annual Data Tables, table 19 (Washington, DC: Annual Issues), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Jan. 13, 2012.

Rail (all categories, except Amtrak):

1960-2010: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), pp. 52 and 69 and similar pages in earlier editions.

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.
2001-10: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in earlier editions.

Water transportation:

Nonself-propelled vessels and self-propelled vessels:

1960-2010: U.S. Army, Corps of Engineers, *Waterborne Transportation Lines of The United States, Volume 1, National Summaries* (New Orleans, LA : Annual Issues), tables 1 and 2, available at http://www.ndc.iwr.usace.army.mil/veschar/pdf/wtlusv1_09.pdf as of Mar. 8, 2012.

Oceangoing self-propelled vessels:

1960-2000: U.S. Department of Transportation, Maritime Administration *Merchant Fleets of the World* (Washington, DC: Annual issues), and unpublished revisions.
2001-09: U.S. Department of Transportation, Maritime Administration, personal communication, January 2008, June 2010, and February 2011.

Recreational boats:

1960-2010: U.S. Department of Transportation, U.S. Coast Guard, *Boating Statistics* (Washington, DC: Annual Issues), table 35, available at http://www.uscgboating.org/statistics/accident_statistics.aspx as of Jan. 25, 2012.

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
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	285	290	398	441	375
Helicopters	N	598	482	864	1,366	384	603	571	324	258	308	292	278	346	363	361	493	415	318	517	805	947	898	1,009	1,084
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	2,200	2,504	2,816	2,634	2,207	2,137	2,355	2,857	3,147	3,279	3,079
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	7,545,149	7,719,553	(R) 7,761,592	(R) 7,562,334	(R) 6,769,107
Motorcycle (new retail sales)[b]	N	N	1,125,000	940,000	1,070,000	710,000	303,000	280,000	278,000	293,000	306,000	309,000	330,000	356,000	432,000	546,000	710,000	850,000	936,000	1,001,000	1,063,000	1,149,000	1,190,000	1,124,000	879,910
Truck (factory sales)[c-d]	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	(R) 7,345,059	7,022,478	6,223,586	6,963,720	7,143,429	7,466,739	7,246,737	6,442,831	6,200,712	4,322,861
Bus; includes school bus (factory sales)[d]	U	35,241	31,994	40,530	34,385	33,533	32,731	24,058	22,484	24,549	22,409	23,918	27,583	26,882	27,483	U	U	U	U	U	U	U	U	U	U
Recreational vehicle (shipments)	N	192,830	380,300	339,600	178,500	351,700	347,300	293,700	382,700	420,200	518,800	475,200	466,800	438,800	441,300	(R) 473,800	418,300	321,000	378,700	377,800	412,100	419,500	416,800	353,500	237,000
Bicycle[e]	N	N	N	N	9,000,000	11,400,000	10,800,000	11,600,000	11,600,000	13,000,000	12,500,000	12,000,000	10,900,000	11,000,000	11,100,000	11,600,000	11,900,000	11,300,000	13,600,000	12,900,000	13,000,000	14,000,000	12,700,000	12,800,000	13,400,000
Transit cars (deliveries)																									
Motor bus[f]	2,806	3,000	1,424	5,261	4,572	5,390	5,728	5,961	4,668	6,524	9,740	9,317	9,328	10,529	9,970	11,331	11,916	15,958	10,600	11,754	9,373	10,394	10,944	15,090	16,019
Light rail	0	0	0	0	32	63	55	17	35	54	72	38	39	76	80	123	136	111	107	169	127	129	102	91	53
Heavy rail	416	580	308	127	130	441	10	6	163	260	55	72	10	34	120	122	204	751	828	470	76	50	462	394	555
Trolley bus	0	0	0	1	98	0	118	149	0	24	36	3	3	0	54	0	0	149	88	103	31	23	6	2	36
Commuter rail	214	666	302	2,165	152	179	83	187	110	8	47	38	111	198	122	132	116	54	166	338	571	476	137	118	218
Class I rail (deliveries)																									
Freight car[g]	57,047	77,822	66,185	72,392	85,920	12,080	32,063	24,678	25,761	35,239	48,819	60,853	57,877	50,396	75,685	74,223	55,791	34,260	17,714	32,184	46,871	68,612	74,729	63,156	59,954
Locomotive	389	1,387	1,029	772	1,480	522	530	472	321	504	821	928	761	743	889	709	640	710	745	587	1,121	827	922	902	819
Amtrak (deliveries)																									
Passenger train car[h]	N	N	N	109	109	0	58	0	0	0	64	76	92	10	0	157	65	7	0	0	0	0	0	0	0
Locomotive[h]	N	N	N	30	17	10	0	0	20	26	18	10	0	111	35	1	32	44	0	0	0	0	0	0	0
Water transport																									
Merchant vessel[i]	20	13	13	15	23	14	0	0	3	0	1	1	0	1	4	2	0	2	2	6	5	7	U	U	U
Recreational boat[j]	N	N	N	N	569,700	636,800	494,700	448,000	466,750	498,775	576,200	663,760	634,750	610,100	571,400	582,500	576,800	880,300	844,100	837,900	870,100	864,450	912,130	841,820	704,820

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

[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. 2008 and 2009 data are real counts based on reporting manufacturers. Previous years' data are estimates by the Motorcycle Industry Council that include nonreporting manufacturers.

[c] Includes large passenger or utility vehicles that may be considered cars in other tables.

[d] *Truck* sales for 1960 and for 1999 and later include *Buses*.

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

[f] Buses or bus-type vehicles only. Includes demand response beginning from 1985. Excludes vanpool vans and most rural and smaller systems prior to 1984. Motor bus numbers in this table are not comparable to the numbers reported in earlier editions due to changes in the methodology by the American Public Transit Association. Transit motor bus figure is also included as part of the bus total in the highway category. Data for Bus and Paratr to 2007, please see Methodology, Page iv in *2009 Public Transportation Fact Book Appendix A: Historical Tables* for details.

[g] Includes all railroads and private car owners.

[h] Data from 1985 to 1998 are actual deliveries. Data from 1999-2009 are estimates of deliveries given by active equipment by date of manufacture, a close proxy. Data from 1999-2009 exclude non-passenger cars such as auto carriers and switch engines are excluded under locomotives.

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

[j] 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).

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

	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
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**	**8,049**	**8,497**	**8,194**	**8,176**	**8,186**	**8,225**	**8,089**	**8,044**	**7,856**	**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**	**8,010**	**8,370**	**8,161**	**8,144**	**8,150**	**8,182**	**8,042**	**7,998**	**7,808**	**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**	**6,784**	**6,784**	**6,670**	**U**
Four engine	511	931	602	436	322	432	410	389	410	420	435	440	450	447	441	432	419	365	337	305	310	272	263	237	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	523	416	373	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	5,989	6,105	6,060	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**	**1,469**	**1,494**	**1,250**	**1,123**	**989**	**889**	**803**	**761**	**701**	**U**
Four engine	215	110	68	92	108	88	75	107	102	87	81	56	45	39	28	29	24	17	16	17	7	7	7	7	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	791	750	685	U
One engine	8	5	U	U	U	U	U	U	15	0	0	5	5	4	1	0	0	0	0	4	2	5	4	9	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**	**455**	**453**	**437**	**U**
Four engine	447	34	37	73	38	31	26	20	22	19	15	18	19	17	19	17	16	12	13	20	20	18	18	18	U
Three engine	590	110	69	U	4	6	5	5	0	5	1	7	4	3	3	3	3	3	3	2	2	14	15	14	U
Two engine	30	9	8	522	394	292	252	415	293	335	333	317	298	391	292	255	173	154	143	125	126	184	181	176	U
One engine	U	U	U	U	U	U	U	407	406	465	399	397	407	340	374	310	388	359	339	323	306	239	239	229	U
Helicopter	**21**	**16**	**7**	**2**	**5**	**11**	**6**	**133**	**124**	**128**	**118**	**121**	**134**	**117**	**122**	**39**	**127**	**33**	**32**	**36**	**43**	**47**	**46**	**48**	**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**	**231,607**	**228,663**	**223,877**
Fixed Wing, total[c]	**93,130**	**127,934**	**161,570**	**200,094**	**184,700**	**184,500**	**182,585**	**171,671**	**156,936**	**150,158**	**162,342**	**163,691**	**166,854**	**175,203**	**184,723**	**183,276**	**177,697**	**176,283**	**176,624**	**182,867**	**185,373**	**182,186**	**186,806**	**182,961**	**177,446**
Turbojet, total	**U**	**950**	**1,776**	**2,992**	**4,100**	**4,100**	**4,126**	**4,004**	**3,663**	**3,914**	**4,559**	**4,424**	**5,178**	**6,066**	**7,120**	**7,001**	**7,787**	**8,355**	**7,997**	**9,298**	**9,823**	**10,379**	**10,385**	**11,042**	**11,268**
Two engine[e]	U	822	1,742	2,551	3,600	3,700	3,863	3,738	3,426	3,652	4,071	4,077	4,638	5,513	6,387	6,215	5,643	7,655	7,465	8,649	9,097	10,379	U	U	U
Other[d]	U	128	34	441	50	400	263	266	237	262	488	347	539	552	733	786	831	701	532	650	727	U	U	U	U
Turboprop, total	**U**	**1,458**	**2,519**	**4,089**	**5,000**	**5,300**	**4,941**	**4,786**	**4,117**	**4,093**	**4,995**	**5,716**	**5,618**	**6,174**	**(R) 5,679**	**(R) 5,762**	**6,596**	**6,841**	**7,689**	**(R) 8,379**	**7,942**	**8,063**	**(R) 9,514**	**8,906**	**(R) 9,055**
Two engine[e]	U	1,287	2,486	3,966	4,900	4,900	4,415	4,187	3,443	3,605	4,295	4,917	4,939	5,076	4,641	5,040	5,643	5,703	5,790	5,858	5,307	5,487	5,456	5,456	5,096
One engine	U	138	33	U	U	U	U	U	650	481	668	719	650	1,033	1,018	678	915	1,108	1,821	2,468	2,595	2,576	4,059	3,450	3,958
Other	U	33	U	123	100	400	526	599	24	7	32	80	29	65	21	45	38	30	78	54	40	U	U	U	U
Piston, total	**92,556**	**125,526**	**157,275**	**193,013**	**175,600**	**175,200**	**173,518**	**162,880**	**149,156**	**142,152**	**152,788**	**153,551**	**156,055**	**162,963**	**(R) 171,923**	**170,513**	**(R) 163,314**	**161,087**	**160,938**	**165,189**	**167,608**	**(R) 163,743**	**(R) 166,907**	**(R) 163,013**	**157,123**
Two engine[e]	11,422	15,835	20,331	24,366	22,100	21,100	20,551	17,966	15,626	14,750	15,706	16,082	15,938	18,659	20,930	20,951	18,192	17,483	17,491	18,469	19,412	18,708	19,337	17,515	16,474
One engine	81,134	109,492	136,944	168,435	153,400	154,000	152,836	144,837	133,516	127,351	137,049	137,401	140,038	144,234	150,886	149,422	145,034	143,503	143,265	146,613	148,101	145,036	147,569	145,497	140,649
Other	U	199	U	212	100	100	131	77	14	51	33	68	79	70	108	140	89	101	182	107	95	U	U	U	U
Rotorcraft, total	**1,503**	**2,255**	**4,073**	**6,001**	**6,000**	**6,900**	**6,238**	**5,979**	**4,721**	**4,728**	**5,830**	**6,570**	**6,786**	**7,425**	**7,448**	**7,150**	**6,783**	**6,648**	**6,525**	**7,821**	**8,728**	**9,159**	**9,567**	**9,876**	**9,984**
Piston	U	1,666	2,499	2,794	2,700	3,200	2,390	2,348	1,846	1,627	1,863	2,507	2,259	2,545	2,564	2,680	2,292	2,351	2,123	2,315	3,039	3,264	2,769	3,498	3,499
Turbine, total	U	589	1,574	3,207	3,300	3,700	3,848	3,631	2,875	3,101	3,967	4,063	4,526	4,881	4,884	4,470	4,491	4,297	4,403	5,506	(R) 5,688	5,895	6,798	6,378	6,485
Multiengine	U	U	U	U	U	U	U	U	629	616	733	643	764	843	839	694	884	686	853	1,130	1,151	1,268	1,367	1,371	1,520
One engine	U	589	U	U	U	U	U	U	2,246	2,485	3,234	3,420	3,762	4,038	4,045	3,776	3,607	3,611	3,550	4,376	4,537	4,627	5,431	5,007	4,965
Other Aircraft, total	**809**	**1,554**	**2,832**	**4,945**	**5,800**	**6,600**	**8,051**	**8,000**	**5,037**	**5,907**	**4,741**	**4,244**	**4,091**	**5,580**	**(R) 6,765**	**(R) 6,700**	**6,545**	**6,377**	**6,008**	**5,939**	**6,454**	**(R) 6,277**	**5,940**	**5,652**	**5,480**
Gliders	U	U	U	U	U	U	U	U	1,814	2,976	2,182	1,934	2,016	2,105	2,041	2,041	1,904	1,951	2,002	2,116	2,074	1,975	1,947	1,914	1,808
Lighter-than-Air	U	U	U	U	U	U	U	U	3,223	2,931	2,559	2,310	2,075	3,475	4,725	4,660	4,641	4,426	4,006	3,823	4,380	4,303	3,993	3,738	3,672
Experimental, total	**U**	**U**	**U**	**U**	**U**	**U**	**U**	**U**	**10,426**	**12,144**	**15,176**	**16,625**	**14,680**	**16,502**	**20,528**	**20,407**	**20,421**	**21,936**	**20,550**	**22,800**	**23,627**	**23,047**	**23,228**	**23,364**	**24,419**
Amateur Built	U	U	U	U	U	U	U	U	6,171	8,833	9,328	11,566	10,261	13,189	16,858	16,739	16,736	18,168	17,028	19,165	19,817	19,316	19,538	19,767	20,794
Exhibition	U	U	U	U	U	U	U	U	1,868	637	2,245	2,094	1,798	1,630	1,999	1,973	2,052	2,190	2,031	2,070	2,120	2,103	2,101	2,096	2,063
Other	U	U	U	U	U	U	U	U	2,387	2,674	3,603	2,965	2,620	1,684	1,671	1,694	1,633	1,578	1,491	1,565	1,691	1,629	1,589	1,501	1,562

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

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

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

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

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

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

NOTES

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

Details may not add up to totals due to rounding in the source.

SOURCES

Air carriers:

1965: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation, 1966 Edition.* (Washington, DC: 1966), table 7.5.

1970: Ibid., *Calendar Year 1971.* (Washington, DC: 1972), table 5.5.

1975: Ibid., *Calendar Year 1975.* (Washington, DC: Dec. 31, 1975), table 5.3.

1980: Ibid., *Calendar Year 1980.* (Washington, DC: Dec. 31, 1980), table 5.2.

1985: Ibid., *Calendar Year 1993.* FAA-APO-95-5 (Washington, DC: 1995), table 5.2.

1990-94: Ibid., *Calendar Year 1996, available at* http://www.api.faa.gov/handbook96/toc96.htm as of Mar. 31, 2000, table 5.2.

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

General aviation:

1965: U.S. Department of Transportation, Federal Aviation Administration, *FAA Statistical Handbook of Aviation, 1966 Edition.* (Washington, DC: 1966), table 5.1.

1970: Ibid., *Calendar Year 1971.* (Washington, DC: 1972), table 8.3.

1975: Ibid., *Calendar Year 1975.* (Washington, DC: Dec. 31, 1975), table 8.4.

1980: Ibid., *General Aviation Activity and Avionics Survey, Annual Report Calendar Year 1980,* FAA-MS-81-5 (Washington, DC: December 1985), table 2-6.

1985: Ibid., *Annual Summary Report 1994 Data,* FAA-APO-95-10 (Washington, DC: 1996), table 1.2.

1990: Ibid., *General Aviation and Air Taxi Activity Survey, Calendar Year 1999* (Washington, DC: 2001), table 1.2.

1991: Ibid., *General Aviation and Air Taxi Activity Survey, Calendar Year 2002* (Washington, DC: 2004), table 1.2.

1992-2010: Ibid., *General Aviation and Air Taxi Activity Survey* (Washington, Annual Issue), table 1.2, available at http://www.faa.gov/data_research/aviation_data_statistics/general_aviation/ as of Jul. 11, 2012.

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]	2006[e]	2007[e]	2008[e]	2009[e]	2010[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**	**12,538**	**12,132**	**11,211**	**10,865**	**11,550**
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**	**5,662**	**5,441**	**4,882**	**4,804**	**5,291**
Automobiles in fleets of 25 or more (10 or more cars for 1999-2001 and 15 or more cars for 2002-10)[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	927	891	791	741	804
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	1,237	1,263	1,299	1,352	1,330
Utilities	551	544	548	386	382	376	376	377	359	320	317	U[f]	U[f]	U[f]	U[f]	U[f]	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	414	420	432	417	424
Taxi (includes vans)	141	141	140	140	141	139	130	181	190	135	136	142	148	148	156	162	169	172	175	159	155
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	1,595	1,440	1,289	1,175	1,553
Automobiles in fleets of 4 to 24 (4 to 9 cars for 1999-2001 and 5 to 14 cars for 2002-10)[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**	**1,320**	**1,255**	**896**	**960**	**1,025**
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**	**6,876**	**6,691**	**6,329**	**6,061**	**6,259**
Trucks in fleets of 25 or more (10 or more trucks for 1999-2001 and 15 or more cars for 2002-10)[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	2,411	2,306	2,224	1,999	2,136
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	1,673	1,704	1,701	1,751	1,684
Utilities	U	U	593	493	487	480	482	483	459	499	498	U[f]	U[f]	U[f]	U[f]	U[f]	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	49	46	59	55	58
Rental trucks (not including vans and SUVs)	U	U	304	308	363	202	197	179	181	213	248	246	251	289	492	521	540	490	381	380	391
Trucks in fleets of 4 to 24 (4 to 9 trucks for 1999-2001 and 5 to 14 cars from 2002-10)[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**	**2,203**	**2,145**	**1,964**	**1,875**	**1,990**

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] 2001-2010 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 to 2010 issues of the *Automotive Fleet Fact Book*.

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

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Production, total	**7,894**	**11,114**	**8,263**	**8,965**	**8,011**	**11,638**	**9,767**	**8,790**	**9,691**	**10,855**	**12,239**	**11,995**	**11,830**	**12,131**	**12,003**	**13,025**	**12,774**	**11,425**	**12,280**	**12,087**	**11,960**	**11,947**	**11,260**	**10,752**	**8,672**	**5,709**	**7,743**	**8,655**
Passenger cars	6,696	9,329	6,546	6,706	6,372	8,186	6,078	5,440	5,667	5,982	6,601	6,326	6,035	5,878	5,492	5,578	5,471	4,808	4,957	4,453	4,166	4,266	4,312	3,867	3,731	2,196	2,731	2,976
Commercial vehicles[a]	1,198	1,785	1,717	2,260	1,638	3,452	3,690	3,350	4,025	4,873	5,638	5,669	5,795	6,252	6,510	7,447	7,303	6,617	7,322	7,634	7,794	7,681	6,949	6,885	4,941	3,514	5,012	5,679
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**	**12,773**	**12,527**	**11,108**	**U**	**U**	**U**	**U**	**U**	**U**	**U**	**U**	**U**	**U**
Passenger cars	6,675	9,306	6,547	6,713	6,400	8,002	6,050	5,407	5,685	5,962	6,549	6,310	6,140	6,070	5,677	5,428	5,504	4,884	U	U	U	U	U	U	U	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	7,345	7,022	6,224	6,964	7,143	7,467	7,247	6,443	6,201	4,323	3,107	4,132	4,642

KEY: U = data are unavailable.

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

NOTES

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

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

SOURCE

WardsAuto.com, *Motor Vehicle Facts & Figures*, (Southfield, MI: Annual Issues), pp. 3 and 9, and similar pages in earlier editions.

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

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total new passenger car sales	**8,400**	**8,624**	**8,949**	**10,979**	**9,303**	**8,185**	**8,213**	**8,518**	**8,991**	**8,620**	**8,479**	**8,217**	**8,085**	**8,638**	**8,778**	**8,352**	**8,042**	**7,556**	**7,483**	**7,660**	**7,762**	**7,562**	**6,769**	**5,401**	**5,635**	**6,089**
Domestic[b]	**7,119**	**7,053**	**6,580**	**8,205**	**6,919**	**6,162**	**6,286**	**6,742**	**7,255**	**7,114**	**7,206**	**6,862**	**6,705**	**6,919**	**6,762**	**6,254**	**5,817**	**5,473**	**5,333**	**5,473**	**5,417**	**5,197**	**4,491**	**3,558**	**3,792**	**4,240**
Imports	**1,280**	**1,572**	**2,369**	**2,775**	**2,384**	**2,023**	**1,927**	**1,776**	**1,735**	**1,506**	**1,272**	**1,355**	**1,380**	**1,719**	**2,016**	**2,098**	**2,226**	**2,083**	**2,149**	**2,187**	**2,345**	**2,365**	**2,278**	**1,843**	**1,844**	**1,850**
Japan	313	808	1,894	2,171	1,719	1,500	1,452	1,328	1,239	982	727	726	691	758	863	837	930	830	810	923	1,154	1,183	1,142	829	799	806
Germany	750	493	292	408	263	193	201	186	192	207	237	297	367	467	517	523	547	544	542	534	575	582	507	407	482	522
Other	217	271	184	196	402	330	275	262	303	317	308	332	322	494	637	738	749	709	797	729	616	600	630	606	563	522

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

NOTE

Numbers may not add to totals due to rounding.

SOURCES

1970: American Automobile Manufacturers Association, *Motor Vehicle Facts & Figures 1992* (Detroit, MI: 1992), p. 16.
1980-2011: WardsAuto.com, *Motor Vehicle Facts & Figures* (Southfield, MI: Annual Issues), pp. 17, 25, and similar pages in earlier editions..

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

	(R) 1990	(R) 1991	(R) 1992	(R) 1993	(R) 1994	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	2010
Total, vehicle sales and leases	52,484	50,904	51,142	54,049	58,285	59,838	59,481	60,177	60,911	63,159	64,320	64,434	63,773	63,644	62,839	64,626	62,744	61,562	52,845	48,545	51,434
New vehicle sales and leases	14,954	13,614	14,192	15,992	18,144	18,080	18,680	18,940	20,070	22,420	22,700	21,810	20,748	20,072	20,294	20,488	20,178	20,143	16,315	13,053	14,550
Passenger cars	10,280	9,320	9,530	10,220	11,230	10,730	10,550	10,510	10,990	11,410	11,710	11,060	10,250	9,860	10,100	9,942	10,118	9,943	8,833	7,193	7,530
Light trucks	4,674	4,294	4,662	5,772	6,914	7,350	8,130	8,430	9,080	11,010	10,990	10,750	10,498	10,212	10,194	10,546	10,060	10,200	7,482	5,860	7,020
New vehicle sales	13,890	12,360	12,470	13,510	14,920	14,700	14,900	15,100	15,560	16,960	17,410	17,250	16,800	16,670	16,850	16,990	16,460	16,230	13,300	10,550	11,580
Passenger cars	9,300	8,200	8,200	8,500	9,000	8,500	8,200	8,200	8,200	8,750	9,000	8,550	8,300	8,050	8,220	8,020	8,150	8,060	7,110	5,850	5,980
Light trucks	4,590	4,160	4,270	5,010	5,920	6,200	6,700	6,900	7,360	8,210	8,410	8,700	8,500	8,620	8,630	8,970	8,310	8,170	6,190	4,700	5,600
New vehicle leases	1,064	1,254	1,722	2,482	3,224	3,380	3,780	3,840	4,510	5,460	5,290	4,560	3,948	3,402	3,444	3,498	3,718	3,913	3,015	2,503	2,970
Passenger cars	980	1,120	1,330	1,720	2,230	2,230	2,350	2,310	2,790	2,660	2,710	2,510	1,950	1,810	1,880	1,922	1,968	1,883	1,723	1,343	1,550
Light trucks	84	134	392	762	994	1,150	1,430	1,530	1,720	2,800	2,580	2,050	1,998	1,592	1,564	1,576	1,750	2,030	1,292	1,160	1,420
Used vehicle sales[a]	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	41,419	36,530	35,492	36,884
Value ($ in billions)[b]																					
Total, new and used vehicle sales	447	437	486	524	582	611	627	642	651	698	736	737	721	738	765	776	786	774	643	575	635
New vehicle sales	227	208	240	267	291	292	298	306	316	348	380	369	371	382	407	421	445	435	351	274	311
Used vehicle sales	220	229	246	257	291	319	329	336	335	350	356	367	350	356	358	355	341	339	292	301	324
Average price (current $)[b]																					
New and used vehicle sales	8,691	8,813	9,759	10,078	10,543	10,818	11,221	11,385	11,545	12,098	12,469	12,321	12,034	12,253	12,868	12,695	13,287	13,451	12,909	12,518	13,105
New vehicle sales	16,350	16,880	18,655	19,200	19,335	19,819	19,727	20,214	20,276	20,534	21,850	21,507	22,005	22,894	24,082	24,796	26,854	26,950	26,477	26,245	26,850
Used vehicle sales	5,857	6,143	6,656	6,742	7,245	7,644	8,073	8,139	8,211	8,587	8,547	8,619	8,130	8,180	8,410	8,036	8,009	8,186	7,986	8,483	8,786

KEY: R = revised.

[a] *Used vehicle sales* include sales from franchised dealers, independent dealers, and casual sales.
[b] Excludes leased vehicles.

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

Components may not add to totals due to rounding.

SOURCES
New vehicle sales and leases:
CNW Research, personal communication, Mar. 22, 2011.
Used vehicle sales, value, and average price:
Manheim Consulting, personal communication, Mar. 15, 2011.

Table 1-18: Retail Sales 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	2005	2006	2007	2008	(R) 2009	(R) 2010	(R) 2011	2012
Total sales of new cars	9,333	8,403	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	8,103	7,611	7,545	7,720	7,821	7,618	6,814	5,456	5,729	6,194	7,360
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	3,981	4,388	4,678	4,629	4,523	4,341	4,275	4,335	4,330	4,113	3,759	3,231	2,934	3,311	3,930
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	3,950	3,570	3,374	3,074	3,078	3,169	3,239	3,255	2,820	2,039	2,635	2,725	3,321
Government	90	94	123	124	133	147	103	119	190	207	241	225	199	218	232	224	223	206	195	192	216	252	251	234	186	160	158	108
Percentage of total sales																												
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	52.8	55.0	55.8	57.0	56.7	56.2	55.4	54.0	55.2	59.2	51.2	53.5	53.4
Business	22.9	24.5	29.4	30.7	34.2	37.4	44.6	43.0	43.1	46.5	47.1	49.5	50.4	48.4	46.9	44.6	42.4	41.6	40.4	40.8	41.0	41.4	42.7	41.4	37.4	46.0	44.0	45.1
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	2.5	2.8	3.2	3.3	3.4	3.4	2.8	2.6	1.5

KEY: R = revised.

NOTES

This table includes imported cars, but not vans, trucks, or sport utility vehicles.

Numbers may not add to totals due to rounding.

Annual numbers are calculated by averaging monthly data.

Government sales are determined by subtracting the consumer and business sales from total sales.

The data is seasonally adjusted at annual rates.

SOURCES

1965: U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Wealth Division, unpublished data.

1970-2011: Ibid., *Underlying Detail for the National Income and Product Account Tables* , table 7.2.5S, available at http://www.bea.gov/ as of Feb. 13, 2013.

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

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	(R) 2010	(R) 2011	2012
Total U.S. sales[a] of hybrid vehicles	17	9,350	20,282	22,335	47,566	84,199	205,828	253,518	352,862	315,688	290,740	274,105	261,507	431,798
Domestic[b]	0	0	0	0	0	2,993	15,960	24,198	77,629	86,082	81,882	64,567	44,685	114,291
Imports	17	9,350	20,282	22,335	47,566	81,206	189,868	229,320	275,233	229,606	208,858	209,538	216,822	317,507

KEY: R = revised.

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

NOTE

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

SOURCE
WardsAuto.com, Ward's Automotive Group, personal communications, Jan. 18, 2012, and Jan. 23, 2013.

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

	(R) 1980	(R) 1985	(R) 1990	(R) 1991	(R) 1992	(R) 1993	(R) 1994	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010
Sales																							
TOTAL units	**9,448**	**10,895**	**8,882**	**8,755**	**8,361**	**8,941**	**8,747**	**9,708**	**8,379**	**8,897**	**8,570**	**9,019**	**9,899**	**9,549**	**9,484**	**8,937**	**8,649**	**9,088**	**9,070**	**9,345**	**8,546**	**6,368**	**7,147**
Small Cars	4,825	5,519	4,999	5,032	4,440	4,537	4,720	5,190	4,197	4,443	3,842	3,919	4,266	4,065	3,801	3,669	3,275	3,185	3,197	3,217	2,857	2,246	2,507
Midsize Cars	2,987	2,777	2,342	2,114	2,120	2,330	2,057	2,515	2,359	2,399	2,967	3,141	2,894	2,480	2,807	2,483	2,522	2,886	2,413	3,083	2,486	1,859	2,261
Large Cars	963	1,512	1,092	1,012	1,241	1,104	1,277	1,305	1,066	1,195	912	1,059	1,665	1,416	1,252	1,261	1,185	1,234	1,570	1,174	1,407	955	832
Small Wagons	310	496	160	209	143	302	206	198	90	149	98	78	68	212	236	338	300	365	493	389	420	434	450
Midsize Wagons	257	342	184	122	137	166	138	176	169	149	153	181	234	236	208	171	158	238	220	150	136	64	8
Large Wagons	102	146	31	34	27	19	16	10	9	0	0	0	0	0	0	0	98	118	102	73	23	3	0
Small Non-truck SUVs	0	0	27	47	48	48	62	25	41	106	83	66	131	145	116	60	49	45	0	11	6	2	3
Midsize Non-truck SUVs	4	104	46	184	205	437	270	288	447	441	462	516	575	821	682	759	855	737	801	873	925	609	689
Midsize Non-truck SUVs	0	0	0	0	0	0	0	0	0	14	53	57	65	174	382	195	207	278	276	376	286	194	397
Market share, percent																							
Small Cars	51.1	50.7	56.3	57.5	53.1	50.7	54.0	53.5	50.1	49.9	44.8	43.5	43.1	42.6	40.1	41.1	37.9	35.1	35.2	34.4	33.4	35.3	35.1
Midsize Cars	31.6	25.5	26.4	24.1	25.4	26.1	23.5	25.9	28.2	27.0	34.6	34.8	29.2	26.0	29.6	27.8	29.2	31.8	26.6	33.0	29.1	29.2	31.6
Large Cars	10.2	13.9	12.3	11.6	14.8	12.3	14.6	13.4	12.7	13.4	10.6	11.7	16.8	14.8	13.2	14.1	13.7	13.6	17.3	12.6	16.5	15.0	11.6
Small Wagons	3.3	4.6	1.8	2.4	1.7	3.4	2.4	2.0	1.1	1.7	1.1	0.9	0.7	2.2	2.5	3.8	3.5	4.0	5.4	4.2	4.9	6.8	6.3
Midsize Wagons	2.7	3.1	2.1	1.4	1.6	1.9	1.6	1.8	2.0	1.7	1.8	2.0	2.4	2.5	2.2	1.9	1.8	2.6	2.4	1.6	1.6	1.0	0.1
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	1.1	1.3	1.1	0.8	0.3	0.0	0.0
Small Non-truck SUVs	0.0	0.0	0.3	0.5	0.6	0.5	0.7	0.3	0.5	1.2	1.0	0.7	1.3	1.5	1.2	0.7	0.6	0.5	0.0	0.1	0.1	0.0	0.0
Midsize Non-truck SUVs	0.0	1.0	0.5	2.1	2.4	4.9	3.1	3.0	5.3	5.0	5.4	5.7	5.8	8.6	7.2	8.5	9.9	8.1	8.8	9.3	10.8	9.6	9.6
Midsize Non-truck SUVs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.6	0.7	1.8	4.0	2.2	2.4	3.1	3.0	4.0	3.3	3.1	5.6
Fuel economy, mpg																							
Fleet	23.5	26.9	27.7	27.8	27.4	27.6	27.7	28.0	27.7	27.9	27.9	27.6	27.5	27.6	27.7	28.2	28.1	28.8	28.6	29.5	29.8	31.4	32.3
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	30.7	30.5	31.1	31.1	31.7	31.7	33.5	34.1
Midsize Cars	21.6	24.9	26.2	26.0	25.8	26.1	25.9	26.1	26.5	26.5	27.1	27.1	27.0	27.2	27.7	28.3	28.7	29.8	29.6	31.2	31.4	32.5	34.1
Large Cars	19.1	22.3	23.7	23.6	23.8	24.2	24.1	24.4	24.3	24.5	24.6	24.8	25.6	25.4	26.0	26.0	26.0	26.4	26.0	26.0	27.3	28.4	28.3
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	32.4	31.4	31.7	32.3	33.6	34.1
Midsize Wagons	21.1	25.2	25.3	25.9	26.2	26.2	26.0	26.6	26.3	26.3	26.2	26.3	27.3	26.6	27.4	27.2	26.4	26.0	26.4	27.3	26.7	28.1	28.6
Large Wagons	19.1	20.9	22.7	22.9	22.7	22.5	22.9	22.8	23.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.0	22.2	21.9	21.9	21.8	21.4	0.0
Small Non-truck SUVs	0.0	0.0	23.4	22.8	23.3	23.0	25.0	29.2	29.3	27.8	25.5	27.1	23.3	26.7	26.7	29.0	29.2	29.9	0.0	21.8	21.8	21.9	21.9
Midsize Non-truck SUVs	16.3	21.4	21.0	21.4	20.9	20.2	21.2	20.6	20.7	20.7	21.5	22.0	21.7	22.6	22.7	23.6	23.7	24.5	25.2	26.3	27.0	28.0	28.9
Midsize Non-truck SUVs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.1	18.5	20.7	18.0	17.7	20.9	20.7	21.2	22.3	23.4	23.6	23.1	23.6	24.8	27.3

KEY: mpg = miles per gallon; R = revised; SUV = sport utility vehicle..

NOTE

Numbers may not add to totals due to rounding.

This table is not comparable to previous editions due to changes in automobile categories in the source.

SOURCE

U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, *Transportation Energy Data Book* , Edition 31, table 4.7 (Oak Ridge, TN), available at http://cta.ornl.gov/data/index.shtml as of Aug. 17, 2012.

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

	(R) 1980	(R) 1985	(R) 1990	(R) 1991	(R) 1992	(R) 1993	(R) 1994	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010
Sales[a]																							
TOTAL units	**1,859**	**3,564**	**3,733**	**3,818**	**3,811**	**4,269**	**5,378**	**5,436**	**4,766**	**5,562**	**5,887**	**6,200**	**6,675**	**6,061**	**6,635**	**6,838**	**7,061**	**6,806**	**6,035**	**5,932**	**5,354**	**2,867**	**3,964**
Small Pickups	452	497	289	309	252	263	358	298	221	131	260	213	101	81	197	194	162	8	7	0	0	0	0
Midsize Pickups	98	617	600	873	716	743	1,040	700	698	690	829	761	766	545	466	527	378	216	274	264	277	184	153
Large Pickups	887	965	945	738	872	996	1,271	1,273	1,036	1,588	1,326	1,571	1,746	1,893	1,717	1,753	1,967	2,076	1,906	1,850	1,517	805	1,123
Small Vans	16	93	31	15	40	12	11	6	2	0	0	0	0	0	0	0	0	0	0	0	16	22	20
Midsize Vans	130	600	1,124	943	1,088	1,323	1,295	1,552	1,298	1,126	1,357	1,293	1,522	939	1,132	1,121	893	1,426	1,096	816	746	331	524
Large Vans	96	162	107	76	93	107	112	104	110	139	132	171	170	294	112	111	60	55	70	32	27	15	15
Small SUV	61	115	163	89	81	96	126	164	79	383	232	249	269	246	239	204	206	170	132	134	145	54	95
Midsize SUV	96	458	401	720	595	601	996	1,109	1,081	960	1,162	1,246	1,288	1,123	1,120	1,362	1,647	1,342	1,316	1,274	1,309	807	1,156
Large SUV	24	57	72	54	75	129	170	230	241	545	589	697	814	941	1,652	1,565	1,748	1,512	1,232	1,564	1,316	648	877
Market share, percent																							
Small Pickups	24.3	13.9	7.7	8.1	6.6	6.2	6.7	5.5	4.6	2.3	4.4	3.4	1.5	1.3	3.0	2.8	2.3	0.1	0.1	0.0	0.0	0.0	0.0
Midsize Pickups	5.3	17.3	16.1	22.9	18.8	17.4	19.3	12.9	14.7	12.4	14.1	12.3	11.5	9.0	7.0	7.7	5.4	3.2	4.5	4.4	5.2	6.4	3.9
Large Pickups	47.7	27.1	25.3	19.3	22.9	23.3	23.6	23.4	21.7	28.5	22.5	25.3	26.2	31.2	25.9	25.6	27.9	30.5	31.6	31.2	28.3	28.1	28.3
Small Vans	0.8	2.6	0.8	0.4	1.1	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.8	0.5
Midsize Vans	7.0	16.8	30.1	24.7	28.5	31.0	24.1	28.5	27.2	20.3	23.0	20.8	22.8	15.5	17.1	16.4	12.7	20.9	18.2	13.7	13.9	11.5	13.2
Large Vans	5.2	4.6	2.9	2.0	2.4	2.5	2.1	1.9	2.3	2.5	2.2	2.8	2.5	4.9	1.7	1.6	0.8	0.8	1.2	0.5	0.5	0.5	0.4
Small SUV	3.3	3.2	4.4	2.3	2.1	2.2	2.3	3.0	1.7	6.9	3.9	4.0	4.0	4.1	3.6	3.0	2.9	2.5	2.2	2.3	2.7	1.9	2.4
Midsize SUV	5.2	12.9	10.7	18.9	15.6	14.1	18.5	20.4	22.7	17.3	19.7	20.1	19.3	18.5	16.9	19.9	23.3	19.7	21.8	21.5	24.4	28.2	29.2
Large SUV	1.3	1.6	1.9	1.4	2.0	3.0	3.2	4.2	5.1	9.8	10.0	11.2	12.2	15.5	24.9	22.9	24.8	22.2	20.4	26.4	24.6	22.6	22.1
Fuel Economy, mpg																							
Fleet	**18.6**	**20.6**	**20.7**	**21.2**	**20.8**	**21.0**	**20.7**	**20.5**	**20.8**	**20.5**	**20.8**	**20.3**	**20.7**	**20.2**	**20.3**	**20.6**	**20.4**	**21.0**	**21.3**	**21.5**	**22.1**	**23.0**	**23.4**
Small Pickups	24.3	26.7	24.8	25.0	24.6	26.3	24.9	24.4	24.6	24.9	24.5	23.2	26.3	26.5	23.2	23.2	22.6	25.8	26.9	NA	NA	NA	NA
Midsize Pickups	25.9	25.7	24.7	24.6	23.8	23.7	24.0	24.7	24.8	24.2	23.9	22.5	22.8	21.8	21.1	22.8	21.8	23.6	24.1	23.5	24.0	24.6	24.9
Large Pickups	17.2	17.7	18.0	18.2	18.3	18.7	18.4	18.0	18.2	18.9	18.6	18.5	19.3	18.9	18.7	18.9	19.0	19.4	19.6	19.7	20.0	20.3	20.5
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	30.7	30.3	30.7
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	24.4	24.7	24.9	25.0
Large Vans	16.0	16.1	16.5	16.7	16.9	17.0	17.0	17.1	17.1	18.6	18.3	17.9	18.0	17.7	17.9	18.7	19.4	19.4	19.4	19.8	20.1	20.0	20.1
Small SUV	18.8	22.1	23.4	24.1	23.5	23.4	23.7	23.6	28.1	21.7	23.2	23.4	22.2	23.9	23.9	24.3	23.8	23.2	21.5	22.4	22.8	20.6	21.8
Midsize SUV	14.2	19.4	18.9	19.9	19.5	19.9	19.4	19.4	19.8	20.3	20.5	20.6	20.7	21.0	21.3	21.8	21.9	22.2	22.8	23.7	24.5	25.9	26.9
Large SUV	14.3	16.9	16.7	16.2	15.7	16.3	16.4	16.6	17.3	17.5	17.1	17.2	17.6	18.2	18.8	18.5	18.5	19.4	19.8	20.5	20.8	22.2	22.6

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

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

NOTE

Includes light trucks 8,500 lbs. or less. 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 30, table 4.10 (Oak Ridge, TN), available at http://cta.ornl.gov/data/index.shtml as of Aug. 17, 2012.

Table 1-22: Number of Trucks by Weight

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

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

NOTES

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

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

SOURCES

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

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

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

Passenger cars[a]

	1961	1971	1981	1991	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total world	**11,391**	**26,453**	**27,407**	**35,288**	**35,717**	**36,100**	**37,318**	**38,481**	**37,286**	**38,816**	**40,732**	**40,144**	**41,215**	**41,782**	**42,832**	**44,892**	**48,136**	**49,997**	**48,788**	**42,296**	**50,938**
U.S. percent of world	**48.5**	**32.5**	**22.8**	**15.4**	**18.5**	**17.5**	**16.2**	**15.3**	**14.7**	**14.4**	**13.4**	**12.0**	**12.0**	**10.7**	**9.7**	**9.5**	**9.0**	**7.7**	**7.6**	**5.2**	**5.4**
Argentina	78	193	139	114	338	227	269	366	353	225	239	170	111	110	171	183	263	351	400	380	516
Australia	182	393	352	269	323	314	303	320	350	294	324	286	307	366	341	320	298	306	286	188	205
Austria	8	1	7	14	45	59	97	98	91	124	116	131	131	119	227	231	248	200	125	57	86
Belgium	U	279	216	253	409	386	368	356	319	218	912	1,059	937	792	852	895	882	790	680	525	528
Brazil	98	342	406	705	1,248	1,297	1,459	1,680	1,244	1,102	1,348	1,482	1,521	1,505	1,756	2,009	2,092	2,388	2,561	2,578	2,828
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	1,407	1,428	1,342	1,195	822	967
China	U	U	U	81	250	321	382	482	507	570	620	704	1,091	2,019	2,316	3,586	5,161	5,185	4,971	7,322	9,494
Czech Republic[c]	59	149	181	173	174	208	263	321	368	348	428	457	441	436	443	599	849	926	933	968	1,070
France	988	2,694	2,612	3,188	3,175	3,051	3,148	2,259	2,603	2,676	2,883	3,182	3,284	3,220	2,913	3,113	2,728	2,551	2,145	1,815	1,914
Germany	1,802	3,829	3,758	4,677	4,094	4,360	4,540	4,678	5,348	5,310	4,803	5,301	4,799	5,145	5,192	5,350	5,399	5,709	5,532	4,965	5,552
India	22	42	42	179	237	330	396	410	384	519	514	548	706	907	940	999	1,186	1,377	1,507	1,781	2,317
Italy	694	1,701	1,257	1,633	1,341	1,422	1,318	1,563	1,402	1,410	1,422	1,272	1,126	1,026	834	726	893	911	659	661	573
Japan	250	3,718	6,974	9,753	7,802	7,611	7,864	8,491	8,056	8,100	8,363	8,118	8,619	8,478	8,720	9,017	9,757	9,945	9,916	6,862	8,307
Malaysia	U	U	U	102	137	164	176	280	126	200	280	345	U	U	U	U	U	U	U	U	U
Mexico	U	154	355	720	857	699	798	855	953	994	1,130	1,001	960	774	782	846	1,098	1,209	1,217	943	1,386
Netherlands	13	78	78	85	92	100	145	197	243	262	215	189	182	163	188	115	87	62	59	51	48
Poland	14	86	248	168	349	347	353	295	460	651	533	367	287	285	516	527	609	762	864	833	799
Portugal	U	U	U	U	38	41	119	186	181	187	191	177	183	166	151	138	143	134	132	102	115
Romania	U	U	U	84	85	71	76	108	104	88	58	57	U	U	U	U	U	U	U	U	U
Russia	149	518	1,324	1,308	796	838	868	982	U	946	966	1,022	981	1,010	1,110	1,068	1,176	1,293	1,470	596	1,208
Slovakia	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	218	295	571	576	463	563
South Africa	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	325	334	276	321	223	295
South Korea	U	U	69	1,158	1,806	2,003	2,265	2,308	1,625	2,362	2,602	2,471	2,651	2,768	2,054	2,195	2,298	2,509	2,436	2,375	2,792
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	2,174	2,187	2,309	2,014	1,827	1,951
Sweden	110	287	258	269	353	388	368	376	368	385	260	248	238	280	290	289	289	317	252	129	177
Taiwan	U	U	U	266	291	282	265	268	293	255	265	195	245	265	300	324	211	213	139	184	U
Turkey	U	13	25	196	213	233	208	243	U	U	297	175	204	294	447	454	546	635	622	511	603
United Kingdom	1,004	1,742	955	1,237	1,467	1,532	1,686	1,698	1,748	1,787	1,629	1,492	1,628	1,658	1,647	1,596	1,442	1,535	1,448	999	1,274
United States	5,522	8,584	6,253	5,440	6,601	6,326	6,035	5,878	5,492	5,578	5,471	4,808	4,957	4,453	4,166	4,266	4,312	3,867	3,731	2,196	2,731
Venezuela	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	95	102	113	78	59	61
Yugoslavia, Federal Republic of[c]	15	114	240	213	8	8	9	11	U	U	U	U	U	U	U	U	U	U	U	U	U

Commercial vehicles[d]

	1961	1971	1981	1991	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total world	**3,809**	**6,948**	**9,729**	**11,974**	**13,941**	**13,946**	**14,178**	**14,993**	**14,807**	**16,132**	**16,799**	**16,181**	**17,757**	**18,549**	**21,131**	**21,193**	**20,988**	**22,643**	**20,796**	**17,957**	**25,211**
U.S. percent of world	**29.7**	**30.1**	**17.4**	**28.0**	**40.4**	**40.7**	**40.9**	**41.7**	**44.0**	**46.2**	**43.5**	**40.9**	**41.2**	**41.2**	**36.9**	**36.2**	**33.1**	**30.4**	**23.8**	**19.6**	**19.9**
Argentina	58	60	33	25	70	59	44	80	105	80	101	66	48	60	89	137	169	194	198	133	208
Australia	49	77	40	15	31	17	19	29	34	17	25	34	37	48	64	69	30	26	39	35	34
Austria	5	6	8	6	3	9	9	10	12	16	25	24	20	21	21	23	27	28	25	16	19
Belgium	1	17	41	84	70	82	69	74	87	74	121	129	119	113	43	31	36	45	44	13	26
Brazil	47	174	374	255	334	332	346	388	329	242	323	316	271	322	454	519	519	582	659	608	820
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	1,281	1,144	1,237	887	668	1,101
China	U	U	U	628	1,103	1,114	1,084	1,096	1,121	1,235	1,389	1,628	2,160	2,425	2,754	2,082	2,405	3,700	4,263	6,327	8,771
Czech Republic[b]	17	28	49	29	6	8	9	47	42	27	27	8	6	5	5	5	6	13	13	7	7
France	217	316	408	423	383	424	443	322	351	357	469	447	409	400	439	436	446	465	423	228	305
Germany	411	312	358	358	262	307	303	345	379	378	395	390	346	361	378	408	421	504	514	245	354
India	32	47	107	176	238	306	366	336	129	261	282	277	186	254	571	643	772	873	809	861	1,237
Italy	65	116	176	245	194	245	227	254	290	291	316	308	301	295	308	313	319	373	365	182	263
Japan	789	2,093	4,206	3,492	2,752	2,585	2,482	2,484	1,994	1,805	1,781	1,660	1,639	1,808	1,791	1,783	1,728	1,652	1,647	1,072	1,319
Malaysia	U	U	U	0	0	0	0	0	7	5	15	14	U	U	U	U	U	U	U	U	U
Mexico	U	57	242	269	266	236	422	503	500	540	792	856	845	801	771	838	948	886	950	618	956
Netherlands	6	13	12	26	23	32	19	20	28	25	52	50	49	56	60	65	72	77	73	26	46
Poland	22	60	60	25	16	34	48	27	39	44	24	20	23	14	76	85	107	113	142	74	96
Portugal	U	U	U	26	87	16	13	81	90	65	56	62	68	74	76	83	84	42	43	24	44
Romania	U	U	U	10	5	22	23	21	23	19	14	12	U	U	U	U	U	U	U	U	U
Russia	406	612	874	744	206	156	136	192	U	226	237	228	239	269	275	285	331	379	324	127	195
Slovakia	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0	0	0	0	0	0
South Africa	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	192	253	258	242	151	177
South Korea	U	U	65	340	506	523	548	510	329	471	513	475	496	410	1,416	1,505	1,542	1,577	1,391	1,138	1,480
Spain	20	79	132	139	168	203	199	220	609	644	587	639	588	630	610	578	590	581	528	337	437
Sweden	22	30	55	75	82	102	95	104	114	109	36	38	38	43	48	35	39	44	46	23	31

Taiwan	U	U	U	116	132	124	101	113	112	95	100	77	92	122	131	123	92	71	44	43	U
Turkey	U	12	22	46	31	49	69	102	U	U	133	95	142	240	376	426	442	465	526	359	491
United Kingdom	443	456	230	217	228	233	238	238	233	186	189	193	193	189	209	207	208	216	202	91	119
United States	1,131	2,088	1,690	3,350	5,638	5,669	5,795	6,252	6,510	7,447	7,303	6,617	7,322	7,634	7,794	7,681	6,949	6,885	4,941	3,514	5,012
Venezuela	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	60	69	59	57	53	44
Yugoslavia, Federal Republic of[c]	5	18	27	26	2	2	1	2	U	U	U	U	U	U	U	U	U	U	U	U	U

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

	1961	1971	1981	1991	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total world[e]	**15,200**	**33,401**	**37,136**	**47,262**	**49,658**	**50,046**	**51,496**	**53,474**	**52,093**	**54,948**	**58,946**	**56,325**	**58,973**	**60,331**	**63,963**	**66,085**	**69,124**	**72,640**	**69,584**	**60,254**	**76,148**
U.S. percent of world	**43.8**	**32.0**	**21.4**	**18.6**	**24.6**	**24.0**	**23.0**	**22.7**	**23.0**	**23.7**	**21.7**	**20.3**	**20.8**	**20.0**	**18.7**	**18.1**	**16.3**	**14.8**	**12.5**	**9.5**	**10.2**
Argentina	136	253	172	139	409	286	313	446	458	305	340	236	159	170	260	320	432	545	597	513	724
Australia	231	470	392	284	354	331	322	349	384	311	348	319	344	413	405	389	328	332	324	223	239
Austria	13	7	15	20	48	68	106	108	103	139	141	155	151	140	249	253	275	228	151	72	105
Belgium	1	296	257	337	479	468	437	430	406	291	1,033	1,187	1,056	904	895	927	918	834	725	537	555
Brazil	145	516	780	960	1,582	1,629	1,805	2,067	1,573	1,344	1,671	1,798	1,793	1,827	2,210	2,528	2,611	2,971	3,220	3,185	3,648
Canada	391	1,360	1,323	1,889	2,321	2,408	2,397	2,571	2,173	3,057	2,962	2,532	2,629	2,553	2,712	2,688	2,571	2,579	2,082	1,490	2,068
China	U	U	U	709	1,353	1,435	1,466	1,578	1,628	1,805	2,009	2,332	3,251	4,444	5,071	5,668	7,566	8,885	9,233	13,649	18,265
Czech Republic[b]	76	177	230	202	180	216	272	369	411	376	455	465	447	442	448	605	855	939	946	975	1,076
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	3,549	3,174	3,016	2,568	2,043	2,219
Germany	2,213	4,141	4,116	5,035	4,356	4,667	4,843	5,023	5,727	5,688	5,198	5,692	5,145	5,507	5,570	5,758	5,820	6,213	6,046	5,210	5,906
India	54	89	149	355	475	636	762	746	513	780	796	825	892	1,161	1,511	1,642	1,958	2,250	2,316	2,643	3,554
Italy	759	1,817	1,433	1,878	1,534	1,667	1,545	1,817	1,693	1,701	1,738	1,580	1,427	1,322	1,142	1,038	1,212	1,284	1,024	843	836
Japan	1,039	5,811	11,180	13,245	10,554	10,196	10,346	10,975	10,050	9,905	10,145	9,777	10,258	10,286	10,512	10,800	11,484	11,596	11,564	7,935	9,626
Malaysia	U	U	U	102	137	164	176	280	134	205	295	359	U	U	U	U	U	U	U	U	U
Mexico	U	211	597	989	1,123	935	1,220	1,358	1,453	1,534	1,923	1,857	1,805	1,575	1,553	1,684	2,046	2,095	2,168	1,561	2,342
Netherlands	19	91	90	111	115	132	164	218	271	287	267	239	231	219	248	181	159	139	132	77	94
Poland	36	146	308	193	365	381	401	322	499	695	556	387	310	300	592	612	716	875	1,006	907	895
Portugal	U	U	U	26	125	57	132	267	271	252	247	240	251	239	227	221	227	176	175	126	159
Romania	U	U	U	94	90	93	99	129	127	107	72	69	U	U	U	U	U	U	U	U	U
Russia	555	1,130	2,198	2,052	1,002	994	1,004	1,174	U	1,172	1,203	1,250	1,220	1,280	1,385	1,353	1,507	1,672	1,794	722	1,404
Slovakia	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	218	295	571	576	463	563
South Africa	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	516	588	534	563	374	472
South Korea	U	U	134	1,498	2,312	2,526	2,813	2,818	1,954	2,832	3,115	2,946	3,148	3,178	3,469	3,699	3,840	4,086	3,827	3,513	4,272
Spain	75	532	987	2,082	2,142	2,334	2,412	2,562	2,826	2,672	3,033	2,850	2,855	3,030	3,012	2,753	2,777	2,890	2,542	2,164	2,388
Sweden	132	317	313	344	435	490	463	480	483	494	296	286	276	323	339	324	327	361	299	152	208
Taiwan	U	U	U	382	423	406	366	381	405	350	365	272	337	387	431	446	303	283	183	226	U
Turkey	U	25	47	242	244	282	277	344	U	U	431	271	347	534	823	879	988	1,099	1,147	870	1,095
United Kingdom	1,447	2,198	1,185	1,454	1,695	1,765	1,924	1,936	1,981	1,973	1,817	1,685	1,821	1,846	1,856	1,803	1,650	1,750	1,649	1,090	1,393
United States	6,653	10,672	7,943	8,790	12,239	11,995	11,830	12,131	12,003	13,025	12,774	11,425	12,280	12,087	11,960	11,947	11,260	10,752	8,672	5,709	7,743
Venezuela	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	155	172	172	135	112	104
Yugoslavia, Federal Republic of[c]	20	132	267	239	9	10	10	14	U	U	U	U	U	U	U	U	U	U	U	U	U

KEY: U = data are unavailable.

[a] Does not include minivans, pickups, and sport utility vehicles.
[b] Formerly Czechoslovakia and Ward's does not report a number for Slovakia before 2005.
[c] *Yugoslavia* no longer exists and Ward's does not report numbers for countries that were previously a part of *Yugoslavia*.
[d] Includes all trucks and buses. Light trucks, such as pickups, sport utility vehicles, and minivans are included under *Commercial vehicles*.
[e] The 2000 and 2005-2009 figures for *Total passenger cars and commercial vehicles* are revised by the source. However, the detailed information for each component in 2000 is not available, thus the details are not revised in this table and will not add up to the total for this year.

NOTES

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

SOURCE

WardsAuto.com, *Motor Vehicle Facts & Figures* (Southfield, MI: Annual Issues), p. 14 and similar pages in earlier editions, and personal communication, Aug. 10, 2011.

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
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	27,828	28,259	28,318	25,847	26,782	27,694	28,988	30,071	31,507	(R) 32,987	(R) 34,696	34,966	34,375
U.S. fleet	2,926	2,376	1,579	857	864	737	636	619	603	565	543	509	495	477	470	463	454	443	426	418	423	366	344	(R) 219	(R) 218	239	231
U.S. Percentage of the world fleet	16.9	13.0	7.9	3.7	3.5	2.9	2.7	2.6	2.5	2.3	2.2	2.0	1.8	1.7	1.7	1.6	1.6	1.7	1.6	1.5	1.5	1.2	1.1	(R) 0.7	(R) 0.6	0.7	0.7
Freighters, total	2,138	1,747	1,076	511	471	417	367	359	349	322	308	295	292	288	289	284	286	283	276	274	276	235	219	127	132	146	139
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	6,402	6,521	6,817	5,769	5,417	(R) 4,089	(R) 4,120	4,634	4,518
General cargo[a]	N	N	N	356	259	209	166	165	182	169	152	142	146	142	140	137	136	132	126	123	119	123	97	(R) 24	(R) 24	22	24
DWT (thousands)[a]	N	N	N	4,640	3,329	2,980	2,605	2,592	2,973	2,913	2,677	2,472	2,467	2,420	2,400	2,404	2,362	2,162	1,838	1,810	1,755	1,805	1,389	(R) 270	(R) 282	145	232
Containership	N	N	N	109	121	104	92	92	83	87	86	81	83	85	91	89	90	91	90	86	92	81	76	82	77	81	84
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	3,290	3,281	3,631	3,318	3,102	3,426	3,240	3,638	3,662
Partial containerships	N	N	N	37	68	63	59	52	30	3	3	3	1	1	N	N	N	N	N	N	N	N	N	N	N	N	N
DWT (thousands)	N	N	N	510	940	904	836	741	456	57	57	57	17	17	N	N	N	N	N	N	N	N	N	N	N	N	N
RO/Ro	N	N	N	9	23	41	50	50	54	63	67	69	62	60	58	58	60	60	60	65	65	31	46	21	31	43	31
DWT (thousands)	N	N	N	128	327	818	968	967	1,060	1,258	1,330	1,388	1,296	1,278	1,236	1,236	1,260	1,273	1,273	1,431	1,431	646	926	393	598	851	624
Tankers, total	422	341	294	267	308	258	233	226	220	210	200	181	173	161	154	154	142	130	120	109	108	94	89	62	57	61	59
DWT (thousands)	7,815	7,561	7,739	9,711	16,152	15,534	15,641	14,993	14,180	13,048	11,945	11,028	10,378	9,696	9,289	9,373	8,447	7,532	6,531	5,771	6,035	5,098	4,974	3,842	3,864	4,071	3,944
Petroleum/chemical[b] ships	N	N	N	N	N	244	219	212	206	196	186	167	159	148	145	146	142	130	U	U	U	U	U	62	57	61	59
DWT (thousands)[b]	N	N	N	N	N	14,574	14,681	14,033	13,279	12,143	11,040	10,123	9,473	8,857	8,737	8,845	8,447	7,532	U	U	U	U	U	3,842	3,864	4,071	3,944
Liquefied petroleum/natural gas ships	N	N	N	N	N	14	14	14	14	14	14	14	14	13	9	8	N	N	N	N	N	N	N	N	N	N	N
DWT (thousands)	N	N	N	N	N	960	960	960	901	905	905	905	905	839	552	528	N	N	N	N	N	N	N	N	N	N	N
Combination/passenger and cargo, total	309	227	171	60	65	37	10	10	11	12	13	13	15	14	12	11	11	13	12	15	18	19	18	14	11	11	12
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	100	98	46	9	9	22
Bulk carriers, total[c]	57	61	38	19	20	25	26	24	23	21	22	20	15	14	15	14	15	17	18	20	21	18	18	(R) 16	(R) 18	21	21
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	889	543	543	2,340	2,242	582	508

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

[a] Includes barge carriers.
[b] Includes integrated tug/barges.
[c] Excludes Great Lakes vessels.

NOTES

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

SOURCES

World fleet:
1994: U.S. Department of Transportation, Maritime Administration*Merchant Fleets of the World* (Washington, DC: Annual issues), and unpublished revisions.
All other years: U.S. Department of Transportation, Maritime Administration, personal communication as of June 2010 and September 2011.
All other categories:
1960-2000: U.S. Department of Transportation, Maritime Administration*Merchant Fleets of the World* (Washington, DC: Annual issues), and unpublished revisions.
2001-10: U.S. Department of Transportation, Maritime Administration, personal communications, January 2008, June 2010, and September 2011.

Section C
Condition

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

	1986	1990	1993	1997	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
NPIAS[a] airports, number	3,243	3,285	3,294	3,331	3,344	3,361	3,364	3,358	3,346	3,356	3,357	3,365	3,372	3,356	3,345	3,332	3,349
Good condition (percent)	61	61	68	72	72	73	73	71	75	75	75	77	78	79	78	79	80
Fair condition (percent)	28	29	25	23	23	22	22	24	21	21	21	19	19	18	19	18	18
Poor condition (percent)	11	10	7	5	5	5	5	5	4	4	4	4	3	3	3	3	2
Commercial service airports[b], number	550	568	554	566	547	546	546	536	510	513	517	517	514	522	528	503	512
Good condition (percent)	78	78	79	79	78	79	79	79	80	82	79	79	80	81	82	82	82
Fair condition (percent)	15	17	18	19	20	19	19	19	18	16	19	18	18	17	16	16	16
Poor condition (percent)	7	5	3	2	2	2	2	2	2	2	2	3	2	2	2	2	2

KEY: NPIAS = National Plan of Integrated Airport Systems.

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

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

NOTES

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

SOURCES

Condition:

1986, 1990: U.S. Department of Transportation, Federal Aviation Administration, *National Plan of Integrated Airport Systems* (Washington DC: 1991).
1993: Ibid., *National Plan of Integrated Airport Systems* (Washington DC: 1995).
1997, 1999-2011: U.S. Department of Transportation, Federal Aviation Administration, Office of Airport Planning and Programming, National Planning Division, personal communication, Dec. 22, 2009, Dec. 7, 2010, and Dec. 22, 2011.

Total number of airports:

Ibid., personal communication, Dec. 22, 2009, Dec. 7, 2010, and Dec. 22, 2011.

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

Year	Passenger Cars	Light Trucks	All Light Vehicles
1995	8.4	8.3	8.4
1996	8.5	8.3	8.5
1997	8.7	8.5	8.6
1998	8.9	8.5	8.8
1999	9.1	8.5	8.8
2000	9.1	8.4	8.9
2001	9.3	8.4	8.9
2002	9.4	8.4	9
2003	9.6	8.5	9.1
2004	9.8	8.6	9.4
2005	10.1	8.7	9.5
2006	10.3	8.9	9.7
2007	10.4	9	9.8
2008	10.6	9.3	10
2009	10.6	9.6	10.2

Average age of household vehicles for several yearsa

	Automobile	Van	Sport utility	Pickup	Other truck	RV/motor home
1969	5.1	U	U	U	U	U
1977	5.5	6.4	U	7.3	11.6	4.5
1983	7.2	8.5	U	8.5	12.4	10.7
1990	7.6	5.9	U	8.4	14.5	10.4
1995	8.2	6.7	6.6	9.7	14.9	13.2
2001	8.5	7.0	6.1	9.4	16.8	12.5
2009	9.5	8.7	7.1	11.2	17.8	16.0

KEY: U = data are unavailable.

[a] The 1969, 1977, 1983, and 1990 surveys do not include a separate category for sports utility vehicles (SUV), while the 1995, 2001 and 2009 surveys do. In 1990, most SUVs were classified as automobiles.

NOTE

Data for average age of automobiles are as of July 1 of each year, except in 2009, the data are as of October 1.

SOURCES

Average age of automobiles:

The R.L. Polk Co., *Company-News, Polk Finds More Vehicles Scrapped than Added to Fleet,* available at https://www.polk.com/company/news/polk_finds_more_vehicles_scrapped_than_added_to_fleet as of Dec. 19, 2011.

Average age of household vehicles:

U.S. Department of Transportation, Federal Highway Administration, *1995 Nationwide Personal Transportation Survey: Summary of Travel Trends* (Washington, DC: 1999); U.S. Department of Transportation, Federal Highway Administration, Bureau of Transportation Statistics, *2001 National Household Travel Survey (NHTS) Data*, available at http://nhts.ornl.gov as of September 2009; *2009 National Household Travel Survey (NHTS) Data,* personal communication, Aug. 9, 2011.

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

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
RURAL																	
Interstates miles reported	**31,737**	**29,089**	**31,502**	**31,254**	**31,312**	**31,431**	**30,498**	**32,820**	**32,888**	**32,951**	**32,907**	**31,956**	**31,341**	**30,802**	**30,512**	**30,040**	**30,076**
>220, percent	0.8	1.0	1.1	1.8	0.6	0.7	0.7	0.5	0.4	0.3	0.4	0.3	0.4	0.5	0.5	0.3	0.3
171-220, percent	4.4	6.0	5.4	4.5	3.3	3.0	3.4	1.8	1.8	1.6	1.7	1.3	1.6	1.3	1.5	1.6	1.6
95-170, percent	48.2	48.6	50.4	43.0	40.8	39.8	34.3	32.1	29.2	27.1	25.7	25.2	24.9	23.1	20.8	20.4	19.8
60-94, percent	27.1	36.1	33.2	36.9	38.8	41.0	42.6	44.0	44.8	43.3	44.0	43.9	46.9	47.0	46.5	46.8	46.9
<60, percent	19.5	8.3	9.9	13.9	16.6	15.7	19.0	21.5	23.9	27.7	28.2	29.3	26.2	28.1	30.7	30.9	31.4
Miles not reported	**1,280**	**3,563**	**955**	**1,326**	**1,508**	**1,382**	**2,313**	**153**	**162**	**109**	**84**	**87**	**103**	**92**	**71**	**311**	**117**
Other principal arterials miles reported	**90,522**	**78,296**	**89,506**	**89,265**	**92,103**	**92,170**	**93,333**	**97,247**	**97,297**	**97,946**	**97,854**	**96,656**	**95,390**	**94,216**	**94,500**	**94,396**	**94,367**
>220, percent	2.2	2.9	2.4	4.4	1.4	1.6	1.4	0.9	0.8	0.7	0.7	0.7	0.9	0.8	0.8	0.6	0.5
171-220, percent	7.0	9.2	8.2	7.6	5.8	4.9	4.6	3.7	3.2	3.0	2.7	2.8	3.3	2.8	2.5	2.5	2.4
95-170, percent	53.5	54.8	57.4	51.1	49.1	47.7	43.3	41.5	38.7	37.3	35.6	35.5	35.9	33.5	31.3	30.9	30.5
60-94, percent	22.4	26.7	26.6	27.9	34.4	37.2	38.3	40.5	42.9	42.5	44.2	44.6	44.9	45.8	46.5	46.5	47.5
<60, percent	14.8	6.4	5.4	9.0	9.3	8.6	12.3	13.5	14.4	16.5	16.7	16.4	14.9	17.1	18.9	19.5	19.1
Miles not reported	**4,276**	**17,905**	**7,489**	**8,683**	**6,028**	**6,083**	**5,524**	**1,587**	**1,619**	**1,247**	**1,009**	**386**	**552**	**946**	**430**	**377**	**579**
Minor arterials miles reported	**127,818**	**127,197**	**124,877**	**121,443**	**126,381**	**126,525**	**130,591**	**135,192**	**136,096**	**134,706**	**136,955**	**134,984**	**134,884**	**134,358**	**134,914**	**134,798**	**134,386**
>220, percent	2.7	4.1	3.5	3.7	2.3	2.3	1.9	1.7	1.7	1.7	1.3	1.3	1.4	1.4	1.7	1.2	1.3
171-220, percent	10.9	10.5	10.5	9.0	8.2	6.7	6.0	5.2	5.3	5.2	4.5	4.8	5.1	4.0	4.2	4.5	4.5
95-170, percent	52.3	55.0	57.9	54.7	50.7	50.4	47.2	47.3	46.2	44.9	43.6	43.0	44.3	42.0	40.7	40.9	40.8
60-94, percent	21.4	24.9	23.6	23.9	31.0	33.6	34.3	34.4	35.6	36.9	39.1	41.2	39.5	41.6	41.5	40.3	40.4
<60, percent	12.7	5.5	4.5	8.7	7.7	7.0	10.6	11.4	11.2	11.3	11.6	9.7	9.6	11.0	11.8	13.0	13.1
Miles not reported	**10,819**	**10,731**	**13,294**	**15,708**	**10,978**	**10,978**	**6,664**	**1,968**	**1,436**	**2,874**	**606**	**607**	**573**	**1,049**	**455**	**497**	**616**
Major collectors miles reported	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**225,590**	**229,294**	**235,173**	**242,753**	**249,375**	**261,683**	**269,022**	**267,431**	**273,665**	**277,721**
>220, percent	N	N	N	N	N	N	N	8.8	9.0	7.7	7.4	7.2	6.2	5.6	5.4	5.4	4.8
171-220, percent	N	N	N	N	N	N	N	12.2	13.1	13.2	11.2	11.1	10.8	10.5	11.0	10.8	11.2
95-170, percent	N	N	N	N	N	N	N	53.2	51.9	49.4	49.0	50.4	52.8	52.7	54.4	55.3	54.6
60-94, percent	N	N	N	N	N	N	N	21.0	21.9	25.4	27.2	26.4	25.4	26.1	24.1	23.3	23.4
<60, percent	N	N	N	N	N	N	N	4.9	4.1	4.3	5.1	4.9	4.8	5.0	5.2	5.2	6.0
Miles not reported	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
URBAN																	
Interstates miles reported	**11,783**	**10,738**	**12,338**	**12,307**	**12,430**	**12,477**	**12,231**	**13,109**	**13,139**	**13,256**	**13,367**	**14,331**	**14,984**	**15,544**	**15,899**	**16,035**	**16,348**
>220, percent	2.8	2.5	2.8	1.8	1.4	2.0	2.3	1.5	1.4	1.6	1.7	1.7	1.8	1.5	1.1	1.6	1.4
171-220, percent	8.5	8.2	10.2	8.6	7.3	7.1	7.0	5.8	5.1	5.8	6.0	5.9	5.3	4.5	4.0	4.3	4.0
95-170, percent	54.5	54.5	54.1	50.7	53.0	51.4	47.3	45.7	43.1	41.8	40.9	37.9	37.2	35.4	34.7	34.0	32.5
60-94, percent	20.1	28.3	26.7	27.5	30.7	32.9	32.0	34.9	37.1	35.9	36.0	36.6	38.2	42.0	41.4	41.3	42.9
<60, percent	14.0	6.5	6.2	11.4	7.6	6.7	11.4	12.0	13.3	14.9	15.4	17.9	17.4	16.6	18.7	18.8	19.2
Miles not reported	**683**	**2,140**	**788**	**857**	**787**	**771**	**1,040**	**230**	**226**	**156**	**123**	**131**	**140**	**157**	**139**	**271**	**193**
Other freeways and expressway miles reported	**8,146**	**7,011**	**7,618**	**7,804**	**8,410**	**8,480**	**8,772**	**8,860**	**8,796**	**8,959**	**9,242**	**9,786**	**10,143**	**10,443**	**10,659**	**10,832**	**11,175**
>220, percent	3.7	3.8	5.3	4.8	3.4	3.3	3.2	2.6	2.8	3.1	2.7	2.4	2.1	1.9	1.5	1.6	1.4
171-220, percent	9.5	9.4	12.7	9.8	8.7	8.7	8.7	8.1	8.1	7.1	7.6	8.3	7.6	6.0	5.0	5.5	5.1
95-170, percent	59.5	60.6	58.1	54.7	54.7	58.5	54.3	53.6	50.7	50.5	48.6	45.7	45.5	44.7	43.0	42.3	42.5
60-94, percent	18.1	22.7	20.9	20.4	26.3	25.2	27.1	29.0	31.6	31.5	33.3	35.0	37.4	39.6	40.1	40.5	40.6
<60, percent	9.3	3.5	2.9	10.3	6.8	4.2	6.6	6.8	6.8	7.7	7.9	8.6	7.4	7.9	10.3	10.0	10.3
Miles not reported	**319**	**1,846**	**1,377**	**1,166**	**617**	**579**	**397**	**281**	**353**	**167**	**82**	**81**	**98**	**108**	**84**	**78**	**152**
Other principal arterials miles reported	**N**	**30,337**	**38,598**	**41,444**	**44,498**	**45,009**	**44,886**	**48,045**	**47,890**	**48,931**	**50,016**	**53,431**	**56,831**	**59,743**	**61,064**	**61,259**	**62,584**
>220, percent	N	9.2	12.5	12.4	11.8	12.1	12.9	12.5	13.2	12.9	13.3	12.7	12.2	11.8	11.1	11.4	11.6
171-220, percent	N	13.3	16.3	14.7	14.1	14.6	18.5	18.1	16.8	16.4	16.4	16.4	15.5	15.7	14.5	15.4	(R) 15.2
95-170, percent	N	55.0	50.8	47.2	48.9	49.5	45.3	45.2	45.1	45.7	46.1	46.7	46.8	47.2	44.9	45.8	(R) 45.8
60-94, percent	N	19.3	16.6	15.9	17.5	17.8	17.6	18.8	19.4	19.5	19.4	19.5	20.0	20.1	21.4	21.7	(R) 21.8
<60, percent	N	3.3	3.8	9.7	7.7	6.0	5.8	5.4	5.4	5.5	4.9	4.7	5.5	5.3	8.2	5.6	(R) 5.5
Miles not reported	**N**	**22,498**	**14,492**	**11,352**	**8,485**	**8,209**	**8,246**	**5,154**	**5,426**	**4,126**	**3,422**	**3,440**	**2,863**	**2,064**	**1,765**	**2,030**	**1,975**
Minor arterials miles reported	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**45,182**	**43,830**	**47,657**	**49,021**	**54,129**	**58,473**	**58,699**	**63,020**	**64,287**	**66,134**
>220, percent	N	N	N	N	N	N	N	12.3	14.3	14.0	14.8	15.3	17.8	15.6	14.7	14.9	14.0
171-220, percent	N	N	N	N	N	N	N	14.6	19.3	19.1	18.6	19.1	18.4	18.0	17.3	17.0	16.7
95-170, percent	N	N	N	N	N	N	N	45.9	45.9	45.5	45.4	45.5	43.8	45.0	43.9	44.1	44.9
60-94, percent	N	N	N	N	N	N	N	16.6	12.6	14.1	14.4	14.1	13.1	14.5	13.9	14.4	14.9
<60, percent	N	N	N	N	N	N	N	10.7	7.8	7.2	6.8	6.0	7.0	6.9	10.1	9.6	9.5
Miles not reported	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Collectors miles reported	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**34,819**	**29,726**	**30,468**	**32,491**	**38,349**	**43,619**	**45,210**	**53,236**	**54,673**	**57,194**
>220, percent	N	N	N	N	N	N	N	20.1	28.8	28.1	29.3	28.9	31.9	28.4	26.7	26.9	24.8
171-220, percent	N	N	N	N	N	N	N	17.8	23.5	21.9	22.2	22.7	21.5	21.3	20.5	20.0	20.3
95-170, percent	N	N	N	N	N	N	N	38.2	34.1	36.8	36.0	36.0	34.0	37.0	37.7	38.2	39.7
60-94, percent	N	N	N	N	N	N	N	12.6	5.7	5.7	5.3	5.6	6.1	7.9	6.4	6.3	7.2
<60, percent	N	N	N	N	N	N	N	11.4	7.9	7.5	7.1	6.8	6.6	5.3	8.6	8.5	8.1
Miles not reported	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**

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

NOTES

Numbers may not add to totals due to rounding.

This edition of this table is not comparable to previous editions due to a change in the categories of road conditions.

Data are reported as the International Roughness Index (IRI) in inches per mile. Lower IRI represents smoother riding roadways. For more information on the rating system, refer to National Cooperative Highway Research Program (NCHRP) report 20-24(37)G, *Technical Guidance for Deploying National Level Performance Measurements* , available at http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP20-24(37)G_FR.pdf as of November 2011.

SOURCES

Rural major collector, urban minor arterial, and urban collector:

U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table HM-63, available at http://www.fhwa.dot.gov/policy/ohpi/hss/index.cfm as of Sept. 24, 2012.

All other categories except rural major collector, urban minor arterial, and urban collector:

1992-2009: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table HM-64, available at http://www.fhwa.dot.gov/policy/ohpi/hss/index.cfm as of Sept. 24, 2012.

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

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
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	(R) 590,553	597,340	599,766	601,396	603,259	604,460
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	(R) 137,598	146,041	151,171	153,407	156,305	157,571
Rural	463,435	461,673	456,885	456,228	455,319	458,598	456,913	455,118	454,664	455,203	456,290	456,284	455,548	456,525	456,215	452,955	451,299	448,595	447,989	446,954	446,889
Structurally deficient bridges, total	137,865	134,534	118,698	111,980	107,683	104,317	101,518	98,475	93,072	88,150	86,678	83,595	81,261	79,775	77,752	75,923	73,784	72,520	71,461	71,177	69,220
Urban	16,847	17,032	16,323	15,932	15,692	15,205	15,094	14,846	14,073	12,967	13,079	12,705	12,503	12,316	12,175	12,600	12,585	12,951	12,896	12,828	12,443
Rural	121,018	117,502	102,375	96,048	91,991	89,112	86,424	83,629	78,999	75,183	73,599	70,890	68,758	67,459	65,577	63,323	61,199	59,569	58,565	58,349	56,777
Functionally obsolete bridges, total	100,355	97,593	80,393	80,000	79,832	80,950	81,208	77,410	79,500	81,900	81,510	81,439	81,537	80,990	80,567	80,412	80,317	79,804	79,933	78,477	77,412
Urban	30,266	30,842	26,243	26,511	27,024	27,487	28,087	26,865	27,588	29,065	29,398	29,383	29,675	29,886	30,298	31,391	32,292	33,139	33,691	33,743	33,714
Rural	70,089	66,751	54,150	53,489	52,808	53,463	53,121	50,545	51,912	52,835	52,112	52,056	51,862	51,104	50,269	49,021	48,025	46,665	46,242	44,734	43,698

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, available at http://www.fhwa.dot.gov/policy/2006cpr/pdfs/chap3.pdf.

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

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

Data for 1990, 1992, 1997-99, 2000, and 2007-10 are as of December of those years; data for 1991 and 1994-96 are as of June of those years; data for 1993 are as of September of that year; data for 2000 are as of August of that year; and data for 2002-06 are as of July of those years.

SOURCES

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

2001-10: U.S. Department of Transportation, Federal Highway Administration, Office of Bridge Technology, *National Bridge Inventory (NBI)*, *Count of Bridges by Highway System,* available at http://www.fhwa.dot.gov/bridge/britab.htm as of Aug. 18, 2011.

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

	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Transit rail																						
Commuter rail locomotives[a]	16.3	15.7	15.3	15.8	15.6	15.3	15.9	17.6	17.0	14.7	13.2	13.4	14.2	16.0	16.6	16.0	16.5	16.9	18.4	18.6	18.3	19.4
Commuter rail passenger coaches	19.1	17.6	17.3	19.3	18.6	20.1	21.4	24.1	21.6	19.4	17.5	16.9	18.1	20.1	20.5	17.9	18.6	18.6	18.9	18.7	18.3	18.9
Commuter rail self-propelled passenger cars	12.3	15.9	16.5	17.6	18.2	16.0	19.8	21.1	22.3	23.2	24.3	25.4	26.2	27.1	25.4	23.6	19.4	15.9	16.9	17.9	18.5	19.5
Heavy-rail passenger cars	17.1	16.2	16.9	17.7	17.8	15.8	19.3	20.2	21.1	22.0	22.5	22.9	21.7	20.0	19.0	19.8	20.8	21.6	21.6	20.7	19.0	18.7
Light rail vehicles (streetcars)	20.6	15.2	16.6	17.0	14.9	16.7	16.8	16.0	15.9	15.7	15.7	16.1	16.4	16.3	15.6	15.5	14.5	15.3	16.1	16.4	16.4	16.8
Transit bus[b]																						
Articulated	3.4	7.6	8.2	9.1	9.5	10.1	10.7	11.3	11.7	11.2	8.5	6.6	5.9	5.8	5.8	4.6	4.9	5.4	6.2	6.9	6.6	6.5
Full-size	8.1	8.2	8.0	8.3	8.5	8.7	8.6	8.7	8.5	8.5	8.4	8.1	7.8	7.5	7.3	7.2	7.6	7.4	6.2	7.7	7.8	7.8
Mid-size	5.6	6.6	6.7	6.8	6.4	6.9	6.8	6.3	5.8	5.8	5.6	5.6	5.6	5.6	5.7	5.7	5.8	6.2	6.5	6.7	6.2	7.0
Small	4.8	3.9	4.0	4.1	4.0	4.1	4.0	4.0	3.9	4.0	4.0	4.1	4.0	4.0	4.0	4.1	4.1	4.3	4.3	4.4	4.3	4.0
Trolley	U	10.9	10.3	11.2	12.0	11.1	13.1	14.0	14.7	14.6	15.6	16.4	20.4	15.4	11.6	8.5	9.4	9.0	8.5	9.0	9.4	10.4
Other																						
Vans	3.8	2.8	3.0	3.1	3.1	3.9	3.1	3.1	3.0	2.9	3.1	3.1	3.3	4.9	3.4	3.4	3.4	3.1	3.1	3.3	3.2	3.4
Ferry boats	U	21.7	19.6	22.7	24.7	23.5	23.4	25.3	25.4	25.8	25.1	25.6	24.7	26.8	27.1	25.6	25.6	21.7	20.3	20.1	19.3	20.5

KEY: U = data are unavailable.

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

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

SOURCES

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

U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, DC: Annual reports), table 25 and similar tables in earlier editions, available at http://www.ntdprogram.gov/ntdprogram/ as of Dec. 14, 2011.

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.

1992-2010: Ibid., *National Transit Summaries and Trends* (Washington, DC: Annual reports), available at http://www.ntdprogram.gov/ntdprogram/ as of Dec. 14, 2011.

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

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

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

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

NOTE

Numbers may not add to totals due to rounding.

SOURCES

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

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

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

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

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

NOTE

Percents may not add to 100 due to rounding.

SOURCE

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

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

Year built[a]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total	18,835	18,344	18,004	18,161	18,505	18,812	19,269	19,684	20,261	20,256	20,028	19,745	20,506	20,774	22,015	22,779	23,732	24,143	24,003	24,045	23,893
Before 1970	5,117	4,353	4,038	3,766	3,535	b	b	b	b	b	f	f	f	f	f	j	j	j	j	j	n
1970-74	3,852	3,617	3,384	3,248	3,184	[c]6,048	[c]5,783	[c]5,529	[c]5,565	[c]5196	f	f	f	f	f	j	j	j	j	j	n
1975-79	4,432	4,375	4,292	4,352	4,275	4,254	4,274	4,219	4,116	4,000	[g]8,541	[g]7,862	[g]7,133	[g]6,889	[g]7,056	j	j	j	j	j	n
1980-84	2,837	2,826	2,784	2,730	2,625	2,754	2,735	2,728	2,723	2,581	2,411	2,153	1,790	1,655	1,585	[k]8,705	[k]8,237	[k]7,907	[k]7,297	[k]7,054	n
1985-89	1,989	1,985	1,970	1,968	1,971	1,890	1,866	1,829	1,830	1,779	1,775	1,672	1,807	1,791	1,799	1,786	1,735	1,695	1,604	1,558	[o]8,420
1990	608	605	604	604	599	[d]2,965	[d]2,959	[d]2,958	[d]2,736	[d]2,688	[d]2,648	[d]2,667	[d]2,702	[d]2,700	[d]2,715	[d]2,783	[d]2,740	[d]2,718	[d]2,494	[d]2,464	[d]2,384
1991		583	595	595	594	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
1992			337	340	339	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
1993				558	602	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
1994					781	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
1995						901	945	983	953	951	973	[h]4,020	[h]4,582	[h]4,673	[h]4,672	[h]4,348	[h]4,535	[h]4,300	[h]4,146	[h]4,173	[h]4,467
1996							707	696	708	706	697	i	i	i	i	i	i	i	i	i	i
1997								742	741	743	745	i	i	i	i	i	i	i	i	i	i
1998									889	890	890	i	i	i	i	i	i	i	i	i	i
1999										722	713	i	i	i	i	i	i	i	i	i	i
2000											635	691	987	863	863	[l]4,350	[l]4,673	[l]4,618	[l]4,777	[l]4,650	[l]4,265
2001												680	810	891	891	m	m	m	m	m	m
2002													695	725	722	m	m	m	m	m	m
2003														587	591	m	m	m	m	m	m
2004															1,121	m	m	m	m	m	m
2005																807	881	876	876	875	[p]4,098
2006																	931	1,097	1,145	1,122	q
2007																		932	907	911	q
2008																			757	777	q
2009																				461	q
2010																					259

[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.
[n] Included in 1990 category.
[o] Includes all locomotives built before 1990.
[p] Includes locomotives built between 2005-09.
[q] Included in 2005 category.

SOURCE

Association of American Railroads, *Railroad Facts* (Washington, DC: 2011), p. 50 and similar pages in earlier editions.

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

	1972	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Locomotives																										
Percent available for service[a]	U	87	83	93	84	86	83	84	85	88	88	88	88	90	89	U	U	87	82	83	83	84	82	82	83	80
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	18.6	19.6	20.6	19.1	20.0
Passenger and other train cars																										
Percent available for service[a]	U	82	77	90	90	92	90	89	88	90	90	91	93	91	91	U	U	83	84	84	85	85	86	86	88	88
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	23.5	24.5	25.5	25.6	26.5

KEY: U = data are unavailable.

[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).

2001-11: Amtrak, *Amtrak Active Fleet* , personal communications, Aug. 20, 2009, July 1, 2010, Sept. 13, 2011, and July 24, 2012.

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

	Vessel type							
Age[a]	Dry cargo	Tanker	Towboat	Passenger	Offshore support / crewboats[b]	Dry barge	Tank / liquid barge[c]	Total
1990–91, total	**900**	**257**	**5,210**	**721**	**1,168**	**27,110**	**3,874**	**39,342**
<6	80	6	132	151	85	2,335	162	2,951
6–10	161	38	706	120	318	4,570	316	6,229
11–15	212	50	1,029	110	474	7,639	829	10,343
16–20	141	35	844	80	144	6,374	750	8,368
21–25	82	38	750	65	84	2,607	759	4,385
>25	196	86	1,718	188	51	3,372	1,049	6,660
1992, total	**497**	**249**	**5,203**	**1,201**	**1,205**	**26,981**	**3,864**	**39,313**
<6	36	5	134	219	93	3,224	296	4,012
6–10	73	28	398	198	208	1,783	121	2,829
11–15	135	54	1,137	203	567	9,114	902	12,150
16–20	73	33	926	169	189	6,696	740	8,853
21–25	31	42	716	122	91	2,475	677	4,167
>25	124	82	1,874	287	53	3,496	1,123	7,049
1993, total	**470**	**205**	**5,219**	**1,243**	**1,197**	**26,982**	**3,970**	**39,306**
<6	25	3	135	207	103	3,558	325	4,356
6–10	67	22	205	221	107	1,070	68	1,764
11–15	135	43	1,221	211	597	8,810	869	11,894
16–20	70	33	968	164	218	6,772	791	9,019
21–25	41	31	674	129	106	2,904	655	4,543
>25	128	73	2,008	311	64	3,713	1,256	7,555
1994, total	**778**	**202**	**5,179**	**928**	**1,236**	**26,757**	**3,966**	**39,064**
<6	46	4	146	157	107	3,630	399	4,489
6–10	103	12	151	185	61	1,171	36	1,719
11–15	200	36	1,135	123	540	7,903	754	10,691
16–20	130	44	966	122	309	6,314	799	8,684
21–25	90	32	664	82	130	3,873	638	5,509
>25	206	74	2,107	259	86	3,706	1,327	7,765
1995, total	**726**	**178**	**5,127**	**954**	**1,288**	**27,375**	**3,985**	**39,641**
<6	38	5	168	149	119	3,975	489	4,943
6–10	90	8	134	195	58	1,483	46	2,014
11–15	168	34	959	133	463	6,387	611	8,760
16–20	135	38	988	121	412	6,507	736	8,939
21–25	80	29	726	91	141	4,897	697	6,661
>25	213	64	2,146	263	92	3,966	1,403	8,148
1996, total	**713**	**161**	**5,177**	**967**	**1,274**	**28,775**	**4,036**	**41,104**
<6	43	7	205	153	123	5,189	573	6,293
6–10	74	8	118	188	61	2,041	87	2,577
11–15	141	29	715	142	351	4,505	346	6,229
16–20	155	36	1,036	119	460	7,234	840	9,881
21–25	79	23	842	87	155	5,416	723	7,325
>25	229	62	2,386	290	144	4,766	1,576	9,453
1997, total	**692**	**147**	**5,173**	**1,025**	**1,369**	**29,040**	**3,971**	**41,419**
<6	52	8	227	150	122	5,515	519	6,593
6–10	66	2	118	187	94	2,582	181	3,230
11–15	96	27	396	152	223	1,800	137	2,831
16–20	183	36	1,173	131	588	8,943	928	11,982
21–25	84	21	918	102	177	5,772	727	7,801
>25	209	53	2,332	302	159	4,284	1,477	8,816
1998, total	**714**	**135**	**5,237**	**1,011**	**1,423**	**29,557**	**3,952**	**42,032**
<6	56	12	247	150	163	5,877	485	6,991
6–10	55	3	124	168	105	3,117	267	3,839
11–15	105	19	196	166	111	1,113	72	1,782
16–20	179	31	1,198	129	634	8,591	865	11,626
21–25	88	22	979	106	211	5,909	763	8,076
>25	230	48	2,487	292	195	4,817	1,499	9,573
1999, total	**695**	**142**	**5,098**	**970**	**1,470**	**29,414**	**3,973**	**41,766**
<6	60	12	302	144	245	6,640	565	7,968
6–10	49	3	140	146	114	3,192	298	3,943
11–15	97	12	146	183	61	1,231	39	1,769
16–20	146	35	1,101	120	571	7,414	742	10,129
21–25	99	30	953	95	283	5,302	760	7,522
>25	243	50	2,447	282	191	5,491	1,560	10,267
2000, total	**737**	**135**	**4,995**	**918**	**1,414**	**29,141**	**4,011**	**41,354**
<6	66	11	325	134	246	6,721	582	8,085
6–10	50	4	143	118	106	3,051	329	3,802
11–15	113	8	142	178	58	1,565	48	2,112
16–20	136	34	929	124	454	5,846	602	8,125
21–25	105	30	954	90	332	5,365	712	7,588
>25	263	48	2,497	271	214	6,461	1,714	11,470
2001, total	**966**	**120**	**5,150**	**733**	**1,573**	**28,920**	**4,122**	**41,588**
<6	114	12	369	84	305	6,830	623	8,337
6–10	76	3	167	81	111	2,815	388	3,641
11–15	132	5	125	138	68	2,043	85	2,596
16–20	139	32	692	110	372	4,241	329	5,916
21–25	154	28	972	77	452	6,126	805	8,614
>25	347	40	2,818	240	262	6,712	1,884	12,306
2002, total	**989**	**108**	**5,180**	**750**	**1,591**	**28,313**	**4,068**	**41,002**
<6	113	13	369	70	322	6,117	595	7,599
6–10	86	3	185	92	96	3,416	419	4,298
11–15	130	2	142	136	89	2,499	172	3,170
16–20	114	22	381	117	228	1,669	134	2,665
21–25	175	35	1,091	75	547	7,702	843	10,468
>25	368	33	3,004	256	305	6,731	1,904	12,603
2003, total	**969**	**104**	**5,172**	**789**	**1,609**	**27,304**	**4,031**	**39,983**
<6	114	9	362	69	314	4,909	604	6,381
6–10	93	7	217	89	126	4,155	396	5,085
11–15	110	3	148	122	93	2,976	260	3,712
16–20	127	15	198	133	111	1,054	71	1,709
21–25	168	32	1,135	84	584	7,135	774	9,912
>25	354	38	3,105	287	378	6,884	1,923	12,972
2004, total	**987**	**103**	**5,314**	**834**	**1,746**	**27,227**	**4,069**	**40,290**
<6	126	11	367	72	279	4,556	676	6,087
6–10	112	10	272	97	198	4,840	453	5,983
11–15	95	3	166	119	109	3,057	296	3,846
16–20	132	8	157	144	64	1,169	35	1,709
21–25	130	31	1,083	92	580	6,240	639	8,795
>25	390	40	3,262	308	512	7,152	1,970	13,642
2005, total	**969**	**100**	**5,290**	**841**	**1,768**	**27,901**	**4,151**	**41,028**
<6	115	11	336	62	244	4,140	743	5,651
6–10	106	13	321	96	262	5,611	512	6,921
11–15	74	4	157	114	107	3,120	333	3,911
16–20	137	3	155	150	59	1,507	43	2,054
21–25	116	30	907	98	464	5,174	535	7,324
>25	419	39	3,406	321	629	8,113	1,985	14,918
2006, total	**946**	**90**	**5,285**	**828**	**1,721**	**27,961**	**4,250**	**41,109**
<6	123	14	362	53	237	3,955	833	5,577
6–10	103	10	336	88	277	6,006	496	7,316
11–15	75	2	172	101	103	2,913	386	3,752
16–20	127	3	132	148	55	1,949	84	2,498
21–25	96	21	690	110	359	3,629	293	5,198
>25	421	40	3,581	328	685	9,204	2,155	16,414
2007, total	**931**	**80**	**5,356**	**833**	**1,810**	**27,187**	**4,467**	**40,695**
<6	100	8	411	46	258	4,340	1,005	6,169
6–10	102	10	355	79	288	5,508	481	6,827
11–15	90	3	191	106	104	3,537	418	4,451
16–20	117	2	144	142	87	2,080	172	2,744
21–25	86	15	380	123	213	1,482	123	2,424
>25	435	42	3,860	337	853	9,893	2,263	17,705
2008, total	**894**	**76**	**5,424**	**821**	**1,830**	**26,678**	**4,560**	**40,301**
<6	90	10	475	45	295	4,494	1,127	6,536
6–10	102	8	360	72	292	4,435	494	5,766
11–15	96	6	214	95	123	4,543	390	5,469
16–20	94	3	155	129	93	2,524	259	3,257
21–25	87	12	205	138	88	935	63	1,528
>25	425	37	4,003	341	936	9,395	2,225	17,375
2009, total	**891**	**72**	**5,437**	**833**	**1,856**	**26,447**	**4,561**	**40,109**
<6	70	10	517	39	279	4,782	1,212	6,910
6–10	105	7	330	63	244	3,910	510	5,170
11–15	111	9	272	95	197	5,028	444	6,157
16–20	81	3	159	122	101	2,786	291	3,543
21–25	98	5	154	145	63	969	25	1,459
>25	426	38	3,992	367	969	8,634	2,074	16,509
2010, total	**875**	**77**	**5,466**	**843**	**1,817**	**26,848**	**4,564**	**40,512**
<6	61	17	573	27	271	5,391	1,170	7,511
6–10	110	7	303	59	212	3,398	548	4,640
11–15	111	9	330	92	231	5,587	511	6,874
16–20	63	3	145	114	101	2,764	329	3,520
21–25	109	3	147	155	50	1,214	36	1,715
>25	421	38	3,964	395	949	8,184	1,969	15,933

[a] Age is based on the year the vessel was built or rebuilt.
[b] In 1992, *Offshore support boats* were designated as crew boats.
[c] In 1992, *Tank barges* were designated as *Liquid barges*.

NOTES

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

SOURCE

U.S. Army Corps of Engineers, *Waterborne Transportation Lines of the United States, Volume 1, National Summaries* (New Orleans, LA: Annual Issues), table 4, available at http://www.ndc.iwr.usace.army.mil/publications.htm as of Feb. 27, 2012.

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Air																											
Air carrier, domestic, all services	858	1,134	2,068	1,638	2,276	3,026	3,963	3,854	3,995	4,156	4,378	4,628	4,807	4,907	5,030	5,326	5,662	5,545	(R) 5,613	(R) 6,106	(R) 6,602	(R) 6,716	(R) 6,606	(R) 6,733	(R) 6,446	(R) 5,935	5,976
General aviation[a]	1,769	2,562	3,207	4,238	5,204	4,673	4,548	4,400	3,465	3,253	3,358	3,795	3,524	3,877	N	N	N	N	N	N	N	N	N	N	N	N	N
Highway, total	718,763	887,811	1,109,724	1,327,664	1,527,295	1,774,827	2,144,362	2,172,050	2,247,151	2,296,378	2,357,588	2,422,696	2,485,848	2,561,695	2,631,522	2,691,056	2,746,925	2,795,610	2,855,508	2,890,221	2,964,788	2,989,430	3,014,371	3,031,124	2,976,528	(R) 2,956,764	2,966,494
Light duty vehicle, short wheel-base[b,c,d]	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	1,627,365	1,658,474	1,671,967	1,699,890	1,708,421	1,690,534	2,104,416	2,024,757	(R) 2,015,714	2,025,396
Motorcycle[c,d]	U	U	2,979	5,629	10,214	9,086	9,557	9,178	9,557	9,906	10,240	9,797	9,920	10,081	10,283	10,584	10,469	9,633	9,552	9,576	10,122	10,454	12,049	21,396	20,811	(R) 20,822	18,462
Light duty vehicle, long wheel-base[b,c,d]	U	U	123,286	200,700	290,935	390,961	574,571	649,394	706,863	745,750	764,634	790,029	816,540	850,739	868,275	901,022	923,059	942,614	966,034	984,020	1,027,164	1,041,051	1,082,490	586,618	605,456	(R) 617,534	622,263
Truck, single-unit 2-axle 6-tire or more[d]	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	72,394	75,866	77,748	78,441	78,496	80,344	119,979	126,855	(R) 120,207	110,674
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	136,534	138,737	140,128	142,370	144,028	142,169	184,199	183,826	(R) 168,100	175,911
Bus[e]	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	7,070	6,845	6,782	6,801	6,980	6,783	14,516	14,823	(R) 14,387	13,789
Transit, total[f]	2,143	2,008	1,883	2,176	2,287	2,791	3,242	3,306	3,355	3,435	3,468	3,550	3,082	3,201	3,347	3,500	3,605	3,735	3,855	3,915	3,972	4,054	4,127	4,238	4,375	4,475	4,400
Motor bus[e]	1,576	1,528	1,409	1,526	1,677	1,863	2,130	2,167	2,178	2,210	2,162	2,184	1,813	1,849	1,904	1,985	2,041	2,104	2,156	2,177	2,169	2,192	2,214	2,241	2,272	2,285	2,229
Light rail	75	42	34	24	18	17	24	28	29	28	34	35	37	41	43	48	52	54	61	64	67	69	74	84	88	90	93
Heavy rail	391	395	407	423	385	451	537	527	525	522	532	537	543	558	566	578	595	608	621	630	642	646	652	657	674	685	666
Trolley bus	101	43	33	15	13	16	14	14	14	13	14	14	14	14	14	14	15	13	14	14	13	13	12	11	12	13	12
Commuter rail	N	N	N	173	179	183	213	215	219	224	231	238	242	251	259	266	271	277	284	286	295	303	315	325	337	337	342
Demand responsive[e]	N	N	N	N	N	247	306	335	364	406	464	507	363	410	469	494	532	578	613	640	651	683	708	752	803	847	807
Ferry boat[g]	N	N	N	N	U	U	2	2	2	3	2	3	2	2	2	3	3	2	3	3	3	3	3	3	3	3	3
Other[g]	N	N	N	15	15	15	16	19	24	30	29	34	68	77	90	112	97	100	104	101	131	144	149	163	187	214	248
Rail																											
Class I freight, train-miles	404	421	427	403	428	347	380	375	390	405	441	458	469	475	475	490	504	500	500	516	535	548	563	543	524	436	476
Class I freight, car-miles	28,170	29,336	29,890	27,656	29,277	24,920	26,159	25,628	26,128	26,883	28,485	30,383	31,715	31,660	32,657	33,851	34,590	34,243	34,680	35,555	37,071	37,712	38,955	38,186	37,226	32,115	35,541
Intercity/Amtrak[h], train-miles	209	172	93	30	30	30	33	34	34	35	34	32	30	32	33	34	35	36	38	37	37	36	36	37	38	38	37
Intercity/Amtrak[h], car-miles	2,208	1,775	690	253	235	251	301	313	307	303	304	292	276	288	312	342	368	378	379	332	308	265	264	267	272	283	295
Total train-miles[i]	613	593	520	433	458	377	413	409	424	440	475	490	499	507	508	524	539	536	537	553	572	584	599	581	562	475	513

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

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

[b] 1960-99 data are for Passenger Cars and Other 2-axle, 4-tire vehicles, respectively. Data for 1960-99 are not comparable to data for 2000-09.

[c] U.S. Department of Transportation, Federal Highway Administration (FHWA), provides data separately for *Light duty vehicle, short wheel base* (formerly *Passenger car*) and *Motorcycle* in its annual *Highway Statistics* series. However, the 1995 summary report provides updated data for *Light duty vehicle, short wheel base* (formerly *Passenger car*) and *Motorcycle* combined. *Light duty vehicle, short wheel base* (formerly *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 *Light duty vehicle, short wheel base* (formerly *Passenger car*) and *Motorcycle* figures.

[d] 1960–65, *Motorcycle* data are included in *Light duty vehicle, short wheel base* (formerly *Passenger car*), and *Long duty vehicle, long wheel base* (formerly *Other 2-axle 4-tire vehicle*) data are included in *Single-unit 2-axle 6-tire or more Truck*.

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

[f] 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.

[g] *Ferry boat* included with *Other* under *Transit* for 1980 and 1985.

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

[i] 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.

NOTES

Data for 2007-09 were calculated using a new methodology developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category Light duty vehicle, short wheel base includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. The new category Light duty vehicle, long wheel base includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches. This edition of 1-35 is not comparable to previous editions.

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.

Numbers may not add to totals due to rounding.

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

SOURCES

Air:

Air carrier:

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

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

1975-2010: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class, Revenue Aircraft Miles Flown by Carrier Group (1-6) and Carrier Region (D for domestic) for all services (Z for all services), 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 Jan. 30, 2012.

General aviation:

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

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

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

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

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

Highway:

Passenger car and motorcycle:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

1995-2006: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

Light duty vehicle, short wheel base:

2007-10: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

Motorcycle:

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

1985-2010: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

Other 2-axle 4-tire vehicle:

1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

1995-2010: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

Light duty vehicle, long wheel base:

2007-10: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

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

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

1995-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

Transit:

1960-95: American Public Transportation Association, *Public Transportation Fact Book* (Washington, DC: Annual Issues), tables 6, 51, and similar tables in earlier editions.

1996-2010: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database*, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Mar. 6, 2012.

Rail:

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

Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), pp. 33 and 34.

Intercity/Amtrak train-miles:

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

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

2002-10: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77.

Intercity/Amtrak car-miles:

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

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

2001-10: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77.

Table 1-36: Roadway Vehicle-Miles Traveled (VMT) and VMT per Lane-Mile by Functional Class [a]

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
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	1,686,642	1,727,596	1,805,508	1,892,265	1,951,870	1,977,047	1,994,519	1,983,091	1,974,583	1,982,357	1,972,094
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	399,986	408,618	432,633	454,385	469,070	477,283	483,315	476,091	474,798	477,692	476,704
Other arterial[b]	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	913,936	937,357	973,936	1,020,089	1,048,219	1,060,098	1,068,130	1,062,226	1,053,529	1,052,572	1,044,104
Collector[c]	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	137,921	141,874	153,751	162,108	168,038	173,210	174,661	175,389	179,993	180,565	178,778
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	234,799	239,747	245,188	255,683	266,543	266,456	268,413	269,385	266,264	271,528	272,507
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	1,110,697	1,128,160	1,085,385	1,070,248	1,037,937	1,037,069	1,035,303	990,418	982,180	984,148	974,038
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	273,619	279,962	269,945	266,996	258,790	257,913	256,438	243,290	242,178	245,647	243,587
Other arterial[b]	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	427,482	433,805	416,596	409,944	398,932	394,499	393,465	374,273	372,860	376,413	373,099
Collector[c]	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	272,109	275,007	263,662	260,931	251,587	251,375	251,514	241,158	231,337	229,357	227,754
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	137,487	139,386	135,182	132,377	128,628	133,282	133,886	131,697	135,805	132,731	129,597
Urban VMT per lane-mile, total (thousands)	613	677	764	766	775	782	794	809	820	825	844	858	869	857	861	856	860	862	856	851	829	808	805	801
Interstate	3,327	3,773	4,483	4,542	4,508	4,588	4,667	4,785	4,897	5,002	5,131	5,229	5,323	5,370	5,440	5,436	5,479	5,455	5,427	5,414	5,245	5,221	5,175	5,142
Other arterial[b]	1,451	1,556	1,751	1,758	1,783	1,778	1,803	1,828	1,857	1,866	1,901	1,950	1,974	1,997	2,025	2,012	2,019	2,001	1,989	1,977	1,923	1,853	1,845	1,860
Collector[c]	572	552	634	649	659	656	655	686	692	689	703	706	718	728	743	741	745	745	747	747	723	713	702	709
Local	146	168	184	179	181	179	178	181	181	184	192	198	196	189	188	183	184	187	183	181	179	174	176	175
Rural VMT per lane-mile, total (thousands)	103	113	136	138	139	140	144	148	152	157	165	169	172	177	179	175	174	170	170	169	163	161	161	159
Interstate	1,031	1,170	1,473	1,502	1,540	1,576	1,642	1,693	1,749	1,804	1,888	1,939	1,993	2,032	2,080	2,070	2,088	2,061	2,074	2,076	1,981	1,987	1,987	1,967
Other arterial[b]	518	555	640	646	653	665	674	695	711	730	750	766	778	788	797	780	771	753	744	742	705	694	694	693
Collector[c]	132	141	164	167	163	158	161	167	170	179	182	187	189	192	195	190	189	183	184	184	177	168	166	166
Local	19	20	23	23	23	24	25	25	25	26	29	30	30	33	33	33	32	32	33	33	32	33	33	32

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

[b] *Urban other arterial* includes other freeways and expressways, other principal arterial, and minor arterial*Rural other arterial* includes other principal arterial and minor arterial prior to 2009, and includes other freeways and expressways, other principal arterial and minor arterial for 2009.

[b] C*ollector* is the sum of major and minor collectors.

NOTES

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

2009 data exclude 823 miles of federal agency owned roads and 71 miles of other non federal agency owned roads. 2008 data exclude 788 miles of federal agency owned roads. 2007 data exclude 788 miles of federal owned roads and 437 miles of local government owned roads. 2006 data exclude 788 miles of federal owned roads and included 274 miles of miscoded roads. 2005 data exclude 770 miles of federal agency owned roads.

SOURCES

Vehicle-Miles Traveled (VMT):

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

1995-2011: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics* (Washington, DC: Annual Issues), table VM-2, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 13, 2013.

Lane-miles:

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

1996-2011: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics* (Washington, DC: Annual Issues), table HM-60, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 13, 2013.

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

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	(R) 2009	(R) 2010
AIRCRAFT DEPARTURES																								
Total performed[a]	**4,555,516**	**5,156,848**	**5,505,659**	**6,641,681**	**6,545,000**	**6,606,609**	**7,193,841**	**7,513,232**	**8,030,530**	**8,204,674**	**8,095,888**	**8,248,269**	**8,605,486**	**8,929,559**	**8,548,932**	**8,052,756**	**8,585,736**	**9,444,234**	**9,859,941**	**9,512,017**	**10,842,368**	**10,307,025**	**9,646,132**	**9,596,396**
Total scheduled	**4,530,535**	**5,204,564**	**5,591,596**	**6,758,571**	**7,024,412**	**6,703,670**	**7,058,097**	**7,359,093**	**7,920,467**	**8,064,653**	**7,907,554**	**8,094,020**	**8,432,940**	**8,688,776**	**8,340,180**	**7,981,190**	**8,479,414**	**9,193,220**	**9,722,715**	**9,429,017**	**10,533,325**	**(R) 9,975,967**	**9,324,192**	**9,241,790**
Large hubs																								
Performed	2,437,958	2,887,239	3,439,446	4,167,868	4,114,950	4,078,211	4,480,575	4,756,589	5,162,534	5,257,541	5,266,560	5,416,158	5,645,179	5,851,801	5,177,758	4,918,940	5,336,246	5,591,234	5,842,793	5,660,186	6,095,332	5,742,452	5,478,849	5,493,422
Scheduled	2,409,874	2,905,923	3,487,660	4,237,466	4,312,032	4,144,325	4,443,937	4,713,178	5,147,875	5,243,646	5,219,161	5,405,728	5,570,419	5,720,435	5,092,030	4,867,648	5,326,856	5,486,529	5,806,009	5,654,357	6,238,895	5,866,511	5,588,496	5,592,055
Medium hubs																								
Performed	902,652	1,048,726	1,185,008	1,394,833	1,256,306	1,301,977	1,310,322	1,471,377	1,439,639	1,425,280	1,430,537	1,429,730	1,499,243	1,574,986	1,893,805	1,791,778	1,703,127	2,046,105	2,184,522	2,076,849	2,236,012	2,208,796	1,886,160	1,824,436
Scheduled	899,543	1,058,438	1,201,540	1,417,762	1,352,515	1,312,257	1,268,316	1,398,144	1,387,833	1,356,162	1,352,944	1,345,197	1,404,482	1,507,991	1,812,161	1,784,913	1,671,068	2,007,421	2,153,826	2,062,423	2,213,263	2,181,478	1,866,885	1,803,246
Small hubs																								
Performed	640,589	598,559	514,176	669,450	689,518	771,529	841,685	710,569	738,231	754,914	695,841	714,920	746,625	779,518	864,722	788,758	884,306	1,088,691	1,091,838	1,095,346	1,130,616	1,057,948	1,074,315	1,057,046
Scheduled	644,133	608,738	524,048	679,103	858,429	783,305	794,279	685,421	711,947	722,170	660,685	674,812	770,092	759,208	856,112	809,246	855,679	1,025,145	1,064,124	1,078,363	1,134,183	1,055,628	1,073,434	1,051,455
Nonhubs																								
Performed	574,317	622,324	367,029	409,530	484,226	454,892	561,259	574,697	690,126	766,939	702,950	687,461	714,439	723,254	612,647	553,280	662,057	718,204	740,788	679,636	1,380,408	1,297,829	1,206,808	1,221,492
Scheduled	576,985	631,465	378,348	424,240	501,436	463,783	551,565	562,350	672,812	742,675	674,764	668,283	687,947	701,142	579,877	519,383	625,811	674,125	698,756	633,874	946,984	(R) 872,350	795,377	795,034
ENPLANED REVENUE PASSENGERS[b]	**196,782,144**	**281,408,852**	**363,341,497**	**438,544,001**	**428,319,248**	**447,625,988**	**468,313,029**	**508,458,194**	**526,055,483**	**558,183,741**	**568,615,687**	**588,335,318**	**610,628,716**	**639,753,899**	**595,364,778**	**575,058,533**	**593,132,200**	**652,413,250**	**690,135,672**	**690,765,508**	**718,735,471**	**690,249,540**	**656,995,166**	**670,370,501**
Large hubs	133,975,900	197,679,376	264,507,144	317,595,099	313,375,097	319,582,090	340,048,661	372,731,005	392,601,890	417,339,694	426,246,423	442,402,443	458,665,099	479,570,342	413,634,333	401,696,877	424,621,015	447,500,697	473,367,070	475,207,801	501,735,503	478,700,010	461,019,822	472,909,327
Medium hubs	36,539,613	51,664,627	65,770,376	80,466,373	72,985,169	80,800,955	79,032,913	88,601,244	85,929,285	89,018,764	90,779,705	91,755,793	96,394,866	102,082,360	124,587,728	119,733,580	109,492,740	135,364,314	143,749,228	142,139,330	139,828,095	137,535,272	122,635,250	122,418,712
Small hubs	19,406,607	23,393,324	24,240,726	30,771,383	31,224,974	36,879,632	37,334,956	34,443,996	33,561,098	37,122,974	36,298,979	37,675,305	38,644,557	40,121,294	42,833,911	40,053,861	43,545,830	51,812,381	53,291,924	55,008,304	55,627,434	52,757,861	53,440,694	53,645,449
Nonhubs	6,860,024	8,671,525	8,823,251	9,711,146	10,734,008	10,363,311	11,896,499	12,681,949	13,963,210	14,702,309	15,290,580	16,501,777	16,924,194	17,979,903	14,308,806	13,574,215	15,472,615	17,735,858	19,727,450	18,410,073	21,544,439	21,256,397	19,899,400	21,397,013
ENPLANED REVENUE TONS[c]	**3,661,061**	**5,088,313**	**4,024,470**	**6,298,824**	**6,417,504**	**6,736,309**	**8,203,090**	**8,718,082**	**9,365,017**	**10,333,298**	**13,520,228**	**14,083,769**	**14,911,847**	**15,105,527**	**17,514,685**	**13,525,489**	**13,911,441**	**14,616,794**	**14,445,548**	**14,262,852**	**14,092,403**	**12,695,987**	**11,666,257**	**12,424,669**
Freight, total	**2,764,763**	**3,562,187**	**2,601,027**	**4,732,726**	**4,854,513**	**5,053,678**	**6,383,887**	**6,802,375**	**7,204,479**	**8,047,795**	**11,163,448**	**11,784,514**	**12,067,717**	**12,770,655**	**15,805,842**	**12,674,172**	**13,069,642**	**13,870,934**	**13,795,084**	**13,673,646**	**13,543,701**	**12,045,843**	**11,107,943**	**11,884,818**
Large hubs	2,265,665	3,008,311	2,047,988	3,001,217	2,960,604	3,067,778	3,678,851	4,025,517	4,402,327	4,653,189	5,691,363	6,208,629	5,993,061	6,728,534	6,338,289	4,999,651	5,524,253	5,424,975	5,184,194	5,019,609	5,241,739	4,562,613	3,934,060	4,221,953
Medium hubs	358,044	414,325	469,057	1,446,744	1,507,017	1,633,136	1,857,865	2,022,282	1,950,318	2,169,411	3,855,449	3,897,242	4,382,712	4,445,684	6,871,585	5,750,187	5,264,084	5,042,642	6,239,905	5,239,725	6,386,330	5,815,015	4,769,067	5,172,827
Small hubs	99,133	73,795	48,127	191,358	222,247	267,619	516,199	432,680	541,062	755,232	963,093	1,019,615	1,053,050	936,896	1,405,627	1,056,987	1,015,860	2,052,242	981,639	2,010,442	890,633	722,877	1,793,046	1,955,920
Nonhubs	41,922	65,756	35,855	93,407	164,645	85,145	330,973	321,896	310,772	469,962	653,542	659,028	638,894	659,541	1,190,341	867,347	1,265,445	1,351,075	1,389,346	1,403,870	1,024,999	945,339	611,770	534,118
Mail, total	**896,298**	**1,526,125**	**1,423,443**	**1,566,098**	**1,562,991**	**1,682,632**	**1,819,203**	**1,915,706**	**2,160,538**	**2,285,503**	**2,356,781**	**2,299,255**	**2,844,130**	**2,334,872**	**1,708,843**	**851,317**	**841,799**	**745,860**	**650,464**	**589,206**	**548,702**	**650,144**	**558,315**	**539,851**
Large hubs	677,179	1,091,059	1,082,567	1,146,589	1,095,019	1,201,545	1,320,176	1,406,910	1,546,568	1,630,445	1,699,154	1,662,643	2,183,127	1,674,892	1,127,090	642,709	663,406	572,837	492,408	429,955	369,519	436,838	364,223	346,248
Medium hubs	151,498	255,929	268,179	292,899	321,041	321,051	324,441	344,200	442,814	466,583	473,577	482,710	502,096	508,356	407,330	162,549	141,315	143,888	136,635	124,151	120,709	155,029	98,011	96,772
Small hubs	48,486	148,116	59,917	108,656	126,070	144,918	152,692	136,111	136,008	157,137	138,818	127,748	126,793	109,283	103,227	34,293	27,464	25,202	16,901	18,512	7,842	10,332	51,858	55,544
Nonhubs	19,134	31,021	12,781	17,954	20,861	15,117	21,894	28,485	35,149	31,338	45,232	26,154	32,114	42,341	71,196	11,766	9,614	3,933	4,520	16,588	50,632	47,946	44,223	41,286

KEY: R = revised.

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

NOTES

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

Prior to 2000, and/or 2007-2010 air traffic hubs are designated as geographical areas based on the percentage of total passengers enplaned in the area. Under this designation, a hub may have more than one airport in it. (This definition of hub should not be confused with the definition used by the airlines in describing their "hub-and-spoke" route structures.) Individual communities fall into four hub classifications as determined by each community's percentage of total enplaned revenue passengers in all services and all operations of U.S. certificated route carriers within the 50 states and the District of Columbia. For 2000-2006, hub designation is based on passenger boardings at individual airports as designated by the FAA. Classifications are based on the percentage of total enplaned revenue passengers for each year according to the following: one percent or more = large, 0.25 to 0.9999 percent = medium, 0.05 to 0.249 percent = small, less than 0.05 = nonhub.

SOURCES
1975-99: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airport Activity Statistics of Certified Route Air Carriers* (Washington, DC: Annual issues), tables 2, 3, 4, and 5.
2000-11: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airport Activity Statistics Database* (Form 41 Schedule T-3), special tabulation.

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Freight																											
Air carrier	U	U	U	U	U	U	U	1,307	1,496	1,478	1,580	1,555	1,441	1,115	1,105	1,055	1,077	720	1,204	(R) 1,197	(R) 1,241	(R) 1,218	(R) 1,218	(R) 1,220	(R) 1,246	(R) 1,162	1,157
Class I rail	461	503	515	541	616	665	726	751	763	794	817	843	842	851	835	835	843	858	853	862	902	893	906	913	919	918	914
Coastwise (water)	1,496	1,501	1,509	1,362	1,915	1,972	1,605	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	1,233	1,126	1,108	1,116	1,170	1,169
Lakewise (water)	522	494	506	530	536	524	553	535	519	514	508	514	508	507	505	501	506	509	529	529	538	540	548	543	556	530	563
Internal (water)	282	297	330	358	405	435	470	483	479	467	482	494	477	466	472	488	481	476	483	457	454	440	446	437	443	469	465
Intraport (water)	U	U	U	16	17	15	13	13	12	12	16	16	17	15	15	15	16	15	15	15	16	17	17	17	16	24	16
Crude (oil pipeline)	325	320	300	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Petroleum products (oil pipeline)	269	335	357	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Passenger																											
Air carrier, domestic, scheduled	583	614	678	698	736	758	803	806	806	799	787	791	802	817	812	824	834	845	(R) 852	(R) 845	862	(R) 866	(R) 873	(R) 872	(R) 872	872	878
Commuter rail	U	U	U	U	23	24	22	23	23	22	24	24	24	23	23	22	23	23	23	23	23	22	23	24	23	24	23
Amtrak[a]	N	N	N	236	216	231	273	285	286	280	279	268	256	256	251	248	244	237	234	231	219	215	220	218	215	217	220

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

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

NOTES

Average length of haul for *freight* is calculated by dividing ton-miles by estimates of tonnage from the various data sources. The calculation of average length of haul for *passenger* trips varies by mode: for *air carrier* it is calculated by dividing revenue passenger-miles by revenue passenger enplanements; for *commuter rail* and *Amtrak* it is calculated by dividing passenger-miles by number of passengers.
Eno Transportation Foundation has discontinued some data series years prior to 1990.

SOURCES

Freight:

Air carrier:

1991-2001: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Air Freight Summary Data (U.S. Carriers)*, special tabulation, available at http://www.transtats.bts.gov/rtm91_02.htm as of Aug. 18, 2011.
2002: Ibid., *TranStats Database, T-100 Market Data*, special tabulation, Mar. 18, 2010.
2003-10: Ibid., *Air Cargo Summary Data (All U.S. Carriers)*, special tabulation, available at http://www.transtats.bts.gov/freight.asp as of July 17, 2012.

Class I rail:

Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), pp. 27, 28, 36, and similar pages in previous editions.

Water:

U.S. Army Corps of Engineers, *Waterborne Commerce of the United States, Part 5* (New Orleans, LA: Annual Issues), section 1, table 1-4, available at http://www.iwr.usace.army.mil/ndc/wcsc/wcsc.htm as of July 17, 2012.

Oil pipeline:

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

Passenger:

Air carrier:

1960-99: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics, T-100 Segment Data* (Washington, DC: Annual Issues), p. 3 and similar pages in previous issues.
2000-10: Ibid., *TranStats Database, T-100 Market Data* and *T-100 Segment Data*, special tabulation, July 17, 2012.

Commuter Rail:

1980-95: American Public Transportation Association, *Public Transportation Fact Book, Appendix A: Historical Tables* (Washington, DC: April 2011), table 3, available at http://www.apta.com/resources/statistics/Pages/transitstats.aspx as of Aug. 18, 2011.
1996-2010: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, DC: Annual Issues), table 19 and similar tables in earlier editions, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of July 17, 2012.

Amtrak:

1970-85: Amtrak, personal communication, Jan. 26, 1999.
1990-2002: Amtrak, *Amtrak Annual Report* (Washington, DC: 2003), Statistical Appendix.
2003-10: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in previous editions.

Table 1-39: Worldwide Commercial Space Launches

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	TOTAL 1990-2012
TOTAL space launches	15	12	14	11	15	23	24	38	41	39	35	16	24	17	15	18	21	23	28	24	23	18	20	514
United States, total	9	6	6	5	5	12	11	17	22	15	7	3	5	5	6	1	2	3	6	4	4	0	2	156
Athena	0	0	0	0	0	1	0	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Atlas	1	2	3	3	4	8	7	6	5	4	3	1	3	4	5	1	1	0	1	1	0	0	0	63
Conestoga	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Delta	5	4	3	1	1	1	3	7	11	5	2	1	2	0	0	0	1	3	2	2	2	0	0	56
Falcon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	2	0	2	7
Pegasus	0	0	0	1	0	1	1	3	4	2	2	0	0	1	0	0	0	0	1	0	0	0	0	16
Taurus	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	4
Titan	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Europe, total	5	6	6	6	8	8	9	11	9	8	12	8	10	4	1	5	5	6	5	5	6	4	6	153
Ariane 4	5	6	6	6	8	8	9	11	9	8	8	6	7	1	0	0	0	0	0	0	0	0	0	98
Ariane 5	0	0	0	0	0	0	0	0	0	0	4	2	3	3	1	5	5	6	5	5	6	4	6	55
Russia, total	0	0	0	0	0	0	2	7	5	13	13	3	8	5	5	8	9	12	11	10	13	10	7	141
Cosmos	0	0	0	0	0	0	0	0	0	1	2	0	0	1	0	1	0	0	3	0	0	0	0	8
Dnepr	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	1	3	2	1	3	1	0	15
Kosmos	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	3
Proton	0	0	0	0	0	0	2	6	4	5	6	2	5	1	4	4	4	4	6	7	8	7	7	82
Rockot	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	1	1	0	0	2	1	0	0	8
Shtil	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Soyuz	0	0	0	0	0	0	0	0	0	6	3	0	0	2	0	1	0	0	0	0	0	0	0	12
Soyuz 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	1	2	0	7
Start	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	4
Volna	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Ukraine, total	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Zenit 2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
China, total	1	0	2	0	2	3	2	3	4	1	0	0	0	0	0	0	0	0	0	1	0	2	2	23
Long March 2C	0	0	0	0	0	0	0	1	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Long March 2E	0	0	2	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Long March 3	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Long March 3B	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	7
Long March 2D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
India, total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
PSLV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Sea Launch[a], total	0	0	0	0	0	0	0	0	0	2	3	2	1	3	3	4	5	1	6	4	0	2	3	39
Zenit 3SL	0	0	0	0	0	0	0	0	0	2	3	2	1	3	3	4	5	1	6	4	0	2	3	39

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

NOTES

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

SOURCES

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

2000-12: U.S. Department of Transportation, Federal Aviation Administration, *Commercial Space Transportation: Year in Review* (Washington, DC: Annual Issues), table 2, available at http://www.faa.gov/about/office_org/headquarters_offices/ast/ as of Feb. 7, 2013.

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Air																												
Air carrier, certificated, domestic, all services	31,099	53,226	108,442	119,591	190,766	275,864	345,873	338,085	354,764	362,227	388,410	403,912	434,652	450,673	462,754	487,940	515,598	486,506	483,525	505,602	558,194	583,771	588,471	607,564	583,292	551,741	564,695	575,613
Highway, total	**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**	**4,200,634**	**4,304,270**	**4,550,574**	**4,589,049**	**4,689,938**	**4,740,739**	**4,867,748**	**4,901,211**	**4,955,063**	**4,981,088**	**4,900,171**	**(R)4,241,346**	**(R) 4,244,833**	**4,224,297**
Light duty vehicle, short wheel base[a,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	3,107,729	3,139,120	3,216,786	3,240,359	3,290,560	3,312,355	3,235,752	3,324,977	3,199,116	2,800,603	(R) 2,814,540	2,839,083
Motorcycle[a,c]	U	U	3,277	6,192	12,257	11,812	12,424	11,656	11,946	12,184	12,390	10,777	10,912	11,089	11,311	11,642	15,463	14,123	14,187	14,457	19,019	17,492	24,329	27,173	26,430	22,428	(R) 19,941	19,927
Light duty vehicle, long wheel base[a,b,c]	U	U	225,613	363,267	520,774	688,091	999,754	1,116,958	1,201,667	1,252,860	1,269,292	1,256,146	1,298,299	1,352,675	1,380,557	1,432,625	851,762	888,135	900,693	915,962	987,258	1,007,637	1,096,712	1,017,007	1,049,667	824,994	(R) 831,912	805,888
Truck, single-unit 2-axle 6-tire or more[c]	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	100,486	103,470	107,317	112,723	111,238	109,735	123,318	119,979	126,855	120,207	(R) 110,738	103,515
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	161,238	168,969	168,217	173,539	172,960	175,128	177,321	184,199	183,826	168,100	(R) 175,789	163,692
Bus[d]	U	U	U	U	U	94,925	121,398	121,906	122,496	129,852	135,871	136,104	139,136	145,060	148,558	162,445	313,897	275,231	282,739	283,699	286,714	278,864	297,631	307,753	314,278	305,014	(R) 291,914	292,192
Transit, total[e]	**U**	**U**	**U**	**U**	**39,854**	**39,581**	**41,143**	**40,703**	**40,241**	**39,384**	**39,585**	**39,808**	**38,984**	**40,180**	**41,605**	**43,279**	**45,100**	**46,508**	**46,096**	**45,677**	**46,546**	**47,125**	**49,504**	**51,873**	**53,712**	**53,898**	**52,627**	**54,328**
Motor bus[f]	U	U	U	U	21,790	21,161	20,981	21,090	20,336	20,247	18,832	18,818	16,802	17,509	17,874	18,684	18,807	19,583	19,679	19,179	18,921	19,425	20,390	20,388	21,198	21,100	20,570	19,883
Light rail	U	U	U	U	381	350	571	662	701	705	833	860	955	1,024	1,115	1,190	1,339	1,427	1,432	1,476	1,576	1,700	1,866	1,930	2,081	2,196	2,173	2,198
Heavy rail	U	U	U	U	10,558	10,427	11,475	10,528	10,737	10,231	10,668	10,559	11,530	12,056	12,284	12,902	13,844	14,178	13,663	13,606	14,354	14,418	14,721	16,138	16,850	16,805	16,407	17,317
Trolley bus	U	U	U	U	219	306	193	195	199	188	187	187	184	189	182	186	192	187	188	176	173	173	164	156	161	168	169	160
Commuter rail	4,197	4,128	4,592	4,513	6,516	6,534	7,082	7,344	7,320	6,940	7,996	8,244	8,350	8,037	8,702	8,764	9,400	9,544	9,500	9,555	9,715	9,470	10,359	11,137	11,032	11,129	10,774	11,314
Demand responsive[f]	U	U	U	U	U	364	431	454	495	562	577	607	391	531	513	559	588	626	651	689	704	738	753	778	844	881	874	879
Ferry boat[f]	U	U	U	U	U	U	286	282	271	260	260	260	255	254	280	295	298	295	301	367	357	359	360	381	390	365	389	389
Other[f]	U	U	U	U	390	439	124	148	182	251	232	273	516	579	654	699	632	668	683	629	745	842	891	966	1,156	1,254	1,272	2,189
Rail																												
Intercity/Amtrak[g]	17,064	13,260	6,179	3,931	4,503	4,825	6,057	6,273	6,091	6,199	5,921	5,545	5,050	5,166	5,304	5,330	5,498	5,559	5,468	5,680	5,511	5,381	5,410	5,784	6,179	5,914	6,420	6,670

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

[a] 1960-99 data are for Passenger Cars and Other 2-axle, 4-tire vehicles, respectively. Data for 1960-99 are not comparable to data for 2000-09.

[b] U.S. Department of Transportation, Federal Highway Administration (FHWA), provides data separately for *Light duty vehicle, short wheel base* (formerly *Passenger car*) and *Motorcycle* in its annual *Highway Statistics* series. However, the 1995 summary report provides updated data for *Light duty vehicle, short wheel base* (formerly *Passenger car*) and *Motorcycle* combined. *Light duty vehicle, short wheel base* (formerly *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 *Light duty vehicle, short wheel base* (formerly *Passenger car*) and *Motorcycle* figures.

[c] 1960-65, *Motorcycle* data are included in *Light duty vehicle, short wheel base* (formerly *Passenger car*), and *Long duty vehicle, long wheel base* (formerly *Other 2-axle 4-tire vehicle*) data are included in *Single-unit 2-axle 6-tire or more Truck*.

[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] *Ferry boat* included with *Other* under *Transit* for 1980 and 1985.

[g] National Passenger Railroad Corporation (*Amtrak*) began operations in 1971. Does not include contract commuter passengers.

NOTES

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

In July 1997, the U.S. Department of Transportation, Federal Highway Administration 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). Again in March 2011, the methodology and data categories of the Highway Statistics series were updated. The new category *Light duty vehicle, short wheel base* includes passenger cars, light trucks, vans, and sport utility vehicles (SUVs) with a wheel base equal to or less than 121 inches. The new category *Light duty vehicle, long wheel base* includes large passenger cars, pickup trucks, vans, and SUVs with a wheel base longer than 121 inches. The data are revised with the new methodology back to the year 2000, so the data from 1980-99 are not comparable. In addition, this edition of table 1-40 is not comparable to previous editions.

The FHWA estimates national trends by using State reported Highway Performance and Monitoring System (HPMS) data, fuel consumption data, vehicle registration data, other data such as the R. L. Polk vehicle data, and a host of modeling techniques.

2007 data for *Bus, Paratransit (Demand responsive), and Other* are not comparable to earlier years due to change in the method of data collection and estimation by the American Public Transportation Association (APTA).

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

Numbers may not add to totals due to rounding.

SOURCES

Air:

Air carrier, domestic, all services:

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

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

1975-2011: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Summary : T1: U.S. Air Carrier Traffic And Capacity Summary by Service Class*, available at http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=264&DB_Short_Name=Air%20Carrier%20Summary as of Mar. 22, 2013.

Highway:

Passenger car and motorcycle:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of May 6, 2011.

1995-99: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of May 6, 2011.

Light duty vehicle, short wheel base:

2000-11: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 22, 2013.

Motorcycle:

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

1985-2011: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 22, 2013.

Other 2-axle 4-tire vehicle:

1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of May 6, 2011.

1995-99: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of May 6, 2011.

Light duty vehicle, long wheel base:

2000-11: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 22, 2013.

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

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of May 6, 2011.

1995-2011: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Aug. 1, 2013.

Transit:

Ferryboat:

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

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

1996-2011: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database*, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Mar.22, 2013.

All other data:

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

1996-2011: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database*, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Mar. 22, 2013.

Rail, Intercity / Amtrak:

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

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

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

2003-11: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), page 77.

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

	1989		1993		1997		1999		2001		2002		(R) 2003		2004		2005		2006		2007		2008		2009		(R) 2010		2011	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
All workers	106,630	100.0	103,741	100.0	116,469	100.0	118,041	100.0	119,896	100.0	128,618	100.0	129,142	100.0	130,831	100.0	133,091	100.0	138,266	100.0	139,260	100.0	143,996	100.0	138,592	100.0	136,941	100.0	138,270	100.0
Automobile, total	93,943	88.1	91,301	88.0	101,908	87.5	103,467	87.7	105,450	88.0	112,941	87.8	113,900	88.2	114,819	87.8	116,659	87.7	119,898	86.7	120,442	86.5	124,177	86.2	119,393	86.1	118,124	86.3	119,027	86.1
Drives self	81,322	76.3	79,449	76.6	90,207	77.5	92,363	78.2	93,819	78.3	99,575	77.4	100,417	77.8	101,635	77.7	102,458	77.0	105,046	76.0	105,955	76.1	108,776	75.5	105,476	76.1	104,858	76.6	105,639	76.4
Carpool, total	12,621	11.8	11,852	11.4	11,701	10.0	11,104	9.4	11,631	9.7	13,367	10.4	13,483	10.4	13,183	10.1	14,200	10.7	14,852	10.7	14,488	10.4	15,402	10.7	13,917	10.0	13,266	9.7	13,388	9.7
2-person	9,708	9.1	9,105	8.8	9,294	8.0	8,705	7.4	9,012	7.5	NA	NA	NA	NA	10,328	7.9	10,981	8.3	11,408	8.3	11,139	8.0	11,846	8.2	10,813	7.8	10,294	7.5	10,382	7.5
3-person	1,748	1.6	1,684	1.6	1,526	1.3	1,454	1.2	1,642	1.4	NA	NA	NA	NA	1,702	1.3	(R) 1,911	1.4	1,992	1.4	1,963	1.4	2,088	1.5	1,822	1.3	1,733	1.3	1,759	1.3
4+ person[a]	1,165	1.1	1,063	1.0	881	0.8	945	0.8	977	0.8	NA	NA	NA	NA	1,154	0.9	(R) 1,308	(R) 1.0	1,451	1.0	1,385	1.0	1,467	1.0	1,282	0.9	1,239	0.9	1,246	0.9
Public transportation[b]	4,880	4.6	4,740	4.6	5,337	4.6	5,779	4.9	5,602	4.7	6,202	4.8	6,072	4.7	5,978	4.6	(R) 6,202	4.7	(R) 6,684	4.8	(R) 6,801	4.9	(R) 7,210	5.0	6,922	5.0	6,769	4.9	6,956	5.0
Taxicab	152	0.1	117	0.1	139	0.1	144	0.1	133	0.1	183	0.1	159	0.1	154	0.1	(R) 176	(R) 0.1	178	0.1	179	0.1	167	0.1	157	0.1	151	0.1	165	0.1
Bicycle[c]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	465	0.4	483	0.4	490	0.4	535	0.4	623	0.5	665	0.5	786	0.5	766	0.6	731	0.5	778	0.6
Motorcycle	795	0.7	744	0.7	738	0.6	749	0.6	846	0.7	139	0.1	148	0.1	192	0.1	248	0.2	272	0.2	284	0.2	397	0.3	294	0.2	267	0.2	288	0.2
Walks only	3,634	3.4	3,227	3.1	3,869	3.3	3,627	3.1	3,405	2.8	3,184	2.5	2,934	2.3	3,116	2.4	3,291	2.5	3,952	2.9	3,954	2.8	4,061	2.8	3,966	2.9	3,797	2.8	3,888	2.8
Other means[d]	491	0.5	474	0.5	867	0.7	987	0.8	1,052	0.9	1,056	0.8	927	0.7	1,060	0.8	(R) 1,184	(R) 0.9	(R) 1,247	0.9	(R) 1,258	0.9	(R) 1,301	0.9	1,176	0.8	1,178	0.9	1,175	0.8
Works at home	2,736	2.6	3,137	3.0	3,611	3.1	3,288	2.8	3,409	2.8	4,448	3.5	4,518	3.5	5,023	3.8	4,796	3.6	5,411	3.9	5,677	4.1	5,897	4.1	5,918	4.3	5,924	4.3	5,994	4.3

KEY: NA = not applicable.

[a] From 2004 onward, the *Carpool* categories are 2-person and 3+ person; 4+ person is the sum of 4-person, 5-6 persons, and 7+ persons from the source data.
[b] *Public transportation* refers to bus, streetcar, subway, railroad, and elevated trains for years 1989-2001, and includes ferryboats from 2002-10.
[c] From 1989 to 2001, *Bicycle* data are included under *Motorcycle* .
[d] *Other means* include ferryboats, surface trains, and van service and other means not classified for years 1989-2001, and excludes ferryboats from 2002-11.

NOTES

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

Component values may not add to totals due to rounding.

SOURCES

1989-2001: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.

2002-11: U.S. Department of Commerce, U.S. Census Bureau, *American Community Survey* , table B08301 and similar tables from previous editions, available at http://www.census.gov/acs/www/index.html as of Feb. 5, 2013.

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

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

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

KEY: NA = not applicable.

[a] Includes other leisure purposes not shown separately.

NOTE

Numbers may not add to totals due to rounding.

SOURCE

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

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

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

KEY: NA = not applicable.

NOTE
Numbers may not add to totals due to rounding.

SOURCE

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

Table 1-44: Passengers Boarded at the Top 50 U.S. Airports[a]
(Ranked by Passenger Enplanements in 2011)

Airport	Code	2001 Rank	2001 Total Enplaned Passengers	(R) 2010 Rank	(R) 2010 Total Enplaned Passengers	2011 Rank	2011 Total Enplaned Passengers	Percent change 2001-2011	Percent change 2010-2011
Atlanta, GA (Hartsfield-Jackson Atlanta International)	ATL	1	36,384,264	1	42,655,392	1	33,034,788	-9.2	-22.6
Chicago, IL (Chicago O'Hare International)	ORD	2	28,626,694	2	30,033,313	2	22,367,052	-21.9	-25.5
Dallas, TX (Dallas/Fort Worth International)	DFW	3	25,198,256	3	26,785,739	3	20,430,281	-18.9	-23.7
Denver, CO (Denver International)	DEN	6	16,397,390	4	24,965,553	4	19,190,341	17.0	-23.1
Los Angeles, CA (Los Angeles International)	LAX	4	22,873,307	5	22,860,849	5	18,379,418	-19.6	-19.6
Phoenix, AZ (Phoenix Sky Harbor International)	PHX	5	16,540,686	7	18,657,891	6	14,680,444	-11.2	-21.3
Charlotte, NC (Charlotte Douglas International)	CLT	19	10,226,010	8	18,539,589	7	14,207,015	38.9	-23.4
Las Vegas, NV (McCarran International)	LAS	7	16,121,009	9	17,851,932	8	13,929,834	-13.6	-22.0
Houston, TX (George Bush Intercontinental)	IAH	9	15,639,781	6	18,726,696	9	13,920,435	-11.0	-25.7
San Francisco, CA (San Francisco International)	SFO	11	13,862,994	10	16,751,758	10	12,916,195	-6.8	-22.9
New York, NY (John F. Kennedy International)	JFK	21	9,647,313	11	16,389,107	11	12,737,380	32.0	-22.3
Minneapolis, MN (Minneapolis-St. Paul International/World-Chamberlain)	MSP	8	15,648,295	14	15,474,646	12	12,117,506	-22.6	-21.7
Orlando, FL (Orlando International)	MCO	15	12,619,918	12	15,727,564	13	12,040,406	-4.6	-23.4
Detroit, MI (Detroit Metropolitan Wayne County)	DTW	10	15,467,124	13	15,483,222	14	11,711,660	-24.3	-24.4
Seattle, WA (Seattle-Tacoma International)	SEA	14	12,705,320	16	14,838,615	15	11,666,453	-8.2	-21.4
Newark, NJ (Newark Liberty International)	EWR	12	13,822,541	15	14,927,554	16	11,325,271	-18.1	-24.1
Miami, FL (Miami International)	MIA	16	11,505,199	18	14,007,849	17	11,207,787	-2.6	-20.0
Philadelphia, PA (Philadelphia International)	PHL	17	10,387,030	17	14,703,670	18	11,037,928	6.3	-24.9
Boston, MA (General Edward Lawrence Logan International)	BOS	20	10,016,801	19	12,282,374	19	9,672,420	-3.4	-21.2
New York, NY (LaGuardia)	LGA	18	10,311,470	20	11,634,035	20	8,646,321	-16.1	-25.7
Baltimore, MD (Baltimore/Washington International Thurgood Marshall)	BWI	22	9,450,749	21	10,754,424	21	8,297,931	-12.2	-22.8
Fort Lauderdale, FL (Fort Lauderdale-Hollywood International)	FLL	28	7,372,417	22	10,036,422	22	7,991,173	8.4	-20.4
Salt Lake City, UT (Salt Lake International)	SLC	25	7,839,933	23	9,910,042	23	7,413,792	-5.4	-25.2
Washington, DC (Dulles International)	IAD	34	5,753,870	24	9,822,576	24	7,150,715	24.3	-27.2
Chicago, IL (Chicago Midway)	MDW	30	7,062,993	26	8,469,677	25	6,738,892	-4.6	-20.4
Washington, DC (Ronald Reagan Washington National)	DCA	33	5,784,639	25	8,630,921	26	6,693,814	15.7	-22.4
San Diego, CA (San Diego International)	SAN	29	7,254,291	27	8,347,443	27	6,233,324	-14.1	-25.3
Tampa, FL (Tampa International)	TPA	27	7,458,091	28	7,949,335	28	6,017,993	-19.3	-24.3
Honolulu, HI (Honolulu International)	HNL	26	7,794,787	29	7,484,065	29	5,666,153	-27.3	-24.3
Portland, OR (Portland International)	PDX	31	6,005,120	30	6,517,305	30	5,041,875	-16.0	-22.6
St. Louis, MO (Lambert-St Louis International)	STL	13	12,864,472	31	6,013,884	31	4,579,048	-64.4	-23.9
Kansas City, MO (Kansas City International)	MCI	36	5,495,846	32	4,938,386	32	3,730,987	-32.1	-24.4
Milwaukee, WI (General Mitchell Field)	MKE	58	2,557,598	34	4,753,992	33	3,615,279	41.4	-24.0
Houston, TX (William P. Hobby)	HOU	42	4,120,895	40	4,357,456	34	3,508,108	-14.9	-19.5
Nashville, TN (Nashville International)	BNA	43	4,080,700	38	4,412,689	35	3,477,547	-14.8	-21.2
Memphis, TN (Memphis International)	MEM	38	4,786,581	33	4,926,225	36	3,340,385	-30.2	-32.2
Cleveland, OH (Hopkins International)	CLE	35	5,528,785	35	4,574,472	37	3,313,734	-40.1	-27.6
Austin, TX (Austin-Bergstrom International)	AUS	47	3,430,348	42	4,200,766	38	3,296,237	-3.9	-21.5
Oakland, CA (Oakland International)	OAK	37	5,487,002	36	4,566,953	39	3,288,377	-40.1	-28.0
Raleigh, NC (Raleigh-Durham International)	RDU	41	4,483,332	37	4,434,774	40	3,281,328	-26.8	-26.0
Sacramento, CA (Sacramento International)	SMF	44	3,874,856	39	4,391,998	41	3,275,109	-15.5	-25.4
Santa Ana, CA (John Wayne-Orange County)	SNA	45	3,618,717	41	4,267,217	42	3,166,917	-12.5	-25.8
New Orleans, LA (Louis Armstrong International)	MSY	39	4,682,763	44	4,081,146	43	3,144,803	-32.8	-22.9
San Jose, CA (Norman Y. Mineta San Jose International)	SJC	32	5,865,995	45	3,992,074	44	3,053,598	-47.9	-23.5
Pittsburgh, PA (Pittsburgh International)	PIT	23	8,710,841	46	3,986,065	45	3,047,162	-65.0	-23.6
San Juan, PR (Luis Munoz Marin International)	SJU	40	4,537,774	43	4,151,370	46	2,991,599	-34.1	-27.9
San Antonio, TX (San Antonio International)	SAT	51	3,254,348	48	3,861,772	47	2,916,935	-10.4	-24.5
Dallas, TX (Dallas Love Field)	DAL	49	3,350,775	49	3,782,407	48	2,866,109	-14.5	-24.2
Fort Myers, FL (Southwest Florida International)	RSW	59	2,503,843	51	3,610,618	49	2,817,684	12.5	-22.0
Indianapolis, IN (Indianapolis International)	IND	48	3,410,636	50	3,716,884	50	2,750,105	-19.4	-26.0
Top 50 U.S. Airports, total[b]	NA	NA	499,292,274	NA	558,529,011	NA	427,925,648	-14.3	-23.4
All airports	NA	NA	632,794,144	NA	677,624,234	NA	518,425,645	-18.1	-23.5

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 2010 were not in the top 50 in the earlier years.

NOTES

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

SOURCE

U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information,*Air Carrier Summary Data (Form 41 and 298C Summary Data), T-3 Data*, available at http://transtats.bts.gov/DataIndex.asp as of Apr. 18, 2012.

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

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

KEY: R = revised; U = data are unavailable

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

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

NOTES

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

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

Numbers may not add to totals due to independent rounding

SOURCES

Totals and all selected countries, except for Canada:

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

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

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

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

Canada:

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

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

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

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

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

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

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

NOTES

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

Numbers may not add to totals due to independent rounding.

SOURCES

Totals and all selected countries, except for Canada:

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

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

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

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

Canada:

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

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

Section D
Travel and Goods Movement

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

All U.S.-Canadian land gateways	2002		2003		2004		2005		2006		2007		2008		2009
All personal vehicle passengers	68,986,616	All personal vehicle passengers	62,136,536	All personal vehicle passengers	63,269,668	All personal vehicle passengers	62,501,376	All personal vehicle passengers	62,986,037	All personal vehicle passengers	(R) 58,409,016	All personal vehicle passengers	(R) 57,423,879	All personal vehicle passengers	(R) 53,528,341
All personal vehicles	32,538,817	All personal vehicles	30,245,165	All personal vehicles	30,660,487	All personal vehicles	30,351,683	All personal vehicles	30,038,524	All personal vehicles	(R) 29,775,714	All personal vehicles	(R) 28,686,786	All personal vehicles	(R) 26,706,830
All bus passengers	4,212,863	All bus passengers	3,779,970	All bus passengers	3,890,380	All bus passengers	3,854,858	All bus passengers	3,499,103	All bus passengers	3,684,631	All bus passengers	3,404,305	All bus passengers	2,503,417
All pedestrians	1,081,682	All pedestrians	937,493	All pedestrians	826,017	All pedestrians	605,339	All pedestrians	533,739	All pedestrians	441,066	All pedestrians	499,666	All pedestrians	379,902
All train passengers	255,134	All train passengers	234,796	All train passengers	223,477	All train passengers	235,758	All train passengers	244,683	All train passengers	233,070	All train passengers	238,593	All train passengers	217,833
All buses	160,961	All buses	156,589	All buses	155,702	All buses	153,454	All buses	129,452	All buses	136,430	All buses	127,233	All buses	116,355
Personal vehicle passengers – top 5 gateways															
Buffalo-Niagara Falls, NY	17,031,458	Buffalo-Niagara Falls, NY	13,216,214	Buffalo-Niagara Falls, NY	13,195,191	Buffalo-Niagara Falls, NY	13,224,477	Buffalo-Niagara Falls, NY	13,514,778	Buffalo-Niagara Falls, NY	14,372,038	Buffalo-Niagara Falls, NY	13,102,189	Buffalo-Niagara Falls, NY	11,817,527
Detroit, MI	12,318,806	Detroit, MI	10,965,872	Detroit, MI	10,574,206	Detroit, MI	10,655,076	Detroit, MI	9,932,051	Detroit, MI	9,560,365	Detroit, MI	8,386,427	Detroit, MI	7,270,765
Blaine, WA	4,794,088	Blaine, WA	4,491,959	Blaine, WA	4,936,364	Blaine, WA	4,868,308	Blaine, WA	5,276,202	Blaine, WA	5,187,218	Blaine, WA	5,754,718	Blaine, WA	5,966,409
Port Huron, MI	4,188,972	Port Huron, MI	3,821,908	Port Huron, MI	3,909,238	Port Huron, MI	4,001,589	Port Huron, MI	4,106,919	Port Huron, MI	3,523,429	Port Huron, MI	3,500,157	Port Huron, MI	3,319,652
Champlain-Rouses Point, NY	3,766,141	Champlain-Rouses Point, NY	3,521,091	Champlain-Rouses Point, NY	3,538,682	Champlain-Rouses Point, NY	2,921,118	Champlain-Rouses Point, NY	2,920,749	Champlain-Rouses Point, NY	1,923,295	Champlain-Rouses Point, NY	1,946,442	Champlain-Rouses Point, NY	2,198,127
Personal vehicles – top 5 gateways															
Buffalo-Niagara Falls, NY	7,569,643	Buffalo-Niagara Falls, NY	6,414,415	Buffalo-Niagara Falls, NY	6,148,983	Detroit, MI	6,035,004	Buffalo-Niagara Falls, NY	6,026,058	Buffalo-Niagara Falls, NY	5,977,040	Buffalo-Niagara Falls, NY	5,716,260	Buffalo-Niagara Falls, NY	5,291,623
Detroit, MI	6,857,332	Detroit, MI	6,315,590	Detroit, MI	6,131,426	Buffalo-Niagara Falls, NY	6,034,398	Detroit, MI	5,634,179	Detroit, MI	5,471,657	Detroit, MI	4,744,182	Detroit, MI	4,082,030
Blaine, WA	2,385,389	Blaine, WA	2,299,636	Blaine, WA	2,524,256	Blaine, WA	2,482,065	Blaine, WA	2,596,970	Blaine, WA	2,763,389	Blaine, WA	2,748,629	Blaine, WA	2,842,631
Port Huron, MI	2,187,210	Port Huron, MI	1,965,011	Port Huron, MI	1,995,988	Port Huron, MI	1,953,413	Port Huron, MI	1,975,745	Port Huron, MI	1,704,479	Port Huron, MI	1,667,254	Port Huron, MI	1,570,273
Massena, NY	1,162,510	Massena, NY	1,133,727	Calais, ME	1,200,379	Calais, ME	1,174,011	Calais, ME	1,173,617	Calais, ME	1,032,840	Massena, NY	1,002,960	Champlain-Rouses Point, NY	1,040,154
Bus passengers – top 5 gateways															
Buffalo-Niagara Falls, NY	1,556,924	Buffalo-Niagara Falls, NY	1,321,778	Buffalo-Niagara Falls, NY	1,222,775	Buffalo-Niagara Falls, NY	1,367,283	Detroit, MI	911,799	Buffalo-Niagara Falls, NY	1,142,765	Buffalo-Niagara Falls, NY	1,040,700	Buffalo-Niagara Falls, NY	883,448
Detroit, MI	915,551	Detroit, MI	904,425	Detroit, MI	930,725	Detroit, MI	931,100	Buffalo, Niagara Falls, NY	885,061	Detroit, MI	870,982	Detroit, MI	720,014	Blaine, WA	323,333
Blaine, WA	336,696	Blaine, WA	283,863	Blaine, WA	329,297	Champlain-Rouses Point, NY	296,390	Blaine, WA	452,521	Blaine, WA	337,322	Blaine, WA	335,951	Detroit, MI	297,787
Champlain-Rouses Point, NY	282,859	Champlain-Rouses Point, NY	234,620	Champlain-Rouses Point, NY	277,018	Blaine, WA	294,564	Champlain-Rouses Point, NY	294,028	Champlain-Rouses Point, NY	306,898	Champlain-Rouses Point, NY	306,006	Champlain-Rouses Point, NY	282,949
Port Huron, MI	147,309	Sault Ste. Marie, MI	192,760	Sault Ste. Marie, MI	223,800	Skagway, AK	134,204	Skagway, AK	144,819	Sault Ste. Marie, MI	165,136	Sault Ste. Marie, MI	208,288	Skagway, AK	161,255
Pedestrians – top 5 gateways															
Buffalo-Niagara Falls, NY	818,913	Buffalo-Niagara Falls, NY	656,022	Buffalo-Niagara Falls, NY	547,126	Buffalo-Niagara Falls, NY	370,295	Buffalo-Niagara Falls, NY	345,652	Buffalo-Niagara Falls, NY	277,000	Buffalo-Niagara Falls, NY	333,565	Buffalo-Niagara Falls, NY	244,697
Sumas, WA	64,432	Sumas, WA	59,330	Sumas, WA	54,911	Calais, ME	44,238	Sumas, WA	28,963	Sumas, WA	33,341	Sumas, WA	37,699	Sumas, WA	27,022
Portland, ME[a]	39,293	Calais, ME	45,899	Calais, ME	44,762	Sumas, WA	33,769	Calais, ME	22,323	Calais, ME	29,123	Calais, ME	27,420	Calais, ME	16,665
Calais, ME	35,154	Portland, ME[a]	38,129	International Falls, MN	28,180	International Falls, MN	24,497	International Falls, MN	20,440	Point Roberts, WA	14,762	Detroit, MI	16,202	Detroit, MI	16,529
International Falls, MN	24,175	International Falls, MN	27,623	Portland, ME[a]	21,599	Point Roberts, WA	22,440	Point Roberts, WA	14,935	International Falls, MN	14,238	International Falls, MN	15,113	International Falls, MN	15,247
Train passengers – top 5 gateways															
Blaine, WA	60,521	Skagway, AK	44,430	Skagway, AK	52,353	Skagway, AK	67,462	Skagway, AK	74,347	Skagway, AK	80,816	Skagway, AK	77,137	Skagway, AK	64,751
Buffalo-Niagara Falls, NY	47,315	Blaine, WA	43,515	Blaine, WA	41,705	Buffalo-Niagara Falls, NY	35,951	Buffalo-Niagara Falls, NY	37,880	Buffalo-Niagara Falls, NY	39,640	Buffalo-Niagara Falls, NY	37,449	Blaine, WA	44,718
Champlain-Rouses Point, NY	33,738	Buffalo-Niagara Falls, NY	37,240	Buffalo-Niagara Falls, NY	31,045	Blaine, WA	35,454	Champlain-Rouses Point, NY	33,518	Blaine, WA	32,106	Blaine, WA	34,749	Champlain-Rouses Point, NY	36,356
Skagway, AK	29,754	Champlain-Rouses Point, NY	28,325	Champlain-Rouses Point, NY	30,294	Champlain-Rouses Point, NY	29,831	Blaine, WA	32,184	Champlain-Rouses Point, NY	20,881	Champlain-Rouses Point, NY	32,274	Buffalo-Niagara Falls, NY	28,477
Port Huron, MI	26,815	Port Huron, MI	25,485	Port Huron, MI	18,297	Port Huron, MI	19,032	Port Huron, MI	16,070	Detroit, MI	9,323	Detroit, MI	9,385	International Falls, MN	6,572
Buses – top 5 gateways															
Buffalo-Niagara Falls, NY	50,582	Buffalo-Niagara Falls, NY	43,358	Buffalo-Niagara Falls, NY	39,920	Buffalo-Niagara Falls, NY	45,289	Detroit, MI	36,457	Buffalo-Niagara Falls, NY	37,529	Buffalo-Niagara Falls, NY	34,067	Detroit, MI	29,777
Detroit, MI	36,603	Detroit, MI	36,177	Detroit, MI	37,229	Detroit, MI	37,244	Buffalo-Niagara Falls, NY	30,295	Detroit, MI	33,615	Detroit, MI	31,160	Buffalo-Niagara Falls, NY	28,534
Blaine, WA	15,748	Sault Ste. Marie, MI	15,760	Sault Ste. Marie, MI	17,453	Blaine, WA	12,720	Blaine, WA	12,776	Blaine, WA	14,405	Blaine, WA	14,145	Blaine, WA	15,159
Champlain-Rouses Point, NY	10,415	Blaine, WA	12,865	Blaine, WA	14,279	Skagway, AK	10,257	Skagway, AK	10,405	Skagway, AK	11,309	Skagway, AK	11,337	Skagway, AK	10,571
Sault Ste. Marie, MI	8,831	Champlain-Rouses Point, NY	11,290	Skagway, AK	9,515	Sault Ste. Marie, MI	10,243	Champlain-Rouses Point, NY	8,317	Champlain-Rouses Point, NY	8,124	Champlain-Rouses Point, NY	8,418	Champlain-Rouses Point, NY	8,565

KEY: R = revised.

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

NOTE

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

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Border Crossing/Entry Data*, available at http://www.bts.gov/programs/international/ as of Apr. 30, 2012.

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

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

KEY: U = data are unavailable.

NOTES

Data reflect all *Personal vehicles* , *Buses* , *Passengers* and *Pedestrians* entering the United States across the U.S.-Mexican border, regardless of nationality.

2009 to 2011 data for *Train passengers* in Texas are not available.

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Border Crossing/Entry Data* , available at http://www.bts.gov/programs/international/ as of Apr. 30, 2012.

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
TOTAL U.S. ton-miles of freight (millions)	U	1,189,034	1,363,713	1,830,706	2,433,522	2,339,410	3,314,677	3,348,634	3,418,086	3,438,542	3,614,823	3,769,036	3,823,723	3,805,437	3,832,237	3,907,225	3,907,042	3,931,821	(R) 3,974,283	(R) 4,027,017	U	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	14,563	(R) 13,992	(R) 15,233	(R) 16,453	(R) 15,746	(R) 15,363	(R) 15,143	(R) 13,747	(R) 12,027	12,540
Intercity truck	U	U	U	U	U	U	854,000	874,000	896,000	936,000	996,000	1,042,000	1,071,000	1,119,000	1,149,000	1,186,000	1,203,000	1,224,000	1,255,000	1,264,000	U	U	U	U	U	U	U
Class I rail	572,309	697,878	764,809	754,252	918,958	876,984	1,033,969	1,038,875	1,066,781	1,109,309	1,200,701	1,305,688	1,355,975	1,348,926	1,376,802	1,433,461	1,465,960	1,495,472	1,507,011	1,551,438	1,662,598	1,696,425	1,771,897	1,770,545	1,777,236	1,532,214	1,691,004
Domestic water transportation[b,c]	U	489,803	596,195	565,984	921,836	892,970	833,544	848,399	856,685	789,658	814,919	807,728	764,687	707,410	672,795	655,862	645,799	621,686	612,081	606,146	621,170	591,277	561,629	553,151	520,521	477,122	502,212
Coastwise	U	302,546	359,784	315,846	631,149	610,977	479,134	502,133	502,311	448,404	457,601	440,345	408,086	349,843	314,864	292,730	283,872	274,559	263,688	278,919	279,857	263,464	227,155	228,052	207,877	196,290	192,348
Lakewise	U	75,918	79,416	68,517	61,747	48,184	60,930	55,339	55,785	56,438	58,263	59,704	58,335	62,166	61,654	57,045	57,879	50,854	53,653	47,539	55,733	51,924	53,105	51,893	50,263	33,509	45,346
Internal	U	109,701	155,816	180,399	227,343	232,708	292,393	289,959	297,639	283,894	297,762	306,329	296,791	294,023	294,896	304,724	302,558	294,861	293,410	278,352	284,096	274,367	279,778	271,617	260,960	244,995	263,242
Intraport	U	1,638	1,179	1,222	1,596	1,102	1,087	968	950	922	1,293	1,350	1,475	1,378	1,381	1,362	1,490	1,413	1,329	1,336	1,484	1,521	1,591	1,589	1,421	2,327	1,277
Oil pipeline[c]	U	U	U	507,000	588,200	564,300	584,100	578,500	588,800	592,900	591,400	601,100	619,200	616,500	619,800	617,700	577,300	576,100	586,200	590,200	599,600	607,500	581,300	557,700	(R) 605,700	568,400	U

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

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

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

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

NOTES

Numbers may not add to totals due to rounding.

Eno Transportation Foundation has discontinued its intercity truck data for years prior to 1990.

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.

1985-2000: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington, DC: Annual Issues), p. 3, line 3.

2001-10: U.S. Department of Transportation, Research and Innovative Technology, Administration, Bureau of Transportation Statistics, *TranStats* table, available at http://www.transtats.bts.gov/Fields.asp?Table_ID=254 as of Jul. 6, 2012.

Intercity truck:

1990-2003: Eno Transportation Foundation, Inc., *Transportation in America* (Washington, DC: 2007), p. 40.

Class I rail:

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

Domestic water transportation:

U.S. Army Corps of Engineers, *Waterborne Commerce of the U.S.* (New Orleans, LA: Annual Issues), part 5, section 1, table 1-4, and similar tables in earlier editions, available at http://www.iwr.usace.army.mil/ndc/wcsc/wcsc.htm as of Jul. 6, 2012.

Oil pipeline:

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

1980-2009: Ibid., *Shifts in Petroleum Transportation* (Washington, DC: Annual Issues), table 1, available at http://www.aopl.org/publications/?fa=reports as of Jul. 6, 2012.

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

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
TOTAL U.S. ton-miles of freight	3,403,914	3,366,875	3,195,481	3,251,875	3,340,129	3,313,853	3,328,265	3,474,497	3,597,014	3,567,788	3,621,806	3,635,965	3,746,255	3,767,227	3,944,809	4,104,069	4,173,925	4,179,233	4,228,376
Air	4,840	5,090	5,140	5,870	6,500	6,710	7,340	8,670	9,330	10,210	10,420	9,960	10,990	11,540	12,030	12,720	13,760	13,900	14,140
Truck	629,574	630,798	646,589	673,913	706,782	716,693	735,095	774,798	800,729	828,375	848,643	867,799	890,088	927,831	987,764	1,033,875	1,061,781	1,110,376	1,139,594
Railroad	932,000	924,000	810,000	841,000	900,091	876,209	891,235	951,940	1,025,683	1,045,628	1,064,408	1,041,929	1,098,379	1,135,016	1,221,073	1,317,010	1,377,095	1,391,089	1,448,352
Domestic water transportation	921,835	929,413	886,469	919,566	887,719	892,971	873,401	895,415	890,029	815,550	833,544	848,399	856,683	789,657	814,917	807,728	764,687	707,410	672,795
Coastwise	631,149	634,765	632,707	649,750	593,923	610,977	580,889	586,818	561,595	483,889	479,134	502,133	502,311	448,404	457,600	440,345	408,086	349,843	314,864
Lakewise	61,747	62,148	35,623	43,088	49,784	48,184	43,198	50,077	58,160	58,308	60,930	55,339	55,784	56,438	58,263	59,704	58,335	62,166	61,654
Internal	227,343	231,184	217,027	225,628	242,855	232,708	248,117	257,336	269,036	272,157	292,393	289,959	297,638	283,894	297,762	306,329	296,791	294,023	294,896
Intraport	1,596	1,316	1,112	1,100	1,157	1,102	1,197	1,184	1,238	1,196	1,087	968	950	921	1,292	1,350	1,475	1,378	1,381
Pipeline	915,666	877,574	847,284	811,526	839,037	821,270	821,195	843,673	871,243	868,025	864,792	867,878	890,114	903,183	909,025	932,737	956,602	956,458	953,495
Oil and oil products	588,000	564,000	566,000	556,000	568,000	564,000	578,000	587,000	601,000	584,000	584,100	578,500	588,800	592,900	591,400	601,100	619,200	616,500	619,800
Natural Gas	327,666	313,574	281,284	255,526	271,037	257,270	243,195	256,673	270,243	284,025	280,692	289,378	301,314	310,283	317,625	331,637	337,402	339,958	333,695

KEY: R = revised.

NOTES

BTS developed a more comprehensive and reliable estimates of ton-miles for the *Air, Truck, Rail, Water* , and *Pipeline* modes than are presented in table 1-49. These improved estimates are not comparable to data in table 1-49.

Numbers may not add to totals due to rounding.

SOURCE

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

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

Gateway	Type[a]	(R) 2009				(R) 2008			
		Rank	Exports	Imports	Total	Rank	Exports	Imports	Total
Los Angeles, CA	Water	1	26.5	124.8	151.2	2	33.6	148.7	182.4
New York, NY	Water	2	38.5	110.0	148.5	1	51.0	138.5	189.5
John F. Kennedy International Airport, NY	Air	3	65.8	61.2	127.0	3	85.5	82.4	167.9
Long Beach, CA	Water	4	25.8	92.2	118.0	4	32.8	119.2	152.0
Houston, TX	Water	5	57.5	47.5	105.1	5	68.5	78.2	146.7
Laredo, TX	Land	6	45.3	49.8	95.1	7	53.9	61.8	115.8
Chicago, IL	Air	7	31.0	59.8	90.8	8	35.9	61.2	97.0
Detroit, MI	Land	8	47.7	37.2	85.0	6	66.5	53.7	120.2
Los Angeles International Airport, CA	Air	9	30.9	32.2	63.1	11	41.3	37.0	78.3
Buffalo-Niagara Falls, NY	Land	10	33.2	27.8	61.0	10	40.3	40.5	80.8
Port Huron, MI	Land	11	28.4	30.1	58.5	9	35.2	46.0	81.2
Savannah, GA	Water	12	18.9	27.9	46.8	13	22.8	36.0	58.8
New Orleans, LA	Air	13	19.2	25.7	44.9	18	19.9	25.1	45.0
Charleston, SC	Water	14	16.4	28.4	44.8	12	22.3	39.9	62.1
Norfolk, VA	Water	15	20.8	23.9	44.7	14	26.5	29.9	56.3
El Paso, TX	Land	16	17.9	24.4	42.3	16	20.2	28.0	48.2
San Francisco International Airport, CA	Air	17	21.0	18.8	39.8	15	26.6	26.2	52.8
Miami International Airport Cargo Facilities, FL	Air	18	27.5	11.7	39.1	21	29.2	10.8	40.0
Dallas-Fort Worth, TX	Air	19	14.9	20.9	35.8	22	16.4	23.1	39.5
Anchorage, AK	Air	20	8.4	26.2	34.7	20	10.2	31.2	41.4
Oakland, CA	Water	21	12.8	21.5	34.3	24	12.8	24.9	37.7
Seattle, WA	Water	22	8.1	24.8	33.0	23	9.8	27.9	37.7
Atlanta, GA	Air	23	11.5	20.8	32.3	27	12.3	19.9	32.2
Baltimore, MD	Water	24	10.7	19.3	30.1	17	16.1	29.0	45.1
Otay Mesa, CA	Land	25	9.4	19.2	28.6	28	10.6	21.2	31.8
Cleveland, OH	Air	26	15.7	11.2	26.8	29	17.6	13.2	30.9
Tacoma, WA	Water	27	5.8	20.9	26.7	26	8.3	29.0	37.3
New Orleans, LA	Water	28	14.8	11.4	26.3	19	20.2	21.4	41.7
San Juan International Airport, PR	Air	29	13.7	8.3	21.9	41	12.3	8.9	21.3
Washington, DC	Air	30	5.8	14.5	20.4	46	5.6	11.9	17.5
Champlain-Rouses Point, NY	Land	31	7.9	11.3	19.2	33	9.4	14.2	23.6
Hidalgo, TX	Land	32	8.5	10.6	19.1	39	9.9	12.3	22.1
Miami, FL	Water	33	8.8	10.1	18.9	40	10.5	11.1	21.6
Corpus Christie, TX	Water	34	4.1	14.1	18.3	30	5.2	24.7	29.9
Nogales, AZ	Land	35	5.9	10.3	16.2	43	6.9	12.2	19.1
Port Everglades, FL	Water	36	9.8	6.3	16.1	35	12.5	10.6	23.1
Beaumont, TX	Water	37	2.3	13.5	15.8	31	2.9	25.3	28.2
Pembina, ND	Land	38	8.7	6.6	15.3	42	11.2	8.6	19.9
Gramercy, LA	Water	39	8.9	5.8	14.7	38	8.8	13.5	22.3
Philadelphia, PA	Water	40	2.1	12.5	14.6	32	3.7	21.4	25.1
Blaine, WA	Land	41	9.1	5.5	14.6	45	11.0	7.4	18.4
Texas City, TX	Water	42	2.3	11.3	13.5	34	2.7	20.7	23.4
Jacksonville, FL	Water	43	6.0	7.5	13.4	36	11.2	11.8	22.9
Houston Intercontinental Airport, TX	Air	44	7.2	5.5	12.7	56	8.3	5.3	13.5
Eagle Pass, TX	Land	45	4.6	7.9	12.5	59	5.0	7.8	12.8
Newark, NJ	Air	46	4.1	8.3	12.4	55	4.5	10.1	14.6
Seattle-Tacoma International Airport, WA	Air	47	7.8	4.2	12.0	57	8.9	4.6	13.5
Philadelphia International Airport, PA	Air	48	4.7	7.2	11.9	52	5.3	10.0	15.3
Portal, ND	Land	49	7.3	4.5	11.7	48	9.6	6.9	16.5
Logan Airport, MA	Air	50	6.4	4.1	10.5	54	8.7	6.0	14.8
Total top 50 gateways[a]	NA	NA	830.6	1,219.4	2,050.0	NA	998.1	1,635.3	2,633.4

KEY: R = revised.

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

NOTES

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

Numbers may not add to totals due to rounding.

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

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

SOURCES

Air: U.S. Department of Commerce, U.S. Census Bureau, Foreign Trade Division, special tabulation, Jul. 22, 2011.

Water: U.S. Army Corps of Engineers, Navigation Data Center, special tabulation, Jul. 22, 2011.

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

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

Truck Container	2002		2003		2004		2005		2006		2007		2008		2009		2010		2011
Total U.S.-Canadian border	6,820,052	Total U.S.-Canadian border	6,606,307	Total U.S.-Canadian border	6,775,388	Total U.S.-Canadian border	6,775,444	Total U.S.-Canadian border	6,669,623	Total U.S.-Canadian border	6,365,752	Total U.S.-Canadian border	5,782,214	Total U.S.-Canadian border	4,954,442	Total U.S.-Canadian border	5,311,147	Total U.S.-Canadian border	5,212,338
Total top 5 gateways	4,544,669	Total top 5 gateways	4,397,004	Total top 5 gateways	4,520,932	Total top 5 gateways	4,472,799	Total top 5 gateways	4,412,181	Total top 5 gateways	4,306,192	Total top 5 gateways	3,827,225	Total top 5 gateways	3,227,155	Total top 5 gateways	3,528,927	Total top 5 gateways	3,496,194
Detroit, MI	1,668,496	Detroit, MI	1,588,769	Detroit, MI	1,638,062	Detroit, MI	1,678,177	Detroit, MI	1,715,969	Detroit, MI	1,725,426	Detroit, MI	1,482,250	Detroit, MI	1,153,887	Detroit, MI	1,388,797	Detroit, MI	1,298,385
Buffalo-Niagara, NY	1,208,096	Buffalo-Niagara, NY	1,162,950	Buffalo-Niagara, NY	1,175,884	Buffalo-Niagara, NY	1,142,274	Buffalo-Niagara, NY	1,118,120	Buffalo-Niagara, NY	1,088,469	Buffalo-Niagara, NY	981,329	Buffalo-Niagara, NY	845,627	Buffalo-Niagara, NY	898,485	Buffalo-Niagara, NY	913,001
Port Huron, MI	907,291	Port Huron, MI	927,740	Port Huron, MI	947,907	Port Huron, MI	924,776	Port Huron, MI	833,711	Port Huron, MI	770,282	Port Huron, MI	732,493	Port Huron, MI	623,549	Port Huron, MI	658,350	Port Huron, MI	665,194
Blaine, WA	409,786	Champlain-Rouse Pt., NY	378,783	Champlain-Rouse Pt., NY	381,434	Champlain-Rouse Pt., NY	374,524	Champlain-Rouse Pt., NY	391,541	Champlain-Rouse Pt., NY	366,059	Champlain-Rouse Pt., NY	356,844	Blaine, WA	310,962	Champlain-Rouse Pt., NY	292,834	Blaine, WA	335,956
Champlain-Rouses Point, NY	351,000	Blaine, WA	338,762	Blaine, WA	377,645	Blaine, WA	353,048	Blaine, WA	352,840	Blaine, WA	355,956	Blaine, WA	274,309	Champlain-Rouse Pt., NY	293,130	Blaine, WA	290,461	Champlain-Rouse Pt., NY	283,658
Rail Container	2002		2003		2004		2005		2006		2007		2008		2009		2010		2011
Total U.S.-Canadian border	1,824,976	Total U.S.-Canadian border	1,868,245	Total U.S.-Canadian border	1,950,909	Total U.S.-Canadian border	1,940,557	Total U.S.-Canadian border	1,923,787	Total U.S.-Canadian border	1,939,876	Total U.S.-Canadian border	1,898,581	Total U.S.-Canadian border	1,553,416	Total U.S.-Canadian border	1,802,259	Total U.S.-Canadian border	1,926,376
Total top 5 gateways	1,305,446	Total top 5 gateways	1,333,244	Total top 5 gateways	1,346,724	Total top 5 gateways	1,325,479	Total top 5 gateways	1,333,105	Total top 5 gateways	1,347,207	Total top 5 gateways	1,329,412	Total top 5 gateways	1,115,410	Total top 5 gateways	1,265,980	Total top 5 gateways	1,358,670
Port Huron, MI	424,635	Port Huron, MI	458,551	Port Huron, MI	474,175	Port Huron, MI	457,275	Port Huron, MI	445,269	Port Huron, MI	466,569	Port Huron, MI	426,661	Port Huron, MI	369,321	Port Huron, MI	390,777	International Falls, MN	394,628
Detroit, MI	293,300	Detroit, MI	254,688	International Falls, MN	259,165	International Falls, MN	251,118	International Falls, MN	282,784	International Falls, MN	290,852	International Falls, MN	335,442	International Falls, MN	295,171	International Falls, MN	348,086	Port Huron, MI	391,482
International Falls, MN	238,515	International Falls, MN	252,699	Detroit, MI	234,823	Portal, ND	231,832	Portal, ND	244,988	Portal, ND	242,220	Portal, ND	235,589	Portal, ND	194,884	Portal, ND	217,195	Detroit, MI	217,204
Portal, ND	199,637	Portal, ND	217,390	Portal, ND	224,896	Detroit, MI	231,482	Detroit, MI	218,963	Detroit, MI	213,777	Detroit, MI	210,255	Detroit, MI	155,283	Detroit, MI	184,290	Portal, ND	190,512
Buffalo-Niagara, NY	149,359	Buffalo-Niagara, NY	149,916	Buffalo-Niagara, NY	153,665	Buffalo-Niagara, NY	153,772	Buffalo-Niagara, NY	141,101	Buffalo-Niagara, NY	133,789	Buffalo-Niagara, NY	121,465	Buffalo-Niagara, NY	100,751	Blaine, WA	125,632	Blaine, WA	164,844

NOTES

truck containers.

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

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Border Crossing/Entry Data*, available at http://www.bts.gov/programs/international/ as of Apr. 27, 2012.

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

Truck	2002		2003		2004		2005		2006		2007		2008		2009		2010		2011
Total U.S.-Canadian border	6,915,973	Total U.S.-Canadian border	6,735,737	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	6,477,761	Total U.S.-Canadian border	5,894,551	Total U.S.-Canadian border	5,020,633	Total U.S.-Canadian border	5,444,405	Total U.S.-Canadian border	5,490,375
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	4,375,717	Total top 5 gateways	3,920,345	Total top 5 gateways	3,274,768	Total top 5 gateways	3,632,463	Total top 5 gateways	3,698,745
Detroit, MI	1,670,565	Detroit, MI	1,634,319	Detroit, MI	1,701,452	Detroit, MI	1,745,318	Detroit, MI	1,770,008	Detroit, MI	1,773,465	Detroit, MI	1,510,487	Detroit, MI	1,197,967	Detroit, MI	1,452,659	Detroit, MI	1,474,775
Buffalo-Niagara, NY	1,208,095	Buffalo-Niagara, NY	1,162,961	Buffalo-Niagara, NY	1,175,254	Buffalo-Niagara, NY	1,142,411	Buffalo-Niagara, NY	1,117,789	Buffalo-Niagara, NY	1,088,438	Buffalo-Niagara, NY	981,329	Buffalo-Niagara, NY	846,114	Buffalo-Niagara, NY	898,752	Buffalo-Niagara, NY	926,447
Port Huron, MI	907,729	Port Huron, MI	928,074	Port Huron, MI	945,962	Port Huron, MI	922,401	Port Huron, MI	835,927	Port Huron, MI	770,282	Port Huron, MI	732,422	Port Huron, MI	625,642	Port Huron, MI	670,769	Port Huron, MI	673,707
Blaine, WA	410,256	Champlain-Rouse Pt., NY	387,962	Champlain-Rouse Pt., NY	397,317	Champlain-Rouse Pt., NY	388,869	Champlain-Rouse Pt., NY	409,372	Champlain-Rouse Pt., NY	387,033	Champlain-Rouse Pt., NY	364,912	Blaine, WA	310,075	Blaine, WA	318,059	Blaine, WA	338,570
Champlain-Rouses Point, NY	371,059	Blaine, WA	365,089	Blaine, WA	371,701	Blaine, WA	354,264	Blaine, WA	365,959	Blaine, WA	356,499	Blaine, WA	331,195	Champlain-Rouse Pt., NY	294,970	Champlain-Rouse Pt., NY	292,224	Champlain-Rouse Pt., NY	285,246
Train	**2002**		**2003**		**2004**		**2005**		**2006**		**2007**		**2008**		**2009**		**2010**		**2011**
Total U.S.-Canadian border	32,822	Total U.S.-Canadian border	34,137	Total U.S.-Canadian border	33,267	Total U.S.-Canadian border	32,807	Total U.S.-Canadian border	32,526	Total U.S.-Canadian border	30,362	Total U.S.-Canadian border	29,780	Total U.S.-Canadian border	24,034	Total U.S.-Canadian border	26,123	Total U.S.-Canadian border	26,667
Total top 5 gateways	18,920	Total top 5 gateways	19,646	Total top 5 gateways	18,564	Total top 5 gateways	19,129	Total top 5 gateways	17,662	Total top 5 gateways	17,240	Total top 5 gateways	16,677	Total top 5 gateways	13,013	Total top 5 gateways	13,993	Total top 5 gateways	14,435
Port Huron, MI	4,707	Port Huron, MI	5,447	Port Huron, MI	5,276	Port Huron, MI	6,344	Port Huron, MI	4,439	Port Huron, MI	4,459	International Falls, MN	4,136	International Falls, MN	3,286	International Falls, MN	3,546	International Falls, MN	3,672
Detroit, MI	4,278	Detroit, MI	4,246	Detroit, MI	3,936	International Falls, MN	3,980	International Falls, MN	4,259	International Falls, MN	4,026	Port Huron, MI	4,061	Port Huron, MI	3,064	Port Huron, MI	3,525	Port Huron, MI	3,282
International Falls, MN	3,662	International Falls, MN	3,928	International Falls, MN	3,720	Detroit, MI	3,602	Detroit, MI	3,610	Detroit, MI	3,546	Detroit, MI	3,135	Buffalo-Niagara, NY	2,312	Buffalo-Niagara, NY	2,395	Detroit, MI	2,850
Buffalo-Niagara, NY	3,320	Warroad, MN	3,062	Buffalo-Niagara, NY	2,976	Buffalo-Niagara, NY	2,918	Buffalo-Niagara, NY	2,807	Warroad, MN	2,640	Warroad, MN	2,879	Warroad, MN	2,277	Detroit, MI	2,378	Warroad, MN	2,359
Warroad, MN	2,953	Buffalo-Niagara, NY	2,963	Warroad, MN	2,656	Warroad, MN	2,285	Warroad, MN	2,547	Buffalo-Niagara, NY	2,569	Buffalo-Niagara, NY	2,466	Detroit, MI	2,074	Warroad, MN	2,149	Buffalo-Niagara, NY	2,272

NOTE

Data do not include privately owned pickup trucks.

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Border Crossing/Entry Data*, available at http://www.bts.gov/programs/international/ as of Apr. 26, 2012.

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

Truck Container	2002		2003		2004		2005		2006		2007		2008		2009		2010		2011
Total U.S.-Mexican border	4,434,441	Total U.S.-Mexican border	4,293,226	Total U.S.-Mexican border	4,512,900	Total U.S.-Mexican border	4,677,562	Total U.S.-Mexican border	4,740,407	Total U.S.-Mexican border	4,852,936	Total U.S.-Mexican border	4,844,250	Total U.S.-Mexican border	4,278,741	Total U.S.-Mexican border	4,709,137	Total U.S.-Mexican border	4,797,940
Total top 5 gateways	3,556,930	Total top 5 gateways	3,444,994	Total top 5 gateways	3,621,641	Total top 5 gateways	3,740,341	Total top 5 gateways	3,777,395	Total top 5 gateways	3,881,283	Total top 5 gateways	3,882,764	Total top 5 gateways	3,408,198	Total top 5 gateways	3,765,646	Total top 5 gateways	3,845,841
Laredo, TX	1,437,580	Laredo, TX	1,345,099	Laredo, TX	1,387,648	Laredo, TX	1,455,504	Laredo, TX	1,518,819	Laredo, TX	1,563,860	Laredo, TX	1,555,414	Laredo, TX	1,382,455	Laredo, TX	1,573,315	Laredo, TX	1,695,576
Otay Mesa/San Ysidro, CA	726,318	Otay Mesa/San Ysidro, CA	711,526	Otay Mesa/San Ysidro, CA	726,166	Otay Mesa/San Ysidro, CA	744,278	El Paso, TX	757,795	El Paso, TX	759,319	Otay Mesa/San Ysidro, CA	774,195	Otay Mesa/San Ysidro, CA	686,119	Otay Mesa/San Ysidro, CA	731,960	Otay Mesa/San Ysidro, CA	747,531
El Paso, TX	714,931	El Paso, TX	665,422	El Paso, TX	717,245	El Paso, TX	734,851	Otay Mesa/San Ysidro, CA	748,146	Otay Mesa/San Ysidro, CA	735,305	El Paso, TX	752,574	El Paso, TX	639,896	El Paso, TX	689,305	El Paso, TX	630,469
Hidalgo, TX	386,985	Hidalgo, TX	405,238	Hidalgo, TX	453,222	Hidalgo, TX	494,572	Hidalgo, TX	462,859	Hidalgo, TX	496,413	Hidalgo, TX	477,014	Hidalgo, TX	420,646	Hidalgo, TX	459,698	Hidalgo, TX	459,028
Calexico East, CA	291,116	Calexico East, CA	317,709	Calexico East, CA	337,360	Calexico East, CA	311,136	Nogales, AZ	289,776	Calexico East, CA	326,386	Calexico East, CA	323,567	Nogales, AZ	279,082	Nogales, AZ	311,368	Calexico East, CA	313,237
Rail Container	**2002**		**2003**		**2004**		**2005**		**2006**		**2007**		**2008**		**2009**		**2010**		**2011**
Total U.S.-Mexican border	602,322	Total U.S.-Mexican border	607,475	Total U.S.-Mexican border	675,305	Total U.S.-Mexican border	728,559	Total U.S.-Mexican border	803,291	Total U.S.-Mexican border	813,511	Total U.S.-Mexican border	776,385	Total U.S.-Mexican border	574,299	Total U.S.-Mexican border	706,067	Total U.S.-Mexican border	770,965
Total top 5 gateways	591,255	Total top 5 gateways	596,773	Total top 5 gateways	660,214	Total top 5 gateways	710,238	Total top 5 gateways	788,472	Total top 5 gateways	797,481	Total top 5 gateways	762,740	Total top 5 gateways	563,965	Total top 5 gateways	695,789	Total top 5 gateways	759,148
Laredo, TX	296,782	Laredo, TX	313,244	Laredo, TX	317,061	Laredo, TX	316,402	Laredo, TX	332,950	Laredo, TX	341,856	Laredo, TX	328,592	Laredo, TX	271,095	Laredo, TX	327,453	Laredo, TX	371,553
Eagle Pass, TX	98,236	Brownsville, TX	98,622	El Paso, TX	110,992	El Paso, TX	143,741	El Paso, TX	185,614	El Paso, TX	179,076	El Paso, TX	160,795	Eagle Pass, TX	141,664	Eagle Pass, TX	182,665	Eagle Pass, TX	194,731
Brownsville, TX	96,591	Eagle Pass, TX	88,329	Brownsville, TX	97,803	Brownsville, TX	105,175	Eagle Pass, TX	112,521	Eagle Pass, TX	134,041	Eagle Pass, TX	142,377	El Paso, TX	72,353	El Paso, TX	89,808	El Paso, TX	92,182
Nogales, AZ	52,236	El Paso, TX	50,893	Eagle Pass, TX	87,459	Eagle Pass, TX	98,089	Brownsville, TX	97,572	Brownsville, TX	90,139	Brownsville, TX	75,419	Nogales, AZ	44,832	Nogales, AZ	54,003	Nogales, AZ	61,232
El Paso, TX	47,410	Nogales, AZ	45,685	Nogales, AZ	46,899	Nogales, AZ	46,831	Nogales, AZ	59,815	Nogales, AZ	52,369	Nogales, AZ	55,557	Brownsville, TX	34,021	Brownsville, TX	41,860	Brownsville, TX	39,450

NOTES

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

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

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Border Crossing/Entry Data* , available at http://www.bts.gov/programs/international/ as of Apr. 30, 2012.

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

Truck	2002		2003		2004		2005		2006		2007		2008		2009		2010		2011
Total U.S.-Mexican border	4,426,593	Total U.S.-Mexican border	4,238,045	Total U.S.-Mexican border	4,503,688	Total U.S.-Mexican border	4,675,897	Total U.S.-Mexican border	4,759,679	Total U.S.-Mexican border	4,882,500	Total U.S.-Mexican border	4,866,252	Total U.S.-Mexican border	4,291,465	Total U.S.-Mexican border	4,742,925	Total U.S.-Mexican border	4,868,057
Total top 5 gateways	3,544,815	Total top 5 gateways	3,378,199	Total top 5 gateways	3,604,137	Total top 5 gateways	3,737,803	Total top 5 gateways	3,778,528	Total top 5 gateways	3,895,641	Total top 5 gateways	3,893,000	Total top 5 gateways	3,407,336	Total top 5 gateways	3,792,491	Total top 5 gateways	3,921,752
Laredo, TX	1,441,653	Laredo, TX	1,354,229	Laredo, TX	1,391,850	Laredo, TX	1,455,607	Laredo, TX	1,518,989	Laredo, TX	1,563,836	Laredo, TX	1,555,197	Laredo, TX	1,382,319	Laredo, TX	1,585,682	Laredo, TX	1,695,916
Otay Mesa, CA	731,291	Otay Mesa, CA	697,152	Otay Mesa, CA	726,164	El Paso, TX	740,654	Otay Mesa, CA	749,472	El Paso, TX	782,936	Otay Mesa, CA	776,972	Otay Mesa, CA	684,425	Otay Mesa, CA	729,605	Otay Mesa, CA	744,929
El Paso, TX	705,199	El Paso, TX	659,614	El Paso, TX	719,545	Otay Mesa, CA	730,253	El Paso, TX	744,951	Otay Mesa, CA	738,765	El Paso, TX	758,856	El Paso, TX	644,272	El Paso, TX	710,363	El Paso, TX	714,699
Hidalgo, TX	390,282	Hidalgo, TX	406,064	Hidalgo, TX	454,351	Hidalgo, TX	491,077	Hidalgo, TX	457,825	Hidalgo, TX	486,756	Hidalgo, TX	476,000	Hidalgo, TX	419,426	Hidalgo, TX	459,331	Hidalgo, TX	453,235
Calexico East, CA	276,390	Calexico East, CA	261,140	Calexico East, CA	312,227	Calexico East, CA	320,212	Calexico East, CA	307,291	Calexico East, CA	323,348	Calexico East, CA	325,975	Calexico East, CA	276,894	Nogales, AZ	307,510	Calexico East, CA	312,973
Train	2002		2003		2004		2005		2006		2007		2008		2009		2010		2011
Total U.S.-Mexican border	7,757	Total U.S.-Mexican border	7,774	Total U.S.-Mexican border	7,844	Total U.S.-Mexican border	9,458	Total U.S.-Mexican border	10,166	Total U.S.-Mexican border	10,648	Total U.S.-Mexican border	10,262	Total U.S.-Mexican border	7,475	Total U.S.-Mexican border	7,667	Total U.S.-Mexican border	8,366
Total top 5 gateways	7,179	Total top 5 gateways	7,265	Total top 5 gateways	7,282	Total top 5 gateways	8,719	Total top 5 gateways	9,344	Total top 5 gateways	9,745	Total top 5 gateways	9,563	Total top 5 gateways	6,969	Total top 5 gateways	7,198	Total top 5 gateways	7,885
Laredo, TX	3,270	Laredo, TX	3,510	Laredo, TX	3,443	Laredo, TX	3,459	Laredo, TX	3,850	Laredo, TX	3,994	Laredo, TX	3,921	Laredo, TX	2,716	Laredo, TX	3,036	Laredo, TX	3,413
Eagle Pass, TX	1,718	Eagle Pass, TX	1,624	Eagle Pass, TX	1,653	Eagle Pass, TX	1,812	El Paso, TX	2,449	El Paso, TX	2,691	El Paso, TX	2,473	Eagle Pass, TX	1,704	Eagle Pass, TX	2,012	Eagle Pass, TX	2,151
Brownsville, TX	964	Brownsville, TX	1,045	Brownsville, TX	998	El Paso, TX	1,618	Eagle Pass, TX	1,337	Eagle Pass, TX	1,485	Eagle Pass, TX	1,654	El Paso, TX	1,502	El Paso, TX	1,046	El Paso, TX	1,152
Nogales, AZ	607	El Paso, TX	629	El Paso, TX	744	Brownsville, TX	1,045	Brownsville, TX	1,055	Brownsville, TX	984	Brownsville, TX	875	Nogales, AZ	563	Nogales, AZ	602	Nogales, AZ	709
El Paso, TX	620	Nogales, AZ	457	Nogales, AZ	444	Nogales, AZ	785	Nogales, AZ	653	Calexico East, CA	591	Nogales, AZ	640	Brownsville, TX	484	Brownsville, TX	502	Brownsville, TX	460

NOTE

Data do not include privately owned pickup trucks.

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Border Crossing/Entry Data*, available at http://www.bts.gov/programs/international/ as of Apr. 26, 2012.

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
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**	**2,551.9**	**2,527.6**	**2,588.4**	**2,564.0**	**2,477.1**	**2,210.8**	**2,334.4**
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**	**1,504.9**	**1,498.7**	**1,564.9**	**1,542.5**	**1,520.8**	**1,353.7**	**1,440.9**
Imports	211.3	269.8	339.3	476.6	517.5	412.7	600.0	555.4	586.7	648.8	719.5	672.7	732.6	788.3	840.7	860.8	939.7	951.8	934.9	1,004.8	1,089.1	1,096.9	1,130.9	1,075.7	998.7	858.9	883.1
Exports	128.0	173.9	241.6	272.1	403.9	361.6	441.6	458.2	450.8	411.3	396.2	474.7	450.8	432.3	404.7	400.0	415.0	399.0	384.3	373.3	415.8	401.8	434.0	466.8	522.1	494.8	557.8
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**	**1,047.1**	**1,028.9**	**1,023.5**	**1,021.5**	**956.3**	**857.1**	**893.5**
Inland	291.1	369.6	472.1	503.9	535.0	534.7	622.6	600.4	621.0	607.3	618.4	620.3	622.1	630.6	625.0	624.6	628.4	619.8	608.0	609.6	626.2	624.0	627.6	621.9	588.5	522.5	565.6
Coastal	209.2	201.5	238.4	231.9	329.6	309.8	298.6	294.5	285.1	271.7	277.0	266.6	267.4	263.1	249.6	228.8	226.9	223.6	216.4	223.5	220.6	213.7	201.8	205.8	186.3	167.7	164.5
Great Lakes	155.1	153.7	157.1	129.3	115.1	92.0	110.2	103.4	107.4	109.9	114.8	116.1	114.9	122.7	122.2	113.9	114.4	100.0	101.5	89.8	103.5	96.2	96.9	95.6	90.4	63.2	80.5
Intraport	104.2	102.9	81.5	78.3	94.2	74.3	86.4	75.6	76.8	74.4	82.9	83.1	89.0	89.8	90.1	88.6	94.6	93.2	90.0	86.9	91.3	90.2	91.4	93.1	86.9	99.0	78.3
Intraterritory	1.0	1.5	1.6	2.9	3.6	3.4	4.5	4.6	4.2	5.0	5.9	6.9	7.3	6.3	7.2	5.9	5.5	5.9	5.1	6.4	5.5	4.9	5.8	5.1	4.2	4.7	4.6

NOTES

Beginning in 1996, shipments of fish are excluded from domestic *Inland* and *Intraport* tonnage.

Numbers may not add to totals due to rounding.

SOURCES

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

1965-2010: Ibid., *Waterborne Commerce of the United States* (New Orleans, LA: Annual Issues), part 5, tables 1-2 and 1-3, available at http://www.ndc.iwr.usace.army.mil/wcsc/wcsc.htm as of July 5, 2012.

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

	2010		2009		2000			
Ports	Rank	Total tons (Millions)	Rank	Total tons (Millions)	Rank	Total tons (Millions)	Percent change 2009-2010	Percent change 2000-2010
South Louisiana, LA, Port of	1	236.3	1	212.6	1	215.9	11.1%	9.4%
Houston, TX	2	227.1	2	211.3	2	186.6	7.5%	21.7%
New York, NY and NJ	3	139.2	3	144.7	3	137.2	-3.8%	1.5%
Beaumont, TX	4	77.0	7	67.7	6	76.9	13.6%	0.1%
Long Beach, CA	5	75.4	4	72.5	8	69.9	4.0%	8.0%
Corpus Christi, TX	6	73.7	5	68.2	5	81.3	7.9%	-9.4%
New Orleans, LA	7	72.4	6	68.1	4	90.0	6.3%	-19.5%
Los Angeles, CA	8	62.4	9	58.4	15	48.1	6.8%	29.6%
Huntington - Tristate	9	61.5	8	59.2	7	76.9	4.0%	-20.0%
Texas City, TX	10	56.6	10	52.6	11	58.1	7.5%	-2.6%
Plaquemines, LA, Port of	11	55.8	14	50.9	10	59.7	9.8%	-6.4%
Mobile, AL	12	55.7	12	52.2	13	53.7	6.7%	3.8%
Baton Rouge, LA	13	55.5	13	51.9	9	65.2	7.0%	-14.8%
Lake Charles, LA	14	54.6	11	52.3	14	53.0	4.5%	3.0%
Norfolk Harbor, VA	15	41.6	15	40.3	18	42.3	3.1%	-1.8%
Baltimore, MD	16	39.6	26	30.1	20	40.8	31.5%	-2.9%
Pascagoula, MS	17	37.3	16	36.6	26	28.6	1.8%	30.5%
Duluth - Superior, MN and WI	18	36.6	25	30.2	19	41.7	21.1%	-12.2%
Savannah, GA	19	34.7	21	32.3	37	19.5	7.2%	77.7%
Tampa, FL	20	34.2	17	34.9	17	46.5	-2.0%	-26.4%
Philadelphia, PA	21	34.0	22	31.8	21	40.8	7.2%	-16.6%
Pittsburgh, PA	22	33.8	20	32.9	12	53.9	2.9%	-37.2%
Valdez, AK	23	31.9	18	34.5	16	48.1	-7.5%	-33.6%
St. Louis, MO and IL	24	30.8	23	31.3	23	33.3	-1.8%	-7.7%
Port Arthur, TX	25	30.2	19	33.8	35	20.5	-10.6%	47.3%
Seattle, WA	26	27.2	29	24.6	28	24.2	10.5%	12.6%
Freeport, TX	27	26.7	27	27.4	24	29.0	-2.5%	-7.9%
Portland, OR	28	25.9	31	23.3	22	34.3	11.3%	-24.4%
Richmond, CA	29	24.2	28	25.4	38	19.4	-4.7%	24.7%
Tacoma, WA	30	22.4	32	23.2	31	22.3	-3.3%	0.5%
Marcus Hook, PA	31	21.9	30	24.6	32	21.2	-10.7%	3.6%
Newport News, VA	32	20.8	37	18.0	48	13.8	15.5%	51.0%
Port Everglades, FL	33	20.2	35	20.1	30	22.5	0.9%	-10.1%
Jacksonville, FL	34	19.1	38	17.7	36	19.7	8.1%	-3.0%
Boston, MA	35	19.1	34	20.5	34	20.8	-6.7%	-8.0%
Oakland, CA	36	18.6	39	17.4	52	12.2	6.9%	53.0%
Chicago, IL	37	18.5	36	19.2	29	23.9	-3.6%	-22.5%
Portland, ME	38	18.2	33	21.0	25	28.8	-13.5%	-36.9%
Charleston, SC	39	18.0	40	15.8	33	21.1	13.6%	-14.7%
Paulsboro, NJ	40	17.5	24	30.3	27	25.0	-42.2%	-30.0%
Galveston, TX	41	13.9	47	9.8	57	10.4	42.5%	34.1%
Two Harbors, MN	42	13.9	56	7.1	50	13.1	95.6%	6.3%
Detroit, MI	43	13.4	51	9.0	41	17.3	48.7%	-22.5%
Cincinnati, OH	44	12.7	42	11.8	45	14.3	8.0%	-11.4%
Kalama, WA	45	12.3	46	9.9	72	5.8	23.6%	111.6%
Memphis, TN	46	12.2	41	14.0	39	18.3	-13.1%	-33.5%
San Juan, PR	47	11.4	43	11.3	47	13.8	0.9%	-17.7%
Cleveland, OH	48	10.8	64	6.1	44	14.4	77.6%	-25.0%
Toledo, OH	49	10.7	48	9.7	49	13.3	10.7%	-19.5%
Indiana Harbor, IN	50	10.2	52	8.2	42	16.2	24.0%	-37.2%
Total top 50[b]	**NA**	**2,127.8**	**NA**	**2,025.6**	**NA**	**2,182.7**	5.0%	-2.5%
All ports	**NA**	**2,334.4**	**NA**	**2,210.8**	**NA**	**2,424.6**	5.6%	-3.7%

KEY: NA = not applicable.

[a] Tonnage totals include both domestic and foreign waterborne trade.
[b] Data for 2009 and 2000 are based on the top 50 water ports in 2009 and 2000, and are not a summation of the numbers in the table.

NOTE
Numbers may not add to totals due to rounding.

SOURCE
U.S. Army Corps of Engineers, *Waterborne Commerce of the United States, Part 5, National Summaries* (New Orleans, LA: Annual Issues), tables 1-1, and 5-2, available at http://www.ndc.iwr.usace.army.mil/wcsc/wcsc.htm as of July 5, 2012.

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

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

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

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

NOTES

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

SOURCES

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

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

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

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

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

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

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

NOTES

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

SOURCE

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

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

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Exports to Canada, total	124,701.3	129,884.1	139,109.7	133,970.3	137,745.4	146,374.1	154,847.4	145,661.6	146,435.3	154,870.8	171,878.1	192,907.5	209,283.2	226,058.3	235,681.5	184,652.8	224,808.9	254,449.7
Truck	89,151.1	97,423.4	102,743.0	111,173.8	114,806.1	123,140.0	129,825.3	117,694.5	118,259.1	124,235.0	135,897.5	151,221.7	164,318.1	174,342.7	178,593.0	142,544.6	173,588.0	195,126.4
Rail	13,593.9	15,271.9	15,678.7	13,255.6	12,279.6	11,754.6	12,946.5	12,972.7	13,974.1	14,776.5	16,596.6	19,321.9	22,477.8	25,496.8	29,437.5	19,972.6	26,116.2	29,569.1
Pipeline	133.8	121.3	162.2	180.6	93.4	113.9	161.6	221.3	174.3	759.6	1,584.2	2,393.9	2,180.0	3,334.5	4,313.2	2,631.8	3,150.6	6,210.7
Other[a]	21,753.2	17,010.5	20,467.5	9,336.1	10,559.5	11,360.0	11,913.4	14,772.0	14,026.7	15,099.2	17,776.7	19,933.1	20,263.4	22,833.8	23,294.4	19,456.1	21,901.4	23,488.2
Mail[b]	69.3	57.0	58.3	24.1	6.8	5.6	0.6	1.1	1.2	0.4	23.1	36.9	43.8	50.5	43.3	47.8	52.8	55.3
Exports to Mexico, total	46,503.3	42,662.2	51,753.4	64,169.5	70,164.4	76,129.0	97,158.9	88,926.4	85,157.8	85,614.8	97,303.7	104,276.5	116,749.2	118,758.5	129,587.4	110,377.9	138,928.9	163,021.0
Truck	39,066.5	35,914.2	44,091.8	55,592.6	60,432.1	66,923.8	82,389.2	74,223.1	70,924.7	70,550.8	79,349.2	83,341.2	92,991.6	93,047.2	100,263.9	89,416.6	111,110.2	127,719.5
Rail	4,192.0	4,694.4	5,119.2	5,648.0	6,188.8	5,710.6	10,495.8	10,389.4	10,143.0	11,264.9	13,632.9	15,747.7	17,271.2	19,340.0	21,965.2	15,290.9	19,632.0	24,861.5
Pipeline	0.4	1.0	2.3	68.3	73.4	144.2	301.8	296.1	567.9	155.3	87.2	543.3	707.0	787.4	1,250.5	787.8	2,038.5	3,492.3
Other[a]	3,238.9	2,025.8	2,540.1	2,860.5	3,470.0	3,349.6	3,972.0	4,017.7	3,521.5	3,643.3	4,216.4	4,622.8	5,779.1	5,581.0	6,107.2	4,881.8	6,147.6	6,946.1
Mail[c]	5.5	26.8	0.0	0.1	0.1	0.7	0.0	0.1	0.6	0.4	18.1	21.6	0.3	2.9	0.6	0.8	0.6	1.5
Imports from Canada, total	123,504.9	143,669.5	156,206.6	155,682.6	162,105.7	183,723.5	210,270.5	200,853.4	194,820.7	207,448.4	236,734.9	265,402.1	278,889.2	284,773.1	301,127.7	201,088.8	246,252.1	282,581.7
Truck	79,456.4	88,964.9	98,400.8	99,814.8	108,856.7	118,901.4	127,816.3	117,129.9	117,985.3	116,714.1	132,762.1	143,695.6	149,884.0	150,404.1	141,352.5	105,078.9	123,238.0	135,528.2
Rail	30,322.8	39,996.9	39,811.0	38,293.0	37,374.1	46,255.4	49,699.2	47,197.9	46,966.8	49,980.9	57,947.2	60,606.3	63,258.4	65,962.2	63,756.9	41,058.2	56,996.0	65,118.5
Pipeline	9,728.6	10,606.6	12,796.2	13,879.5	11,120.1	12,055.5	23,117.1	25,908.5	21,832.3	31,451.3	36,828.3	48,766.5	53,865.2	55,015.6	82,018.5	45,630.3	57,562.2	70,742.7
Other[a]	3,991.6	3,888.2	4,968.4	3,572.5	4,575.1	6,386.9	9,571.0	10,523.8	7,992.7	9,236.6	8,994.4	12,184.4	11,736.0	12,957.4	13,555.1	9,098.4	7,288.4	7,039.0
Mail	5.5	5.2	6.9	0.4	1.7	13.1	4.1	7.2	0.4	0.3	0.2	0.1	0.2	0.4	0.1	0.1	0.2	0.7
FTZ[d]	0.0	207.6	223.4	122.4	177.9	111.2	62.8	86.1	43.3	65.3	202.6	149.3	145.5	433.5	444.6	222.9	1,167.3	4,152.6
Imports from Mexico, total	43,616.2	54,048.9	63,312.2	72,155.0	81,720.3	95,023.4	113,436.5	111,870.3	114,380.8	114,842.5	127,646.0	135,400.5	155,205.1	167,713.2	163,478.0	140,575.8	181,339.4	204,080.3
Truck	35,013.9	43,014.3	48,350.0	56,716.5	65,883.7	76,448.0	88,668.7	86,377.2	90,593.6	92,535.0	104,943.8	112,267.6	126,463.6	137,037.0	134,224.2	117,787.4	148,948.2	167,483.3
Rail	7,769.0	9,137.9	12,297.7	12,646.9	12,029.7	14,693.4	21,056.1	22,056.8	20,790.7	19,701.7	20,183.4	20,782.2	25,863.5	27,060.0	25,264.8	19,302.5	28,484.2	32,303.2
Pipeline	187.9	27.4	8.1	3.6	2.4	1.5	11.5	1.6	0.6	0.2	0.3	0.0	55.4	168.6	193.2	155.3	181.6	281.3
Other[a]	643.5	768.9	639.2	668.2	917.8	1,255.8	1,573.9	1,539.7	1,548.9	1,600.1	1,838.7	1,990.2	2,399.2	2,696.4	2,716.9	2,175.0	1,863.5	1,892.1
Mail	1.9	1.3	1.5	0.2	0.2	0.2	0.6	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
FTZ[d]	0.0	1,099.2	2,015.6	2,119.6	2,886.7	2,624.4	2,125.7	1,894.9	1,446.8	1,005.4	679.8	360.4	423.3	751.1	1,078.9	1,155.5	1,862.0	2,120.4

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

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

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

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

NOTES

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

Component numbers may not add to totals due to rounding.

SOURCE

U.S. Department of Transportation, Bureau of Transportation Statistics, *Transborder Freight Data*, available at http://www.bts.gov/programs/international/transborder/ as of Mar. 5, 2012.

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

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

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

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

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

NOTE

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

SOURCES

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

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

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

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

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

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

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

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

NOTE

Numbers may not add to totals due to rounding.

SOURCE

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

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

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

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

NOTE

Numbers may not add to totals due to rounding.

SOURCE

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

Section E
Physical Performance

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

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	(R) 2011	2012
Boarded	420,696	429,190	445,271	449,184	457,286	460,277	480,555	502,960	514,170	523,081	543,344	477,970	467,205	485,797	522,308	516,553	552,445	567,740	576,476	548,041	595,253	539,230	600,774
Denied boarding,[b] total	628	646	764	683	824	842	957	1,071	1,136	1,070	1,120	900	837	769	747	597	674	685	684	719	746	551	600,774
Voluntary	561	599	718	632	771	794	899	1,018	1,091	1,024	1,062	861	803	727	702	552	619	621	620	651	681	509	539
Involuntary	67	47	46	51	53	49	58	54	45	46	57	39	34	42	45	45	55	64	64	67	65	41	59
Percent denied boarding	0.15	0.15	0.17	0.15	0.18	0.18	0.20	0.21	0.22	0.20	0.21	0.19	0.18	0.16	0.14	0.12	0.12	0.12	0.12	0.13	0.11	0.09	0.09

KEY: R = revised.

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

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

NOTE

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

Effective January 2012, data of the merged operations of United Air Lines and Continental Airlines are combined. Effective January 2012, data of the merged operations of ExpressJet Airlines and Atlantic Southeast Airlines are combined.

United Airlines revised its Denied Boarding quarterly reports for January 2011 to March 2011, April 2011 to June 2011, July 2011 to September 2011 and October 2011 to December 2011,after the submissions were published in the ATCR. This table reflects these revisions.

AirTran Airways revised its Denied Boarding quarterly report for October 2011 to December 2011, after the submissions were published in the ATCR. This table reflects this revision.

Effective January 2011, Comair and Pinnacle Airlines are no longer ranked in this table. Totals for January – December 2010 reflect the deletion of Comair and Pinnacle's data for that quarter.

SOURCE

U.S. Department of Transportation, Office of Aviation Enforcement and Proceedings, Aviation Consumer Protection Division, *Air Travel Consumer Report* (Washington, DC: Annual February Issues), p. 34 and similar pages in previous editions, available at http://www.dot.gov/airconsumer/air-travel-consumer-reports as of Feb. 19, 2013.

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

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	(R) 2011	2012
Total mishandled-baggage reports (millions)	2.66	2.20	2.45	2.28	2.32	2.28	2.46	2.28	2.48	2.54	2.74	2.14	1.81	2.20	2.82	2.94	4.08	4.40	3.14	2.10	1.95	1.72	1.78
Enplaned passengers (domestic) (millions)	395.70	408.47	416.95	407.55	435.67	439.80	464.00	459.83	481.75	499.10	517.47	467.93	471.35	524.52	575.36	442.02	606.60	624.69	595.82	527.83	554.50	514.23	574.61
Reports per 1,000 passengers	6.73	5.38	5.87	5.60	5.33	5.18	5.30	4.96	5.16	5.08	5.29	4.58	3.84	4.19	4.91	6.64	6.73	7.05	5.26	3.99	3.51	3.35	3.09

KEY: R = revised.

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

NOTES

Domestic system only.

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

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

United Airlines revised its mishandled baggage reports for January 2011 thru October 2011 after the submissions were published in the ATCR. This table reflects these revisions.

Southwest Airlines revised its mishandled baggage reports for January 2011 thru February 2011 after the submissions were published in the ATCR. This table reflects these revisions.

Effective January 2012, data of the merged operations of United Air Lines and Continental Airlines are combined. Effective January 2012, data of the merged operations of ExpressJet Airlines and Atlantic Southeast Airlines are combined.

Effective January 2011, Comair and Pinnacle Airlines are no longer ranked in this table. Totals for January – December 2010 reflect the deletion of Comair and Pinnacle's data.

SOURCE

U.S. Department of Transportation, Office of Aviation Enforcement and Proceedings, Aviation Consumer Protection Division, *Air Travel Consumer Report* (Washington, DC: Annual February Issues), p. 31 and similar pages in previous editions, available at http://www.dot.gov/airconsumer/air-travel-consumer-reports as of Feb. 19, 2013.

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

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
On-time flight operations (percent)	79.4	82.5	82.3	81.6	81.5	78.6	74.5	77.7	77.2	76.1	72.6	77.4	82.1	82.0	78.1	77.4	75.4	73.4	76.0	79.5	79.8	79.6	81.9

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

NOTES

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

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

Effective January 2012, data of the merged operations of United Airlines and Continental Airlines are combined.

Effective January 2012, data of the merged operations of ExpressJet Airlines and Atlantic Southeast Airlines are combined.

Effective January 2011, Comair and Pinnacle Airlines are no longer ranked in the source.

SOURCE

U.S. Department of Transportation, Office of Aviation Enforcement and Proceedings, Aviation Consumer Protection Division, *Air Travel Consumer Report* (Washington, DC: Annual February Issues), table 1a, available at http://www.dot.gov/airconsumer/air-travel-consumer-reports as of Feb. 19, 2013.

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

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Operations delayed (thousands)	356	338	394	393	298	281	276	248	237	272	245	306	374	449	347	285	316	454	436	491	539	553	473	334	330	277
Cause (percent)																										
Weather	67	70	57	56	65	65	72	75	72	74	68	74	69	69	72	72	72	70	69	66	65	66	65	70	76	70
Airport terminal volume	11	9	29	33	26	25	21	18	17	17	20	13	8	14	12	14	11	15	15	16	19	20	22	19	16	17
Air Route Traffic Control Center volume	13	12	8	2	1	2	1	1	1	2	2	2	4	U	U	U	U	U	U	U	U	U	U	U	U	U
Closed runways / taxiways	4	5	3	3	3	3	3	2	3	3	3	3	5	6	5	4	7	6	10	14	12	9	6	4	3	7
National Airspace System equipment	4	3	2	1	2	2	2	2	3	2	3	2	2	2	2	1	1	1	1	1	1	1	1	0	1	1
Other	1	1	1	4	3	3	2	2	4	2	4	6	13	9	9	9	9	8	5	3	3	4	6	7	5	6

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

NOTES

As of 2008, the FAA reports *delays* for aircraft that accumulate a *delay* of 15 minutes or more throughout the duration of the flight. Each holding segment is recorded as one *delay*. The Operations Network (OPSNET) Database *delay* data dating back to the year 2000 have been converted to be consistent with the new definitions.
Beginning in 2008 the FAA started to combine *Air Route Traffic Control Center volume* and *Airport Terminal volume* and retroactively applied this change through the year 2000.

SOURCES

1987-97: U.S. Department of Transportation, Federal Aviation Administration, *Aviation Capacity Enhancement Plan* (Washington, DC: Annual Issues).
1998-99: U.S. Department of Transportation, Federal Aviation Administration, *Operations Network (OPSNET) Database*, available at http://www.faa.gov/apa/Delays/atDelays.htm as of Aug. 8, 2002.
2000-12: Ibid., *Operations Network (OPSNET) Database*, available at http://www.apo.data.faa.gov/ as of Feb. 1, 2013.

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

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	(R) 2010	2011
Total operations	5,202,096	5,041,200	5,270,893	5,076,925	5,092,157	5,070,501	5,180,048	5,327,435	5,351,983	5,411,843	5,384,721	5,527,884	5,683,047	5,967,780	5,271,359	6,488,540	7,129,270	7,140,596	7,141,922	7,455,458	7,009,726	6,450,285	6,450,117	6,085,281
Late departures	730,712	883,167	753,182	621,509	617,148	661,056	729,960	827,934	973,948	846,870	870,395	937,273	1,131,663	953,808	717,368	834,390	1,187,594	1,279,404	1,424,777	1,572,978	1,327,198	1,084,290	1,111,948	1,042,427
Percent of total	14.0	17.5	14.3	12.2	12.1	13.0	14.1	15.5	18.2	15.6	16.2	17.0	19.9	16.0	13.6	12.9	16.7	17.9	19.9	21.1	18.9	16.8	17.2	17.1
Late arrivals	1,042,452	1,208,470	1,087,774	890,068	902,567	931,437	960,254	1,039,250	1,220,045	1,083,834	1,070,071	1,152,725	1,356,040	1,104,439	868,225	1,057,804	1,421,391	1,466,065	1,615,537	1,804,028	1,524,735	1,218,288	1,174,884	1,109,872
Percent of total	20.0	24.0	20.6	17.5	17.7	18.4	18.5	19.5	22.8	20.0	19.9	20.9	23.9	18.5	16.5	16.3	19.9	20.5	22.6	24.2	21.8	18.9	18.2	18.2
Cancellations	50,163	74,165	52,458	43,505	52,836	59,845	66,740	91,905	128,536	97,763	144,509	154,311	187,490	231,198	65,143	101,469	127,757	133,730	121,934	160,809	137,432	89,377	113,255	115,978
Percent of total	1.0	1.5	1.0	0.9	1.0	1.2	1.3	1.7	2.4	1.8	2.7	2.8	3.3	3.9	1.2	1.6	1.8	1.9	1.7	2.2	2.0	1.4	1.8	1.9
Diversions	14,436	14,839	15,954	12,585	11,384	10,333	12,106	10,492	14,121	12,081	13,161	13,555	14,254	12,909	8,356	11,381	13,784	14,028	16,186	17,182	17,265	15,463	15,474	14,399
Percent of total	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

KEY: R = revised.

NOTES

Late departures and *arrivals* are strongly seasonal and are affected by weather and heavy demand in winter and summer months. The term *Late* is defined as 15 minutes after the scheduled departure or arrival time. A cancelled flight is one that was not operated, but was listed in a carrier's computer reservation system within seven calendar days of the scheduled departure. A diverted flight is one that left from the scheduled departure airport but flew to a destination point other than the scheduled destination point. The number of carriers reporting beginning in 2011 is 16. The number of carriers reporting in 2010 is 18.The number of carriers reporting in 2008 and 2009 is 19 (20 through February 2008, after which Aloha Airlines ceased reporting). During 2005-2007, 20 air carriers reported on-time performance data, including all major U.S. carriers (carriers with at least one percent of total domestic scheduled-service passenger revenues) and other carriers that reported voluntarily. The number of carriers reporting in previous years is as follows: 2004 (19); 2003 (18); 2002 (10); 2001 (12); 2000 (11); 1999 (10); 1998 (10); 1997 (10); 1996 (10); and 1995 (10).

SOURCES

1988-94: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Airline Service Quality Performance Data*.
1995-2011: Ibid., *Airline On-Time Tables, Table 1 - Summary of Airline On-Time Performance Year-to-date through December 2010,* available at http://www.bts.gov/programs/airline_information/airline_ontime_tables/ as of Feb. 27, 2012.

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

																											Percent change[a]			
																											Short-term 2006-2011		Long-term 1982-2011	
Urban area	Population group	(R) 1982	(R) 1985	(R) 1990	(R) 1991	(R) 1992	(R) 1993	(R) 1994	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010	2011	Percent	Rank	Percent	Rank
Akron, OH	Medium	5	6	14	15	18	22	28	23	29	34	35	35	34	32	31	28	29	29	31	25	25	25	23	23	-26	87	360	38
Albany-Schenectady-Troy, NY	Medium	5	7	13	15	15	15	16	18	18	20	22	24	25	27	27	31	35	35	40	44	31	33	31	31	-23	79	520	18
Albuquerque, NM	Medium	10	14	21	21	24	26	28	31	35	37	38	39	35	33	31	32	36	38	39	40	33	30	29	29	-26	86	190	68
Allentown-Bethlehem, PA-NJ	Medium	10	11	15	16	19	23	26	27	31	34	35	31	33	33	33	31	33	33	31	33	30	30	30	30	-3	27	200	65
Anchorage, AK	Small	19	23	22	20	23	22	22	22	22	22	24	24	24	26	28	26	26	25	26	26	19	17	17	17	-35	97	-11	99
Atlanta, GA	Very large	15	20	27	30	35	40	44	47	50	54	57	57	61	62	64	66	66	68	67	60	53	52	50	51	-24	83	240	60
Austin, TX	Large	10	17	19	21	19	21	21	30	34	37	35	39	40	44	45	49	53	58	56	52	46	44	43	44	-21	76	340	42
Bakersfield, CA	Medium	1	1	2	2	2	4	4	4	4	4	5	5	5	5	6	6	7	8	7	7	11	13	12	12	71	1	1100	2
Baltimore, MD	Large	9	14	27	27	26	27	27	28	29	30	29	29	32	35	42	44	44	45	45	44	38	39	41	41	-9	40	356	41
Baton Rouge, LA	Medium	10	15	20	21	20	24	27	30	30	30	30	36	36	37	37	42	43	43	41	39	43	43	42	42	2	16	320	45
Beaumont, TX	Small	6	7	7	8	9	10	10	11	12	12	16	18	20	22	26	27	28	29	28	28	26	24	25	25	-11	45	317	46
Birmingham, AL	Medium	9	12	14	16	17	19	25	26	27	30	36	38	39	39	39	40	41	40	40	39	34	36	35	35	-13	52	289	53
Boise, ID	Small	2	3	7	7	8	8	7	8	11	13	15	16	17	19	19	19	19	20	21	20	15	17	16	16	-24	81	700	9
Boston, MA-NH-RI	Very large	15	20	33	33	38	38	39	39	40	44	45	46	49	50	55	57	63	64	63	58	56	54	53	53	-16	64	253	57
Boulder, CO	Small	13	16	20	22	26	30	30	35	35	39	38	39	41	42	39	39	41	41	45	38	32	22	22	22	-51	101	69	95
Bridgeport-Stamford, CT-NY	Medium	13	19	25	25	30	29	32	35	34	39	44	47	51	52	54	54	52	54	58	58	45	41	42	42	-28	91	223	63
Brownsville, TX	Small	2	3	5	5	5	5	7	7	8	8	10	10	13	13	13	15	15	16	16	16	21	23	25	25	56	3	1,150	1
Buffalo, NY	Large	8	10	16	16	16	17	17	19	19	21	23	27	31	31	33	41	39	41	45	41	31	33	33	33	-27	88	313	47
Cape Coral, FL	Small	10	12	15	18	21	27	31	35	37	35	32	31	29	33	33	35	35	36	41	40	29	29	29	30	-27	89	200	65
Charleston-North Charleston, SC	Medium	12	16	22	24	26	26	27	27	26	27	29	29	29	29	31	33	34	33	36	35	28	32	29	30	-17	66	150	74
Charlotte, NC-SC	Large	8	13	17	17	19	17	17	16	19	22	24	27	30	31	35	36	39	39	41	42	41	41	39	40	-2	24	400	31
Chicago, IL-IN	Very large	13	19	28	28	29	29	29	33	37	37	39	39	39	41	47	49	52	55	53	54	48	53	51	51	-4	31	292	51
Cincinnati, OH-KY-IN	Large	7	11	25	26	30	33	42	40	42	49	49	47	51	49	49	53	51	49	49	49	37	33	37	37	-24	84	429	28
Cleveland, OH	Large	5	5	12	14	16	19	22	26	30	33	30	31	31	28	26	25	30	26	26	26	31	31	31	31	19	6	520	18
Colorado Springs, CO	Medium	5	6	8	8	11	12	15	17	17	22	27	32	37	39	39	37	35	44	41	36	26	26	26	26	-37	98	420	29
Columbia, SC	Small	5	8	12	12	14	13	14	14	15	17	17	18	20	21	21	24	24	24	29	33	29	30	30	30	3	15	500	20
Columbus, OH	Large	4	7	18	18	20	24	26	29	33	35	35	35	33	35	35	37	42	42	40	37	42	37	40	40	0	17	900	3
Corpus Christi, TX	Small	7	8	8	10	10	10	10	10	10	11	11	12	12	14	14	14	15	15	12	15	14	14	14	14	17	7	100	89
Dallas-Fort Worth-Arlington, TX	Very large	7	12	19	21	23	25	26	29	29	29	32	38	39	40	42	44	48	50	52	48	46	45	44	45	-13	58	543	16
Dayton, OH	Medium	12	15	24	24	26	27	26	31	29	32	31	34	32	27	27	26	29	26	26	22	26	26	24	24	-8	36	100	89
Denver-Aurora, CO	Large	11	13	14	17	19	23	25	29	32	34	37	41	42	42	42	42	45	48	47	44	43	42	44	45	-4	32	309	48
Detroit, MI	Very large	17	19	34	35	39	41	39	39	40	41	41	44	44	47	50	51	51	50	51	50	44	39	40	40	-22	78	135	83
El Paso, TX-NM	Medium	4	6	10	12	16	16	21	18	16	18	21	25	30	33	33	34	40	42	42	39	37	31	31	32	-24	81	700	9
Eugene, OR	Small	8	8	11	11	11	11	10	11	11	15	16	19	24	19	21	23	21	23	21	19	16	15	13	13	-38	99	63	97
Fresno, CA	Medium	8	8	13	11	13	13	13	13	14	15	18	20	21	18	18	18	17	18	18	18	14	16	15	15	-17	66	88	92
Grand Rapids, MI	Medium	5	8	11	11	15	20	19	18	19	19	23	24	23	23	21	23	24	24	24	23	21	24	24	24	0	17	380	33
Greensboro, NC	Small	5	5	8	10	15	18	18	20	30	32	35	38	40	45	47	45	33	32	28	27	23	25	27	27	-4	30	440	24
Hartford, CT	Medium	7	9	15	15	23	19	22	23	25	29	34	36	38	36	36	36	39	39	45	44	35	35	38	38	-16	63	443	23
Honolulu, HI	Medium	19	23	35	35	39	39	38	41	39	35	37	37	34	35	34	38	39	43	43	46	42	42	45	45	5	12	137	81
Houston, TX	Very large	22	30	28	26	24	25	28	28	30	35	36	38	40	43	44	43	47	49	49	47	55	50	51	52	6	11	136	82
Indianapolis, IN	Large	17	20	27	30	36	46	52	54	56	59	52	51	52	52	54	54	54	51	49	47	42	42	41	41	-16	65	141	78
Indio-Cathedral City-Palm Springs, CA	Medium	23	22	24	24	23	22	21	20	19	20	19	17	16	15	14	17	18	21	22	20	15	15	15	15	-32	95	-35	101
Jackson, MS	Small	4	5	5	8	8	8	10	12	12	14	14	16	16	20	21	21	25	26	30	30	25	25	25	25	-17	66	525	17
Jacksonville, FL	Large	12	17	24	24	29	30	31	33	34	33	32	31	31	30	34	37	38	37	37	38	33	31	30	30	-19	73	150	74
Kansas City, MO-KS	Large	5	9	19	17	20	29	30	29	34	36	36	42	38	37	36	37	33	35	36	31	26	24	27	27	-25	85	440	24
Knoxville, TN	Medium	10	12	30	30	33	35	38	42	51	51	49	49	45	44	44	44	42	40	37	38	38	37	37	37	0	17	270	56
Lancaster-Palmdale, CA	Medium	18	18	15	19	18	15	14	11	11	10	10	10	11	12	14	15	15	16	17	16	15	17	15	15	-12	49	-17	100
Laredo, TX	Small	2	3	3	5	5	5	5	8	9	11	11	11	11	12	12	14	12	12	15	19	20	19	19	19	27	4	850	5
Las Vegas, NV	Large	8	11	23	27	27	30	33	36	36	36	36	37	37	37	41	44	47	50	50	51	42	50	44	44	-12	51	450	21
Little Rock, AR	Small	5	5	8	9	9	11	12	13	14	14	17	20	18	21	17	20	26	25	26	30	24	26	26	26	0	17	420	29
Los Angeles-Long Beach-Santa Ana, CA	Very large	37	43	76	72	71	66	64	66	68	69	69	72	72	75	76	75	78	78	79	75	57	60	61	61	-23	80	65	96
Louisville, KY-IN	Large	14	14	15	20	24	27	29	29	32	35	36	38	38	33	36	38	39	38	36	33	32	33	35	35	-3	26	150	74
Madison, WI	Small	8	8	10	8	8	10	10	10	10	8	10	10	10	12	12	12	13	12	12	12	15	18	20	20	67	2	150	74
McAllen, TX	Medium	4	4	4	4	4	4	8	8	12	12	12	20	23	27	27	27	27	27	27	27	23	27	27	28	4	14	600	14
Memphis, TN-MS-AR	Large	8	8	20	21	23	26	30	33	33	34	36	36	39	41	41	46	46	46	46	41	34	39	38	38	-17	69	375	34
Miami, FL	Very large	12	15	27	27	29	29	30	32	32	34	35	40	46	49	51	54	54	55	54	51	43	47	46	47	-13	54	292	52
Milwaukee, WI	Large	9	13	23	24	27	30	28	31	29	29	31	33	33	31	31	32	32	32	29	29	28	26	28	28	-3	29	211	64
Minneapolis-St. Paul, MN	Large	4	7	15	15	17	21	24	25	26	32	34	35	36	40	37	37	37	40	37	36	37	32	34	34	-8	37	750	8
Nashville-Davidson, TN	Large	23	23	34	33	30	32	41	44	44	48	42	45	48	49	53	57	57	57	54	52	44	46	46	47	-13	54	104	88
New Haven, CT	Medium	9	14	18	19	23	25	25	28	25	31	38	43	43	46	46	45	40	43	43	41	35	36	35	35	-19	71	289	53
New Orleans, LA	Large	13	17	17	18	17	17	19	19	17	19	20	21	20	19	19	20	20	21	24	23	22	24	28	28	17	7	115	85
New York-Newark, NY-NJ-CT	Very large	11	13	25	23	23	24	27	29	32	35	36	39	38	38	40	46	51	55	54	66	57	58	59	59	9	10	436	27
Oklahoma City, OK	Medium	8	11	14	17	17	20	19	27	30	34	34	39	36	42	44	39	39	36	42	47	41	39	37	38	-10	43	375	34
Omaha, NE-IA	Medium	3	5	9	9	11	11	12	12	14	14	16	16	18	19	20	20	20	20	23	22	24	23	24	24	4	13	700	9
Orlando, FL	Large	13	20	36	41	41	40	41	43	45	49	52	54	55	57	55	54	51	51	51	50	43	48	44	45	-12	49	246	58
Oxnard-Ventura, CA	Medium	3	5	9	9	11	12	15	16	19	16	18	20	22	24	26	26	28	31	30	33	24	26	26	26	-13	57	767	7
Pensacola, FL-AL	Small	4	4	10	8	11	12	12	15	17	19	18	18	19	19	21	23	24	25	28	28	22	23	22	22	-21	76	450	21
Philadelphia, PA-NJ-DE-MD	Very large	14	17	23	24	26	24	26	27	27	31	34	35	36	40	43	46	47	48	48	52	47	49	48	48	0	17	243	59
Phoenix, AZ	Very large	24	23	26	26	27	27	27	25	28	29	30	32	34	37	36	37	38	43	40	40	37	36	35	35	-13	52	46	98
Pittsburgh, PA	Large	23	25	41	41	39	39	39	45	45	44	43	46	44	46	48	46	48	46	43	44	39	41	39	39	-9	42	70	94
Portland, OR-WA	Large	13	13	23	25	29	32	32	35	40	40	41	43	45	45	43	46	47	49	48	48	42	42	43	44	-8	39	238	61

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

																											Percent change[a]			
																											Short-term 2006-2011		Long-term 1982-2011	
Urban area	Population group	(R) 1982	(R) 1985	(R) 1990	(R) 1991	(R) 1992	(R) 1993	(R) 1994	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010	2011	Percent	Rank	Percent	Rank
Poughkeepsie-Newburgh, NY	Medium	12	15	17	17	17	17	17	17	17	20	20	20	20	20	22	25	25	25	27	25	22	27	25	25	-7	35	108	87
Providence, RI-MA	Large	3	5	11	11	13	14	14	16	19	21	25	28	30	33	38	41	41	41	38	41	32	30	30	30	-21	75	900	3
Provo, UT	Small	9	9	12	14	14	14	16	16	16	18	18	19	19	21	21	23	23	25	25	25	23	25	25	25	0	17	178	70
Raleigh-Durham, NC	Large	5	8	15	15	14	16	18	19	20	23	21	23	23	24	26	25	27	28	26	28	23	23	23	23	-12	47	360	38
Richmond, VA	Medium	6	7	12	13	16	16	20	23	26	23	22	22	19	20	20	22	24	24	24	24	23	27	29	29	21	5	383	32
Riverside-San Bernardino, CA	Large	4	6	18	21	21	22	18	21	22	22	25	27	29	29	31	35	39	45	46	44	36	36	37	38	-17	69	850	5
Rochester, NY	Medium	6	9	17	17	17	17	19	22	22	24	22	26	26	24	24	26	28	28	30	32	28	26	28	28	-7	33	367	36
Sacramento, CA	Large	11	15	34	33	30	29	32	32	35	32	32	33	34	35	37	38	42	44	44	43	32	30	32	32	-27	90	191	67
Salem, OR	Small	5	7	16	18	22	26	27	28	27	28	30	34	37	44	46	39	38	39	45	44	27	29	27	27	-40	100	440	24
Salt Lake City, UT	Large	7	9	14	18	20	24	27	28	27	26	25	26	30	31	33	34	30	27	26	27	26	31	30	30	15	9	329	44
San Antonio, TX	Large	5	10	10	10	11	11	12	17	21	24	27	31	37	37	37	37	40	41	39	39	35	37	37	38	-3	25	660	12
San Diego, CA	Very large	8	12	24	22	25	23	22	23	25	26	27	32	34	38	41	40	44	44	43	41	39	36	37	37	-14	61	363	37
San Francisco-Oakland, CA	Very large	24	46	68	62	62	62	58	63	65	60	64	65	72	71	76	78	82	89	89	86	60	60	60	61	-31	94	154	72
San Jose, CA	Large	18	31	48	45	41	37	40	45	44	42	45	51	55	57	56	58	54	56	59	57	40	36	38	39	-34	96	117	84
San Juan, PR	Large	4	6	12	12	13	14	17	17	17	18	18	20	23	23	25	29	31	30	30	29	26	29	29	29	-3	28	625	13
Sarasota-Bradenton, FL	Medium	12	17	16	17	16	18	18	17	19	21	21	25	25	25	25	26	26	26	29	26	17	22	21	21	-28	91	75	93
Seattle, WA	Very Large	11	19	44	46	48	52	52	53	53	56	56	56	53	51	49	52	52	55	54	53	51	47	47	48	-11	46	336	43
Spokane, WA	Small	9	11	17	21	24	34	34	26	27	30	30	33	31	29	29	27	26	24	26	27	26	23	23	23	-12	47	156	71
Springfield, MA-CT	Medium	14	16	19	20	23	23	23	23	23	23	26	28	28	26	28	26	28	30	31	30	26	30	28	28	-10	44	100	89
St. Louis, MO-IL	Large	11	14	17	17	20	27	35	41	42	43	43	45	45	41	41	38	38	39	36	33	34	32	31	31	-14	60	182	69
Stockton, CA	Small	3	4	8	7	7	8	8	9	9	9	9	9	9	11	11	11	12	13	14	14	12	12	12	12	-14	62	300	49
Tampa-St. Petersburg, FL	Large	16	17	23	26	26	27	28	30	30	28	30	31	31	34	38	39	40	39	41	41	40	39	38	38	-7	34	138	80
Toledo, OH-MI	Medium	4	4	9	9	11	13	20	28	30	33	35	39	41	39	39	37	41	37	37	35	22	26	26	26	-30	93	550	15
Tucson, AZ	Medium	18	20	21	20	20	20	20	20	21	26	28	28	31	33	34	39	41	46	44	41	34	38	38	38	-14	59	111	86
Tulsa, OK	Medium	7	12	16	16	16	16	16	18	21	23	25	25	26	28	30	30	28	28	32	30	28	32	32	32	0	17	357	40
Virginia Beach, VA	Large	18	24	30	28	28	29	35	40	45	48	52	54	47	53	54	53	52	52	53	50	44	40	43	43	-19	72	139	79
Washington, DC-VA-MD	Very large	18	32	47	51	59	60	61	62	65	63	59	62	65	68	69	73	74	74	73	79	65	64	66	67	-8	38	272	55
Wichita, KS	Medium	6	9	11	11	12	15	16	16	15	19	19	19	19	18	18	19	20	19	22	22	20	20	20	20	-9	41	233	62
Winston-Salem, NC	Small	5	8	7	8	11	9	8	11	11	12	16	17	17	20	22	24	22	26	25	24	20	21	20	20	-20	74	300	49
Worcester, MA	Small	13	15	18	20	22	26	29	33	35	35	38	38	40	40	40	37	38	40	38	40	38	37	33	33	-13	56	154	73
439 Urban area average	439 Areas	15	21	32	32	32	33	34	35	36	38	38	39	39	40	41	41	43	43	43	42	38	38	38	38	-12	NA	153	NA
101 Urban area average	101 Areas	19	25	38	37	38	39	40	41	43	44	44	46	46	47	48	49	50	52	51	49	43	43	43	43	-15	NA	126	NA
Very large area average	Very large	24	32	49	47	49	48	48	49	51	52	52	54	55	55	57	59	61	64	63	60	52	53	53	52	-16	NA	118	NA
Large area average	Large	12	19	29	29	30	32	35	37	38	39	39	41	39	41	42	43	43	44	43	41	37	37	38	37	-13	NA	218	NA
Medium area average	Medium	9	14	20	20	22	23	25	26	27	29	30	32	30	32	32	32	33	33	34	33	29	30	30	29	-13	NA	213	NA
Small area average	Small	7	11	14	15	17	19	19	20	21	22	22	24	22	25	26	25	25	26	27	27	23	24	23	23	-15	NA	238	NA

KEY: NA = not applicable; R = revised.

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

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

NOTES

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

Methodology and data sources have been changed in 2010 and were applied retroactively to past years; these figures are not comparable to those in past editions of NTI. *Population group* is based on 2010 population.

SOURCE

Texas Transportation Institute, *Congestion Data for Your City,* Excel spreadsheet of the base statistics for the 101 urban areas and population group summary statistics (College Station, TX: 2012), available at http://mobility.tamu.edu as of Feb. 6, 2013.

Table 1-70: Travel Time Index

Urban area	Population group	(R) 1982	(R) 1985	(R) 1990	(R) 1991	(R) 1992	(R) 1993	(R) 1994	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010	2011	Points change: Short-term 2006-2011 Points	Short-term 2006-2011 Rank[a]	Long-term 1982-2011 Points	Long-term 1982-2011 Rank[a]
Akron, OH	Medium	1.05	1.05	1.10	1.10	1.12	1.14	1.17	1.14	1.17	1.19	1.22	1.22	1.22	1.22	1.19	1.19	1.22	1.19	1.19	1.17	1.12	1.12	1.12	1.12	-7	83	7	67
Albany-Schenectady, NY	Medium	1.06	1.06	1.08	1.08	1.08	1.08	1.10	1.10	1.10	1.10	1.12	1.12	1.14	1.14	1.16	1.18	1.20	1.20	1.22	1.24	1.18	1.20	1.16	1.16	-6	75	10	44
Albuquerque, NM	Medium	1.05	1.06	1.10	1.11	1.12	1.13	1.14	1.15	1.17	1.18	1.18	1.19	1.17	1.16	1.14	1.14	1.15	1.16	1.17	1.17	1.15	1.13	1.10	1.10	-7	83	5	79
Allentown-Bethlehem, PA-NJ	Medium	1.10	1.10	1.12	1.12	1.15	1.17	1.17	1.19	1.22	1.24	1.24	1.19	1.22	1.22	1.22	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.17	1.17	-2	38	7	70
Anchorage, AK	Small	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.25	1.18	1.18	1.18	-3	48	0	101
Atlanta, GA	Very large	1.08	1.10	1.13	1.14	1.16	1.18	1.20	1.21	1.22	1.23	1.25	1.24	1.26	1.27	1.28	1.28	1.28	1.29	1.29	1.28	1.24	1.23	1.24	1.24	-5	68	16	16
Austin, TX	Large	1.09	1.12	1.16	1.17	1.16	1.17	1.16	1.22	1.24	1.26	1.24	1.26	1.26	1.28	1.29	1.31	1.33	1.35	1.33	1.31	1.30	1.31	1.31	1.32	-1	23	23	1
Bakersfield, CA	Medium	1.02	1.02	1.03	1.03	1.05	1.05	1.05	1.05	1.06	1.06	1.06	1.06	1.08	1.08	1.09	1.09	1.11	1.12	1.12	1.12	1.11	1.12	1.11	1.11	-1	23	9	52
Baltimore, MD	Large	1.06	1.07	1.14	1.14	1.13	1.13	1.14	1.14	1.14	1.16	1.14	1.16	1.17	1.19	1.22	1.23	1.23	1.23	1.24	1.24	1.19	1.20	1.23	1.23	-1	23	17	13
Baton Rouge, LA	Medium	1.06	1.08	1.10	1.11	1.10	1.12	1.13	1.14	1.15	1.15	1.15	1.18	1.17	1.17	1.17	1.18	1.18	1.18	1.19	1.19	1.20	1.21	1.22	1.22	3	2	16	16
Beaumont, TX	Small	1.02	1.04	1.02	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.05	1.05	1.06	1.06	1.07	1.07	1.07	1.07	1.07	1.07	1.10	1.10	1.10	1.10	3	2	8	62
Birmingham, AL	Medium	1.05	1.06	1.06	1.08	1.08	1.09	1.10	1.11	1.11	1.13	1.15	1.15	1.15	1.16	1.16	1.18	1.19	1.19	1.19	1.19	1.18	1.18	1.19	1.19	0	16	14	27
Boise, ID	Small	1.01	1.02	1.04	1.04	1.04	1.04	1.04	1.04	1.05	1.06	1.06	1.06	1.07	1.08	1.08	1.09	1.09	1.09	1.09	1.09	1.08	1.07	1.06	1.06	-3	48	5	79
Boston, MA-NH-RI	Very large	1.12	1.17	1.27	1.27	1.29	1.30	1.30	1.29	1.30	1.32	1.34	1.33	1.34	1.36	1.40	1.38	1.42	1.42	1.42	1.40	1.28	1.27	1.28	1.28	-14	100	16	16
Boulder, CO	Small	1.06	1.08	1.10	1.11	1.13	1.15	1.15	1.18	1.18	1.20	1.19	1.19	1.19	1.19	1.18	1.18	1.18	1.18	1.20	1.18	1.15	1.16	1.18	1.18	-2	38	12	32
Bridgeport-Stamford, CT-NY	Medium	1.07	1.10	1.13	1.13	1.15	1.15	1.16	1.17	1.17	1.19	1.21	1.23	1.24	1.23	1.25	1.25	1.24	1.26	1.28	1.28	1.23	1.25	1.27	1.27	-1	23	20	6
Brownsville, TX	Small	1.09	1.09	1.13	1.13	1.13	1.13	1.18	1.18	1.22	1.22	1.27	1.27	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.22	1.18	1.18	1.18	-13	99	9	60
Buffalo, NY	Large	1.07	1.09	1.12	1.10	1.10	1.12	1.12	1.12	1.12	1.12	1.14	1.15	1.19	1.19	1.20	1.22	1.22	1.22	1.22	1.20	1.15	1.17	1.17	1.17	-5	68	10	44
Cape Coral, FL	Small	1.10	1.10	1.13	1.13	1.15	1.18	1.19	1.21	1.21	1.19	1.16	1.15	1.15	1.16	1.18	1.18	1.18	1.18	1.21	1.21	1.19	1.18	1.15	1.15	-6	75	5	85
Charleston-North Charleston, SC	Medium	1.08	1.10	1.12	1.13	1.15	1.14	1.15	1.14	1.14	1.14	1.15	1.15	1.15	1.15	1.16	1.17	1.17	1.16	1.17	1.17	1.14	1.14	1.15	1.15	-2	38	7	70
Charlotte, NC-SC	Large	1.07	1.10	1.14	1.14	1.15	1.13	1.13	1.13	1.14	1.16	1.17	1.19	1.22	1.22	1.24	1.24	1.25	1.23	1.24	1.24	1.22	1.20	1.20	1.20	-4	59	13	30
Chicago, IL-IN	Very large	1.08	1.11	1.17	1.17	1.17	1.17	1.17	1.19	1.21	1.21	1.22	1.22	1.22	1.22	1.26	1.27	1.28	1.30	1.29	1.27	1.27	1.26	1.25	1.25	-4	59	17	13
Cincinnati, OH-KY-IN	Large	1.05	1.06	1.14	1.14	1.15	1.17	1.20	1.20	1.20	1.23	1.23	1.21	1.23	1.23	1.23	1.23	1.23	1.21	1.21	1.21	1.20	1.18	1.20	1.20	-1	23	15	21
Cleveland, OH	Large	1.05	1.05	1.13	1.14	1.14	1.18	1.19	1.22	1.24	1.27	1.24	1.26	1.24	1.22	1.19	1.19	1.21	1.19	1.19	1.18	1.14	1.16	1.16	1.16	-3	48	11	40
Colorado Springs, CO	Medium	1.03	1.03	1.04	1.04	1.06	1.06	1.08	1.09	1.09	1.12	1.13	1.16	1.18	1.18	1.18	1.17	1.14	1.18	1.17	1.16	1.14	1.12	1.13	1.13	-4	59	10	44
Columbia, SC	Small	1.02	1.04	1.05	1.05	1.06	1.05	1.05	1.05	1.06	1.06	1.06	1.07	1.07	1.07	1.08	1.08	1.08	1.08	1.10	1.12	1.10	1.11	1.11	1.11	1	11	9	52
Columbus, OH	Large	1.03	1.03	1.08	1.08	1.10	1.11	1.13	1.13	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.16	1.18	1.18	1.16	1.16	1.13	1.18	1.18	1.18	2	7	15	21
Corpus Christi, TX	Small	1.02	1.02	1.02	1.02	1.03	1.02	1.02	1.02	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.04	1.03	1.03	1.03	1.04	1.04	1.04	1	11	2	97
Dallas-Fort Worth-Arlington, TX	Very large	1.06	1.08	1.12	1.13	1.13	1.14	1.14	1.16	1.17	1.17	1.19	1.21	1.22	1.22	1.24	1.25	1.29	1.30	1.32	1.31	1.25	1.24	1.25	1.26	-6	75	20	6
Dayton, OH	Medium	1.09	1.09	1.11	1.13	1.13	1.13	1.13	1.15	1.15	1.15	1.15	1.16	1.15	1.13	1.13	1.11	1.15	1.13	1.13	1.11	1.11	1.11	1.11	1.11	-2	34	2	97
Denver-Aurora, CO	Large	1.08	1.10	1.12	1.14	1.14	1.17	1.18	1.21	1.23	1.25	1.27	1.28	1.29	1.31	1.29	1.29	1.29	1.31	1.30	1.30	1.23	1.24	1.27	1.27	-3	48	19	8
Detroit, MI	Very large	1.10	1.11	1.18	1.19	1.21	1.23	1.21	1.20	1.21	1.23	1.23	1.24	1.23	1.24	1.25	1.25	1.25	1.24	1.24	1.24	1.20	1.17	1.18	1.18	-6	75	8	64
El Paso, TX-NM	Medium	1.04	1.05	1.08	1.09	1.12	1.12	1.14	1.12	1.12	1.13	1.14	1.18	1.21	1.21	1.21	1.21	1.23	1.23	1.23	1.22	1.19	1.19	1.21	1.21	-2	38	17	13
Eugene, OR	Small	1.07	1.07	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.11	1.12	1.15	1.17	1.15	1.16	1.17	1.16	1.17	1.16	1.15	1.11	1.09	1.08	1.08	-8	91	1	100
Fresno, CA	Medium	1.03	1.03	1.07	1.07	1.07	1.08	1.07	1.08	1.08	1.08	1.10	1.10	1.11	1.10	1.09	1.09	1.09	1.09	1.10	1.10	1.07	1.08	1.08	1.08	-2	38	5	79
Grand Rapids, MI	Medium	1.04	1.04	1.05	1.05	1.07	1.09	1.09	1.09	1.09	1.09	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.09	1.09	1.09	1.09	1.11	1.09	1.09	0	16	5	79
Greensboro, NC	Small	1.02	1.02	1.03	1.03	1.05	1.07	1.07	1.07	1.10	1.10	1.12	1.13	1.13	1.15	1.17	1.15	1.12	1.12	1.12	1.10	1.08	1.08	1.10	1.10	-2	38	8	62
Hartford, CT	Medium	1.06	1.07	1.11	1.11	1.16	1.13	1.14	1.14	1.16	1.17	1.19	1.20	1.22	1.19	1.19	1.19	1.20	1.20	1.23	1.23	1.18	1.16	1.18	1.18	-5	68	12	32
Honolulu, HI	Medium	1.18	1.20	1.32	1.30	1.32	1.32	1.32	1.34	1.34	1.32	1.32	1.30	1.30	1.30	1.28	1.32	1.32	1.36	1.38	1.40	1.38	1.36	1.36	1.36	-2	34	18	9
Houston, TX	Very large	1.17	1.23	1.22	1.19	1.18	1.17	1.19	1.19	1.21	1.23	1.22	1.24	1.25	1.26	1.26	1.26	1.29	1.31	1.30	1.29	1.26	1.24	1.26	1.26	-4	59	9	52
Indianapolis, IN	Large	1.06	1.06	1.09	1.10	1.12	1.15	1.16	1.16	1.17	1.17	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.14	1.18	1.18	1.17	1.17	2	7	11	40
Indio-Cathedral City-Palm Springs, CA	Medium	1.04	1.05	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.07	1.09	1.09	1.08	1.06	1.09	1.08	1.08	-1	23	4	90
Jackson, MS	Small	1.03	1.03	1.03	1.05	1.05	1.05	1.07	1.07	1.07	1.08	1.08	1.10	1.10	1.12	1.13	1.12	1.13	1.15	1.17	1.17	1.13	1.12	1.10	1.10	-7	83	7	67
Jacksonville, FL	Large	1.09	1.11	1.17	1.18	1.20	1.22	1.22	1.25	1.25	1.22	1.22	1.20	1.20	1.20	1.23	1.25	1.26	1.26	1.26	1.28	1.20	1.18	1.14	1.14	-12	98	5	85
Kansas City, MO-KS	Large	1.05	1.06	1.09	1.09	1.11	1.15	1.16	1.16	1.18	1.19	1.19	1.22	1.21	1.21	1.21	1.21	1.19	1.18	1.19	1.16	1.13	1.12	1.13	1.13	-6	75	8	64
Knoxville, TN	Medium	1.11	1.11	1.19	1.21	1.21	1.21	1.24	1.24	1.29	1.29	1.26	1.26	1.26	1.26	1.24	1.24	1.24	1.24	1.21	1.24	1.19	1.16	1.16	1.16	-5	68	5	85
Lancaster-Palmdale, CA	Medium	1.06	1.06	1.04	1.05	1.05	1.05	1.05	1.05	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.08	1.08	1.08	1.08	1.08	1.05	1.09	1.08	1.08	0	16	2	97
Laredo, TX	Small	1.02	1.04	1.04	1.06	1.06	1.06	1.06	1.08	1.08	1.10	1.10	1.10	1.10	1.12	1.10	1.14	1.12	1.12	1.14	1.16	1.12	1.14	1.14	1.14	0	16	12	32
Las Vegas, NV	Large	1.05	1.06	1.13	1.15	1.16	1.17	1.18	1.19	1.18	1.18	1.19	1.20	1.21	1.21	1.22	1.23	1.24	1.24	1.23	1.23	1.22	1.22	1.20	1.20	-3	48	15	21
Little Rock, AR	Small	1.01	1.01	1.02	1.02	1.02	1.03	1.03	1.03	1.03	1.03	1.04	1.05	1.05	1.06	1.04	1.05	1.06	1.06	1.06	1.07	1.06	1.07	1.07	1.07	1	11	6	74
Los Angeles-Long Beach-Santa Ana, CA	Very large	1.20	1.22	1.40	1.40	1.39	1.36	1.33	1.35	1.36	1.37	1.37	1.38	1.38	1.40	1.39	1.39	1.40	1.41	1.42	1.41	1.34	1.37	1.37	1.37	-5	66	17	12
Louisville, KY-IN	Large	1.11	1.11	1.11	1.13	1.14	1.16	1.16	1.16	1.18	1.18	1.20	1.20	1.20	1.20	1.21	1.21	1.23	1.21	1.21	1.20	1.14	1.18	1.18	1.18	-3	48	7	70
Madison, WI	Small	1.05	1.07	1.07	1.05	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.11	1.11	1.11	2	7	6	74
McAllen, TX	Medium	1.02	1.02	1.02	1.02	1.02	1.03	1.05	1.05	1.08	1.08	1.06	1.09	1.11	1.13	1.13	1.13	1.13	1.13	1.14	1.14	1.11	1.14	1.16	1.16	2	7	14	27
Memphis, TN-MS-AR	Large	1.07	1.07	1.16	1.16	1.16	1.18	1.19	1.22	1.22	1.24	1.24	1.24	1.27	1.27	1.28	1.28	1.28	1.27	1.27	1.24	1.19	1.19	1.18	1.18	-9	96	11	40
Miami, FL	Very large	1.10	1.11	1.20	1.19	1.21	1.20	1.20	1.21	1.22	1.22	1.24	1.26	1.29	1.31	1.33	1.33	1.33	1.33	1.33	1.32	1.28	1.25	1.25	1.25	-8	92	15	21
Milwaukee, WI	Large	1.05	1.06	1.10	1.11	1.12	1.12	1.12	1.12	1.12	1.12	1.13	1.15	1.15	1.15	1.15	1.14	1.14	1.14	1.12	1.13	1.14	1.13	1.15	1.15	3	5	10	44
Minneapolis-St. Paul, MN	Large	1.05	1.06	1.12	1.12	1.14	1.15	1.18	1.20	1.20	1.24	1.25	1.27	1.28	1.30	1.28	1.28	1.28	1.30	1.28	1.27	1.22	1.19	1.21	1.21	-7	86	16	16

Table 1-70: Travel Time Index

Urban area	Population group	(R) 1982	(R) 1985	(R) 1990	(R) 1991	(R) 1992	(R) 1993	(R) 1994	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010	2011	Points change: Short-term 2006-2011 Points	Short-term 2006-2011 Rank[a]	Long-term 1982-2011 Points	Long-term 1982-2011 Rank[a]
Nashville-Davidson, TN	Large	1.14	1.13	1.16	1.15	1.14	1.14	1.18	1.19	1.20	1.21	1.20	1.21	1.23	1.24	1.25	1.25	1.26	1.25	1.24	1.23	1.18	1.19	1.23	1.23	-1	23	9	52
New Haven, CT	Medium	1.05	1.08	1.09	1.10	1.12	1.13	1.14	1.14	1.13	1.16	1.18	1.20	1.20	1.21	1.21	1.20	1.18	1.20	1.20	1.20	1.17	1.20	1.17	1.17	-3	48	12	32
New Orleans, LA	Large	1.16	1.21	1.21	1.22	1.21	1.20	1.22	1.22	1.21	1.22	1.22	1.23	1.22	1.21	1.21	1.21	1.21	1.22	1.23	1.23	1.21	1.17	1.20	1.20	-3	48	4	90
New York-Newark, NY-NJ-CT	Very large	1.12	1.13	1.23	1.22	1.21	1.22	1.23	1.26	1.27	1.29	1.29	1.33	1.33	1.33	1.34	1.38	1.41	1.43	1.42	1.41	1.32	1.32	1.33	1.33	-9	95	21	4
Oklahoma City, OK	Medium	1.03	1.03	1.04	1.04	1.04	1.06	1.06	1.07	1.09	1.09	1.10	1.12	1.10	1.12	1.12	1.10	1.10	1.10	1.12	1.13	1.13	1.13	1.15	1.15	3	5	12	32
Omaha, NE-IA	Medium	1.02	1.04	1.06	1.06	1.07	1.07	1.07	1.07	1.08	1.07	1.08	1.10	1.10	1.11	1.11	1.11	1.12	1.12	1.12	1.12	1.13	1.10	1.11	1.11	-1	23	9	52
Orlando, FL	Large	1.08	1.12	1.20	1.21	1.21	1.20	1.20	1.21	1.22	1.24	1.25	1.25	1.25	1.26	1.25	1.25	1.24	1.24	1.24	1.24	1.21	1.22	1.20	1.20	-4	59	12	32
Oxnard-Ventura, CA	Medium	1.01	1.02	1.02	1.02	1.03	1.04	1.05	1.05	1.06	1.06	1.06	1.07	1.07	1.08	1.08	1.09	1.10	1.10	1.10	1.11	1.09	1.10	1.10	1.10	0	16	9	52
Pensacola, FL-AL	Small	1.04	1.04	1.08	1.07	1.08	1.08	1.08	1.10	1.11	1.12	1.12	1.12	1.12	1.12	1.12	1.14	1.14	1.14	1.16	1.16	1.11	1.10	1.11	1.11	-5	66	7	67
Philadelphia, PA-NJ-DE-MD	Very large	1.11	1.14	1.16	1.16	1.16	1.16	1.16	1.17	1.19	1.20	1.22	1.22	1.22	1.26	1.26	1.26	1.27	1.27	1.27	1.27	1.23	1.23	1.26	1.26	-1	23	15	21
Phoenix, AZ	Very large	1.08	1.08	1.09	1.09	1.10	1.10	1.10	1.09	1.11	1.12	1.13	1.14	1.15	1.16	1.14	1.14	1.15	1.18	1.17	1.17	1.14	1.17	1.18	1.18	1	11	10	44
Pittsburgh, PA	Large	1.20	1.21	1.29	1.29	1.27	1.27	1.27	1.31	1.31	1.31	1.28	1.31	1.29	1.31	1.31	1.29	1.31	1.29	1.28	1.28	1.27	1.23	1.24	1.24	-4	59	4	90
Portland, OR-WA	Large	1.07	1.08	1.13	1.14	1.17	1.18	1.19	1.21	1.23	1.25	1.25	1.28	1.29	1.30	1.28	1.29	1.29	1.30	1.31	1.30	1.25	1.25	1.28	1.28	-3	48	21	4
Poughkeepsie-Newburgh, NY	Medium	1.09	1.09	1.09	1.12	1.09	1.09	1.09	1.09	1.12	1.12	1.12	1.12	1.12	1.12	1.15	1.15	1.15	1.15	1.15	1.15	1.12	1.12	1.12	1.12	-3	46	3	95
Providence, RI-MA	Large	1.04	1.05	1.09	1.09	1.11	1.12	1.12	1.12	1.15	1.15	1.17	1.20	1.20	1.21	1.23	1.24	1.25	1.24	1.23	1.24	1.20	1.19	1.16	1.16	-7	86	12	32
Provo, UT	Small	1.03	1.03	1.03	1.05	1.05	1.05	1.05	1.05	1.05	1.07	1.07	1.07	1.07	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.05	1.10	1.14	1.14	5	1	11	40
Raleigh-Durham, NC	Large	1.04	1.05	1.09	1.08	1.08	1.09	1.10	1.10	1.10	1.12	1.11	1.12	1.13	1.13	1.15	1.15	1.16	1.17	1.16	1.16	1.13	1.13	1.14	1.14	-2	38	10	44
Richmond, VA	Medium	1.05	1.05	1.07	1.09	1.09	1.09	1.11	1.13	1.13	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.13	1.13	1.13	1.13	1.11	1.11	1.11	1.11	-2	34	6	74
Riverside-San Bernardino, CA	Large	1.01	1.04	1.11	1.13	1.13	1.13	1.10	1.11	1.13	1.13	1.14	1.15	1.16	1.16	1.18	1.20	1.23	1.24	1.25	1.25	1.20	1.20	1.23	1.23	-2	38	22	2
Rochester, NY	Medium	1.08	1.08	1.13	1.13	1.13	1.13	1.13	1.16	1.16	1.16	1.13	1.16	1.16	1.16	1.16	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.13	1.13	-5	68	5	85
Sacramento, CA	Large	1.05	1.07	1.16	1.16	1.16	1.16	1.17	1.17	1.18	1.17	1.18	1.19	1.21	1.23	1.23	1.25	1.27	1.27	1.27	1.26	1.20	1.19	1.20	1.20	-7	86	15	21
Salem, OR	Small	1.05	1.05	1.09	1.11	1.12	1.14	1.14	1.14	1.14	1.15	1.15	1.17	1.19	1.22	1.23	1.20	1.19	1.19	1.22	1.22	1.15	1.15	1.14	1.14	-8	92	9	60
Salt Lake City, UT	Large	1.06	1.09	1.13	1.14	1.16	1.18	1.20	1.21	1.21	1.20	1.19	1.21	1.23	1.25	1.26	1.26	1.23	1.20	1.20	1.20	1.14	1.15	1.14	1.14	-6	75	8	64
San Antonio, TX	Large	1.03	1.06	1.06	1.06	1.07	1.06	1.07	1.09	1.11	1.12	1.15	1.17	1.19	1.19	1.19	1.20	1.22	1.22	1.20	1.21	1.17	1.17	1.19	1.19	-1	23	16	16
San Diego, CA	Very large	1.04	1.06	1.13	1.12	1.13	1.13	1.12	1.12	1.13	1.14	1.15	1.18	1.19	1.20	1.22	1.22	1.23	1.23	1.23	1.22	1.19	1.17	1.18	1.18	-5	68	14	27
San Francisco-Oakland, CA	Very large	1.10	1.18	1.25	1.23	1.23	1.23	1.22	1.23	1.24	1.23	1.23	1.23	1.26	1.26	1.27	1.27	1.29	1.31	1.32	1.30	1.22	1.21	1.22	1.22	-10	97	12	32
San Jose, CA	Large	1.11	1.17	1.23	1.23	1.21	1.20	1.20	1.21	1.21	1.20	1.22	1.25	1.28	1.29	1.28	1.28	1.27	1.29	1.31	1.30	1.25	1.22	1.24	1.24	-7	86	13	30
San Juan, PR	Large	1.07	1.08	1.14	1.14	1.15	1.15	1.17	1.18	1.18	1.18	1.18	1.19	1.21	1.22	1.23	1.24	1.25	1.24	1.24	1.24	1.22	1.25	1.25	1.25	1	11	18	10
Sarasota-Bradenton, FL	Medium	1.08	1.11	1.11	1.11	1.11	1.12	1.13	1.12	1.13	1.13	1.13	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.12	1.13	1.12	1.12	-3	46	4	90
Seattle, WA	Very Large	1.08	1.12	1.26	1.27	1.28	1.28	1.28	1.28	1.28	1.30	1.29	1.32	1.29	1.28	1.30	1.30	1.30	1.31	1.30	1.28	1.25	1.23	1.26	1.26	-4	59	18	10
Spokane, WA	Small	1.06	1.07	1.10	1.12	1.13	1.17	1.17	1.13	1.14	1.16	1.16	1.17	1.17	1.14	1.14	1.14	1.13	1.12	1.12	1.13	1.11	1.12	1.12	1.12	0	16	6	74
Springfield, MA-CT	Medium	1.08	1.10	1.11	1.11	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.15	1.15	1.13	1.13	1.13	1.13	1.15	1.16	1.15	1.11	1.15	1.13	1.13	-3	48	5	85
St. Louis, MO-IL	Large	1.11	1.13	1.14	1.14	1.15	1.20	1.24	1.27	1.27	1.28	1.28	1.29	1.29	1.27	1.27	1.25	1.24	1.24	1.22	1.20	1.17	1.17	1.14	1.14	-8	92	3	96
Stockton, CA	Small	1.05	1.05	1.10	1.10	1.10	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.20	1.20	1.20	1.20	1.25	1.25	1.25	1.10	1.10	1.10	1.10	-15	101	5	79
Tampa-St. Petersburg, FL	Large	1.16	1.17	1.21	1.22	1.22	1.22	1.22	1.22	1.21	1.20	1.20	1.20	1.19	1.20	1.21	1.21	1.22	1.22	1.23	1.23	1.20	1.20	1.20	1.20	-3	48	4	90
Toledo, OH-MI	Medium	1.03	1.03	1.05	1.05	1.08	1.08	1.13	1.16	1.16	1.18	1.21	1.21	1.21	1.21	1.21	1.18	1.21	1.18	1.18	1.18	1.10	1.13	1.13	1.13	-5	68	10	44
Tucson, AZ	Medium	1.10	1.12	1.13	1.13	1.13	1.13	1.12	1.12	1.13	1.14	1.16	1.16	1.17	1.17	1.19	1.20	1.20	1.22	1.22	1.20	1.17	1.16	1.16	1.16	-6	75	6	78
Tulsa, OK	Medium	1.03	1.04	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.07	1.09	1.09	1.07	1.10	1.12	1.12	3	2	9	52
Virginia Beach, VA	Large	1.10	1.14	1.18	1.18	1.17	1.17	1.20	1.22	1.25	1.25	1.27	1.27	1.23	1.25	1.27	1.27	1.25	1.27	1.27	1.25	1.21	1.21	1.20	1.20	-7	86	10	44
Washington, DC-VA-MD	Very large	1.10	1.17	1.23	1.25	1.27	1.27	1.26	1.27	1.29	1.29	1.28	1.30	1.30	1.31	1.33	1.33	1.33	1.33	1.33	1.34	1.28	1.29	1.31	1.32	-1	23	22	2
Wichita, KS	Medium	1.04	1.05	1.06	1.06	1.06	1.08	1.08	1.08	1.06	1.09	1.09	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.09	1.09	1.08	1.10	1.09	1.09	0	16	5	79
Winston-Salem, NC	Small	1.02	1.04	1.04	1.04	1.05	1.05	1.05	1.05	1.05	1.07	1.09	1.09	1.09	1.11	1.13	1.13	1.11	1.13	1.13	1.13	1.11	1.11	1.11	1.11	-2	34	9	52
Worcester, MA	Small	1.06	1.09	1.11	1.11	1.11	1.13	1.15	1.17	1.17	1.17	1.19	1.19	1.19	1.19	1.19	1.17	1.17	1.19	1.19	1.19	1.17	1.15	1.13	1.13	-6	75	7	70
439 Urban area average[b]	439 Areas	1.07	1.09	1.14	1.14	1.14	1.15	1.15	1.16	1.17	1.17	1.18	1.19	1.19	1.20	1.21	1.21	1.22	1.23	1.22	1.22	1.18	1.18	1.18	1.18	-4	NA	11	NA
101 Urban area average[b]	101 Areas	1.10	1.12	1.19	1.19	1.19	1.19	1.19	1.20	1.21	1.22	1.23	1.24	1.24	1.25	1.26	1.26	1.27	1.27	1.27	1.27	1.22	1.22	1.23	1.23	-4	NA	13	NA
Very large area average[b]	Very large	1.12	1.15	1.24	1.23	1.24	1.23	1.23	1.24	1.25	1.26	1.27	1.28	1.28	1.29	1.30	1.31	1.32	1.33	1.33	1.32	1.27	1.27	1.28	1.27	-7	NA	15	NA
Large area average[b]	Large	1.08	1.10	1.14	1.15	1.15	1.16	1.17	1.19	1.20	1.21	1.21	1.22	1.23	1.23	1.23	1.24	1.24	1.24	1.24	1.23	1.20	1.19	1.20	1.20	-4	NA	12	NA
Medium area average[b]	Medium	1.06	1.07	1.09	1.10	1.11	1.11	1.12	1.12	1.13	1.14	1.15	1.15	1.15	1.15	1.15	1.16	1.16	1.16	1.17	1.17	1.14	1.15	1.15	1.15	-2	NA	9	NA
Small area average[b]	Small	1.04	1.05	1.06	1.07	1.07	1.08	1.09	1.09	1.10	1.10	1.11	1.11	1.12	1.12	1.13	1.13	1.12	1.13	1.14	1.14	1.11	1.11	1.11	1.11	-3	NA	7	NA

KEY: NA = not applicable; R = revised.
Very large urban areas – 3 million and over population.
Large urban areas – 1 million to less than 3 million population.
Medium urban areas – 500,000 to less than 1 million population.
Small urban areas – less than 500,000 population.

[a] Rank is based on the calculated point change with the highest number corresponding to a rank of 1.
[b] Averages weighted by Vehicle Miles Traveled.

NOTES

The *Travel Time Index* is the ratio of travel time in the peak period to the travel time at free-flow conditions. A value of 1.35 indicates a 20 minute free-flow trip takes 27 minutes in the peak. Free-flow speeds (60 mph on freeways and 35 mph on principal arterials) are used as comparison threshold.
Methodology and data sources have been changed in 2011 and were applied retroactively to past years, these figures are not comparable to those in past editions of NTS.
Population group is based on 2010 population.

SOURCE

Texas Transportation Institute,*Congestion Data for Your City,* Excel spreadsheet of the base statistics for the 101 urban areas and population group summary statistics (College Station, TX: 2012), available at http://mobility.tamu.edu as of Feb. 6, 2013.

Table 1-71: Annual Roadway Congestion Index

Urban area	Population group	1982	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010	2011	Points change: Short-term 2006-2011 Points	Short-term 2006-2011 Rank[a]	Long-term 1982-2011 Points	Long-term 1982-2011 Rank[a]
Akron, OH	Medium	0.50	0.54	0.68	0.69	0.71	0.76	0.79	0.78	0.81	0.84	0.85	0.85	0.86	0.85	0.85	0.86	0.89	0.87	0.89	0.88	0.88	0.87	0.85	0.83	-6	51	33	28
Albany-Schenectady, NY	Medium	0.42	0.45	0.57	0.58	0.62	0.63	0.64	0.64	0.67	0.69	0.70	0.71	0.73	0.75	0.76	0.78	0.80	0.81	0.82	0.83	0.81	0.79	0.77	0.74	-8	67	32	31
Albuquerque, NM	Medium	0.65	0.71	0.85	0.86	0.89	0.93	0.96	0.99	1.04	1.06	1.08	1.05	1.02	1.00	0.97	0.95	0.97	0.99	0.99	0.98	0.96	0.97	0.98	0.98	-1	16	33	28
Allentown-Bethlehem, PA-NJ	Medium	0.64	0.68	0.76	0.78	0.83	0.87	0.90	0.92	0.96	0.98	0.98	0.98	0.97	0.95	0.93	0.92	0.95	0.95	0.93	0.93	0.90	0.89	0.90	0.90	-3	29	26	47
Anchorage, AK	Small	0.75	0.75	0.72	0.72	0.71	0.70	0.72	0.71	0.70	0.70	0.71	0.72	0.73	0.75	0.76	0.76	0.76	0.76	0.76	0.76	0.72	0.70	0.69	0.69	-7	63	-6	99
Atlanta, GA	Very large	0.83	0.93	1.02	1.04	1.06	1.11	1.18	1.21	1.25	1.29	1.31	1.35	1.35	1.35	1.35	1.35	1.35	1.34	1.32	1.28	1.19	1.17	1.18	1.18	-14	92	35	22
Austin, TX	Medium	0.74	0.81	0.90	0.90	0.88	0.88	0.80	0.93	0.94	0.96	0.97	0.99	0.99	1.02	1.04	1.05	1.08	1.10	1.11	1.13	1.05	1.00	0.97	0.98	-13	87	24	50
Bakersfield, CA	Medium	0.50	0.57	0.65	0.67	0.69	0.68	0.70	0.71	0.72	0.74	0.77	0.78	0.75	0.76	0.78	0.78	0.81	0.83	0.83	0.83	0.82	0.83	0.80	0.81	-2	19	31	33
Baltimore, MD	Large	0.75	0.81	0.95	0.96	0.96	0.97	0.99	1.02	1.02	1.03	1.04	1.05	1.09	1.12	1.16	1.20	1.20	1.21	1.20	1.21	1.18	1.19	1.20	1.21	1	7	46	8
Baton Rouge, LA	Medium	0.86	0.87	0.89	0.91	0.90	0.92	0.95	0.96	0.98	1.00	1.01	1.02	1.02	1.04	1.04	1.05	1.05	1.06	1.09	1.09	1.09	1.12	1.15	1.18	9	1	32	32
Beaumont, TX	Small	0.56	0.57	0.61	0.63	0.64	0.64	0.64	0.66	0.70	0.71	0.74	0.75	0.77	0.78	0.79	0.82	0.83	0.86	0.87	0.86	0.81	0.81	0.79	0.79	-8	67	23	56
Birmingham, AL	Medium	0.59	0.65	0.74	0.75	0.75	0.77	0.80	0.82	0.85	0.88	0.91	0.93	0.94	0.94	0.95	0.97	0.98	1.00	1.00	1.02	0.96	0.95	0.95	0.92	-8	67	33	26
Boise, ID	Small	0.54	0.55	0.79	0.81	0.78	0.79	0.77	0.80	0.82	0.85	0.89	0.89	0.91	0.95	0.94	0.96	0.95	0.96	(R) 0.99	1.01	0.95	0.94	0.93	0.91	-8	67	37	16
Boston, MA-NH-RI	Very large	0.81	0.90	1.05	1.05	1.06	1.05	1.05	1.06	1.07	1.08	1.10	1.11	1.11	1.11	1.10	1.10	1.11	1.11	1.10	1.07	1.04	1.02	1.02	1.02	-8	73	21	60
Boulder, CO	Small	0.73	0.75	0.79	0.82	0.84	0.85	0.87	0.88	0.88	0.90	0.88	0.90	0.91	0.90	0.92	0.91	0.91	0.90	0.91	0.89	0.83	0.83	0.86	0.87	-4	37	14	79
Bridgeport-Stamford, CT-NY	Medium	0.80	0.91	0.98	0.95	0.98	0.98	0.98	1.01	1.01	1.03	1.06	1.07	1.09	1.12	1.15	1.14	1.16	1.17	(R) 1.16	1.15	1.11	1.06	1.07	1.09	-7	59	29	40
Brownsville, TX	Small	0.53	0.53	0.62	0.62	0.64	0.67	0.66	0.72	0.77	0.77	0.82	0.80	0.85	0.83	0.85	0.84	0.82	0.80	0.79	0.79	0.72	0.73	0.72	0.73	-6	51	20	63
Buffalo, NY	Large	0.48	0.50	0.56	0.57	0.59	0.60	0.62	0.62	0.62	0.65	0.67	0.69	0.71	(R) 0.70	(R) 0.70	(R) 0.71	(R) 0.71	(R) 0.70	(R) 0.72	0.71	0.68	0.67	0.68	0.67	-5	43	19	65
Cape Coral, FL	Small	0.94	0.92	0.87	0.87	0.90	0.98	1.06	1.14	1.15	1.11	1.14	1.13	1.11	1.11	1.15	1.19	1.23	1.26	(R) 1.24	1.21	1.12	1.11	1.07	1.08	-16	96	14	78
Charleston-North Charleston, SC	Medium	0.85	0.89	0.94	0.95	0.98	0.99	1.02	1.01	1.00	1.01	1.04	1.04	1.05	1.03	1.05	1.08	1.08	1.09	1.13	1.14	1.11	1.11	1.12	1.15	2	3	30	37
Charlotte, NC-SC	Large	0.78	0.89	0.91	0.91	0.90	0.87	0.86	0.86	0.93	1.00	0.99	1.03	1.07	1.08	1.10	1.09	1.10	1.11	1.12	1.11	1.06	1.04	1.04	0.99	-13	87	21	60
Chicago, IL-IN	Very large	0.81	0.89	1.03	1.04	1.02	1.01	1.03	1.08	1.14	1.13	1.17	1.17	1.18	1.20	(R) 1.22	(R) 1.20	(R) 1.23	(R) 1.23	(R) 1.18	1.15	1.12	1.12	1.15	1.16	-2	21	35	23
Cincinnati, OH-KY-IN	Large	0.66	0.74	0.88	0.87	0.87	0.92	0.97	0.97	1.00	1.06	1.07	1.06	1.07	1.04	1.06	1.06	1.04	1.06	1.05	1.03	0.98	0.99	0.99	1.00	-5	46	34	25
Cleveland, OH	Large	0.73	0.69	0.83	0.84	0.85	0.88	0.89	0.90	0.91	0.93	0.94	0.95	0.94	0.91	0.89	0.89	0.91	0.90	0.90	0.88	0.83	0.84	0.86	0.83	-7	63	10	87
Colorado Springs, CO	Medium	0.50	0.56	0.61	0.60	0.62	0.64	0.66	0.70	0.72	0.77	0.80	0.83	0.86	0.88	0.87	0.85	0.81	0.88	0.85	0.83	0.79	0.77	0.77	0.80	-5	43	30	34
Columbia, SC	Small	0.57	0.65	0.73	0.73	0.74	0.74	0.75	0.77	0.77	0.79	0.81	0.84	0.87	0.88	0.88	0.89	0.89	0.90	0.92	0.94	0.92	0.92	0.91	0.90	-2	21	33	26
Columbus, OH	Large	0.60	0.68	0.86	0.87	0.89	0.93	0.95	0.98	1.02	1.04	1.04	1.03	1.02	1.07	1.07	1.08	1.10	1.09	1.11	1.08	1.04	1.05	1.05	1.05	-6	51	45	9
Corpus Christi, TX	Small	0.55	0.63	0.68	0.67	0.66	0.64	0.65	0.65	0.67	0.71	0.71	0.71	0.70	0.71	0.71	0.69	0.71	0.71	0.69	0.69	0.69	0.70	0.67	0.67	-2	19	12	83
Dallas -Fort Worth-Arlington, TX	Very large	0.71	0.82	0.95	0.96	0.96	0.96	0.96	1.00	1.01	1.02	1.05	1.08	1.10	1.12	1.13	1.15	1.17	1.20	1.21	1.20	1.17	1.17	1.14	1.16	-5	46	45	10
Dayton, OH	Medium	0.80	0.79	0.85	0.85	0.84	0.88	0.82	0.89	0.90	0.91	0.91	0.90	0.89	0.89	0.89	0.90	0.95	0.93	0.91	0.89	0.84	0.82	0.81	0.79	-12	84	-1	95
Denver-Aurora, CO	Large	0.82	0.83	0.89	0.91	0.92	0.95	0.98	1.03	1.07	1.09	1.13	1.16	1.17	1.17	1.15	1.16	1.14	1.18	1.16	1.14	1.09	1.10	1.09	1.09	-7	59	27	44
Detroit, MI	Very large	0.91	0.96	1.06	1.08	1.12	1.13	1.12	1.13	1.15	1.15	1.16	1.17	1.19	1.21	1.22	1.23	1.23	1.24	1.24	1.22	1.14	1.12	1.09	1.08	-16	96	17	74
El Paso, TX-NM	Medium	0.60	0.66	0.71	0.76	0.80	0.81	0.83	0.83	0.83	0.84	0.87	0.89	0.89	0.90	0.90	0.92	0.93	0.92	0.89	0.86	0.83	0.81	0.79	0.79	-10	81	19	65
Eugene, OR	Small	0.69	0.70	0.75	0.75	0.75	0.79	0.78	0.80	0.82	0.83	0.85	0.88	0.91	0.88	0.88	0.92	0.92	0.91	0.89	0.88	0.83	0.83	0.83	0.80	-9	76	11	86
Fresno, CA	Medium	0.68	0.73	0.80	0.81	0.82	0.83	0.82	0.84	0.86	0.87	0.90	0.91	0.94	0.91	0.92	0.91	0.91	0.94	0.93	0.91	0.96	0.95	0.94	0.95	2	6	27	46
Grand Rapids, MI	Medium	0.56	0.61	0.71	0.74	0.80	0.86	0.85	0.84	0.84	0.86	0.88	0.87	0.86	0.86	0.85	0.84	0.84	0.85	0.87	0.87	0.85	0.83	0.82	0.80	-7	62	24	50
Greensboro, NC	Small	0.60	0.58	0.59	0.59	0.60	0.61	0.61	0.61	0.77	0.64	0.66	0.66	0.68	0.69	0.69	0.69	0.69	0.68	0.67	0.66	0.64	0.64	0.64	0.63	-4	37	3	91
Hartford, CT	Medium	0.58	0.63	0.70	0.73	0.87	0.78	0.79	0.81	0.82	0.84	0.86	0.89	0.92	0.92	0.93	0.93	0.94	0.94	(R) 0.92	0.91	0.88	0.87	0.89	0.88	-4	37	30	34
Honolulu, HI	Medium	0.82	0.88	1.04	1.04	1.06	1.06	1.08	1.08	1.08	1.06	1.06	1.06	1.04	1.04	1.04	1.06	1.07	1.08	(R) 1.07	1.08	1.05	1.02	0.98	0.96	-11	83	14	79
Houston, TX	Very large	0.99	1.05	1.03	1.03	1.02	1.03	1.05	1.07	1.08	1.11	1.11	1.12	1.14	1.17	1.17	1.17	1.17	1.17	1.18	1.19	1.15	1.15	1.15	1.15	-3	29	16	75
Indianapolis, IN	Large	0.80	0.83	0.94	0.97	1.02	1.05	1.11	1.17	1.17	1.20	1.17	1.17	1.18	1.19	1.19	1.17	1.14	1.14	1.11	1.09	1.06	1.04	1.02	1.02	-9	78	22	59
Indio-Cathedral City-Palm Springs, CA	Medium	0.80	0.84	0.87	0.86	0.84	0.85	0.85	0.84	0.84	0.85	0.83	0.83	0.81	0.81	0.80	0.84	0.87	0.91	0.94	0.92	0.93	0.91	0.93	0.93	-1	15	13	82
Jackson, MS	Small	0.66	0.68	0.72	0.73	0.73	0.74	0.74	0.76	0.78	0.78	0.79	0.80	0.79	0.81	0.83	0.82	0.86	0.86	0.91	0.90	0.88	0.87	0.86	0.85	-6	51	19	71
Jacksonville, FL	Medium	0.79	0.83	0.94	0.94	0.95	0.95	0.97	0.98	1.01	1.00	1.00	1.00	1.02	1.01	1.03	1.06	1.09	1.12	1.18	1.15	1.06	1.04	1.02	0.99	-19	100	20	63
Kansas City, MO-KS	Large	0.53	0.64	0.74	0.74	0.76	0.80	0.81	0.82	0.83	0.81	0.81	0.82	0.82	0.82	0.82	0.81	0.79	0.80	0.79	0.78	0.76	0.75	0.75	0.74	-5	46	21	60
Knoxville, TN	Small	0.79	0.76	0.94	0.96	0.97	0.99	1.01	1.03	1.08	1.09	1.08	1.08	1.08	1.08	1.07	1.06	1.09	1.09	1.07	1.08	1.03	1.03	1.05	1.06	-1	16	27	45
Lancaster-Palmdale, CA	Medium	1.13	1.12	0.89	0.90	0.92	0.91	0.90	0.88	0.88	0.87	0.86	0.84	0.82	0.85	0.88	0.91	0.91	0.91	(R) 0.94	0.96	0.95	0.94	0.94	0.95	1	7	-18	100
Laredo, TX	Small	0.41	0.45	0.47	0.50	0.51	0.52	0.54	0.58	0.64	0.63	0.63	0.67	0.66	0.71	0.71	0.74	0.75	0.76	0.78	0.83	0.80	0.81	0.81	0.82	4	2	41	12
Las Vegas, NV	Large	0.69	0.66	0.94	0.97	1.02	1.09	1.09	1.10	1.11	1.08	1.09	1.14	1.18	1.16	1.19	1.24	1.28	1.32	1.36	1.35	1.20	1.16	1.14	1.13	-23	101	44	11
Little Rock, AR	Small	0.54	0.60	0.70	0.73	0.71	0.72	0.75	0.77	0.79	0.79	0.82	0.85	0.83	0.86	0.80	0.82	0.87	0.89	0.93	0.91	0.84	0.85	0.85	0.84	-9	78	30	37
Los Angeles-Long Beach-Santa Ana, CA	Very large	1.21	1.25	1.57	1.56	1.54	1.52	1.49	1.51	1.54	1.53	1.53	1.53	1.54	1.54	1.55	1.55	1.58	1.57	1.58	1.58	1.55	1.53	1.52	1.57	-1	16	36	19
Louisville, KY-IN	Large	0.83	0.82	0.83	0.89	0.94	0.98	1.01	1.02	1.04	1.07	1.09	1.10	1.10	1.09	1.12	1.14	1.15	1.13	1.10	1.08	1.04	1.03	1.02	1.02	-8	73	19	65
Madison, WI	Small	0.88	0.88	0.88	0.87	0.86	0.83	0.86	0.85	0.84	0.82	0.82	0.82	0.82	0.83	0.84	0.84	0.85	(R) 0.84	(R) 0.83	0.84	0.83	0.83	0.84	0.84	1	7	-4	98
McAllen, TX	Medium	0.52	0.57	0.63	0.64	0.65	0.68	0.70	0.75	0.77	0.76	0.75	0.79	0.81	0.85	0.86	0.85	0.84	(R) 0.84	(R) 0.85	0.88	0.84	0.83	0.81	0.82	-3	29	30	37
Memphis, TN-MS-AR	Large	0.74	0.69	0.82	0.81	0.83	0.85	0.88	0.90	0.91	0.90	0.91	0.92	0.93	0.95	0.96	0.97	0.96	0.93	0.92	0.91	0.87	0.87	0.86	0.86	-6	51	12	83
Miami, FL	Very Large	0.76	0.82	0.99	1.00	1.04	1.06	1.09	1.13	1.14	1.17	1.21	1.26	1.33	1.34	1.36	1.38	1.38	1.38	1.38	1.38	1.34	1.36	1.38	1.35	-3	25	59	2
Milwaukee, WI	Large	0.65	0.75	0.89	0.90	0.90	0.88	0.88	0.91	0.94	0.95	0.96	0.99	1.00	0.98	0.96	0.97	0.98	0.95	0.95	0.94	0.90	0.91	0.91	0.90	-5	43	25	49
Minneapolis-St. Paul, MN	Large	0.65	0.73	0.85	0.87	0.90	0.93	1.00	1.02	1.03	1.08	1.11	1.14	1.16	1.19	1.17	1.18	1.16	1.17	1.16	1.15	1.10	1.09	1.05	1.02	-14	90	37	16
Nashville-Davidson, TN	Large	0.82	0.80	0.85	0.84	0.85	0.84	0.90	0.92	0.91	0.93	0.92	0.93	0.95	0.97	0.98	1.01	1.02	1.01	1.00	0.99	1.00	0.98	0.99	1.01	1	7	19	65
New Haven, CT	Medium	0.63	0.68	0.80	0.79	0.83	0.83	0.81	0.81	0.81	0.85	0.88	0.92	0.94	0.97	1.00	0.99	0.98	1.00	0.99	0.97	0.95	0.95	0.95	0.93	-6	49	30	34
New Orleans, LA	Large	0.86	0.91	0.89	0.89	0.89	0.88	0.93	0.94	0.91	0.92	0.96	0.96	0.94	0.93	0.94	0.94	0.95	0.96	0.98	0.97	0.90	0.90	0.88	0.89	-9	76	3	91
New York-Newark, NY-NJ-CT	Very large	0.73	0.80	0.91	0.90	0.90	0.92	0.93	0.95	0.97	1.01	1.02	1.05	1.06	1.06	1.08	1.13	1.14	1.13	1.14	1.15	1.13	1.12	1.12	1.11	-3	25	38	15
Oklahoma City, OK	Medium	0.63	0.69	0.70	0.72	0.73	0.77	0.77	0.81	0.83	0.85	0.86	0.88	0.87	0.89	0.89	0.89	0.89	(R) 0.89	(R) 0.88	0.88	0.86	0.85	0.86	0.86	-2	21	23	56

Table 1-71: Annual Roadway Congestion Index

Urban area	Population group	1982	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010	2011	Points change: Short-term 2006-2011 Points	Short-term 2006-2011 Rank[a]	Long-term 1982-2011 Points	Long-term 1982-2011 Rank[a]
Omaha, NE-IA	Medium	0.61	0.66	0.75	0.75	0.80	0.80	0.80	0.81	0.84	0.83	0.85	0.87	0.89	0.91	0.93	0.92	0.93	(R) 0.91	(R) 0.95	0.92	0.89	0.87	0.88	0.87	-8	67	26	47
Orlando, FL	Large	0.72	0.83	0.96	0.99	0.98	0.96	0.98	1.00	1.03	1.07	1.10	1.12	1.16	1.22	1.20	1.20	1.20	1.23	1.23	1.24	1.16	1.13	1.08	1.07	-16	96	35	21
Oxnard-Ventura, CA	Medium	0.83	0.97	1.15	1.13	1.14	1.15	1.20	1.20	1.21	1.20	1.20	1.22	1.22	1.26	1.25	1.24	1.23	(R) 1.25	(R) 1.24	1.25	1.23	1.22	1.21	1.22	-2	21	39	14
Pensacola, FL-AL	Small	0.71	0.74	0.86	0.83	0.88	0.91	0.92	0.97	0.99	1.03	0.99	1.00	1.01	0.99	1.02	1.05	1.07	1.10	1.10	1.09	0.96	0.95	0.93	0.93	-17	99	22	58
Philadelphia, PA-NJ-DE-MD	Very large	0.83	0.85	0.95	0.92	0.94	0.92	0.94	0.95	0.95	0.99	1.01	1.03	1.04	1.07	1.09	1.09	1.10	(R) 1.11	1.10	1.10	1.07	1.02	0.99	0.97	-13	87	14	79
Phoenix, AZ	Very large	1.03	1.02	1.01	1.00	1.03	1.04	1.03	1.07	1.11	1.10	1.14	1.19	1.25	1.26	1.23	1.25	1.30	1.32	1.29	1.24	1.20	1.17	1.15	1.15	-14	92	12	85
Pittsburgh, PA	Large	0.67	0.69	0.76	0.75	0.74	0.73	0.73	0.75	0.75	0.75	0.76	0.77	0.77	0.78	0.79	0.80	0.80	0.79	0.78	0.78	0.75	0.72	0.72	0.69	-9	78	2	94
Portland, OR-WA	Large	0.87	0.89	1.00	1.01	1.03	1.05	1.07	1.11	1.15	1.18	1.18	1.20	1.21	1.20	1.20	1.20	1.20	1.19	(R) 1.15	1.13	1.08	1.08	1.10	1.10	-5	42	23	55
Poughkeepsie-Newburgh, NY	Medium	0.83	0.85	0.85	0.85	0.85	0.86	0.86	0.86	0.85	0.86	0.88	0.88	0.88	0.88	0.88	0.89	0.90	0.90	(R) 0.91	0.88	0.85	0.81	0.80	0.79	-12	84	-4	97
Providence, RI-MA	Large	0.55	0.54	0.70	0.70	0.70	0.72	0.73	0.75	0.77	0.78	0.85	0.87	0.88	0.91	0.91	0.93	0.94	0.94	(R) 0.91	0.91	0.86	0.86	0.85	0.83	-8	73	28	43
Provo, UT	Small	1.16	1.17	1.16	1.17	1.17	1.12	1.11	1.10	1.10	1.09	1.03	1.07	1.06	1.06	1.05	1.04	1.04	1.03	1.00	0.98	0.92	0.95	0.95	0.97	-3	29	-19	101
Raleigh-Durham, NC	Large	0.63	0.75	0.85	0.85	0.87	0.86	0.88	0.92	0.92	0.95	0.94	0.94	0.96	0.96	0.98	0.97	0.99	(R) 1.00	(R) 1.02	1.04	1.01	0.97	0.98	0.96	-6	51	33	28
Richmond, VA	Medium	0.61	0.58	0.75	0.78	0.81	0.79	0.84	0.86	0.84	0.80	0.77	0.75	0.77	0.77	0.79	0.81	0.82	0.82	0.83	0.83	0.81	0.79	0.79	0.79	-4	35	18	73
Riverside-San Bernardino, CA	Large	0.76	0.89	1.14	1.17	1.16	1.14	1.11	1.16	1.17	1.15	1.19	1.24	1.26	1.29	1.36	1.43	1.45	(R) 1.53	(R) 1.56	1.53	1.49	1.46	1.39	1.41	-15	95	65	1
Rochester, NY	Medium	0.48	0.52	0.63	0.64	0.66	0.66	0.68	0.71	0.71	0.70	0.70	0.72	0.73	0.74	0.75	0.75	0.76	0.76	0.77	0.75	0.74	0.75	0.78	0.77	0	13	29	40
Sacramento, CA	Large	0.75	0.88	1.10	1.10	1.08	1.08	1.10	1.12	1.16	1.13	1.17	1.19	1.23	1.26	1.29	1.31	1.35	1.36	1.33	1.33	1.29	1.29	1.29	1.30	-3	29	55	3
Salem, OR	Small	0.58	0.66	0.82	0.84	0.84	0.85	0.85	0.84	0.83	0.85	0.88	0.88	0.89	0.89	0.91	0.88	0.87	0.89	(R) 0.88	0.87	0.82	0.81	0.83	0.82	-6	51	24	50
Salt Lake City, UT	Large	0.72	0.77	0.88	0.92	0.95	0.99	1.05	1.07	1.07	1.03	1.01	1.00	1.05	1.05	1.06	1.06	1.05	1.03	1.01	1.02	0.99	0.99	1.00	1.01	0	13	29	40
San Antonio, TX	Large	0.68	0.78	0.75	0.75	0.77	0.78	0.83	0.88	0.94	0.99	1.00	1.03	1.05	1.06	1.07	1.08	1.10	1.11	1.12	1.12	1.09	1.08	1.04	1.05	-7	63	37	16
San Diego, CA	Very large	0.83	0.93	1.23	1.22	1.22	1.20	1.21	1.22	1.22	1.22	1.23	1.28	1.33	1.37	1.37	1.37	1.42	1.41	1.39	1.37	1.34	1.32	1.30	1.32	-7	59	49	4
San Francisco-Oakland, CA	Very large	1.01	1.13	1.31	1.30	1.29	1.30	1.29	1.31	1.32	1.33	1.34	1.36	1.38	1.35	1.39	1.40	1.39	1.40	1.40	1.39	1.34	1.35	1.40	1.41	1	7	40	13
San Jose, CA	Large	1.03	1.10	1.23	1.23	1.20	1.16	1.18	1.19	1.19	1.18	1.19	1.23	1.35	1.37	1.36	1.36	1.33	(R) 1.34	1.35	1.35	1.32	1.33	1.35	1.37	2	3	34	24
San Juan, PR	Large	0.69	0.73	0.83	0.83	0.86	0.87	0.91	0.92	0.94	0.94	0.98	0.99	1.02	1.04	1.09	1.14	1.17	1.15	1.15	1.14	1.14	1.14	1.16	1.17	2	3	48	7
Sarasota-Bradenton, FL	Medium	0.77	0.86	0.87	0.89	0.89	0.91	0.92	0.94	0.98	1.01	1.02	1.10	1.13	1.14	1.16	1.18	1.21	1.24	1.27	1.23	1.17	1.18	1.13	1.13	-14	92	36	20
Seattle, WA	Very large	0.84	0.94	1.14	1.15	1.17	1.19	1.19	1.17	1.17	1.17	1.17	1.18	1.18	1.18	1.18	1.18	1.16	(R) 1.13	(R) 1.10	1.07	1.03	0.99	1.03	1.03	-7	63	19	65
Spokane, WA	Small	0.53	0.59	0.64	0.67	0.71	0.75	0.75	0.75	0.75	0.76	0.77	0.77	0.76	0.76	0.75	0.76	0.73	0.71	0.71	0.71	0.67	0.68	0.69	0.68	-3	28	15	76
Springfield, MA-CT	Medium	0.60	0.63	0.69	0.70	0.72	0.73	0.73	0.74	0.74	0.75	0.77	0.79	0.79	0.78	0.81	0.81	0.83	0.83	0.83	0.81	0.79	0.81	0.81	0.79	-4	35	19	65
St. Louis, MO-IL	Large	0.84	0.89	0.86	0.84	0.88	0.92	0.99	1.04	1.05	1.05	1.03	1.03	1.02	1.01	1.00	0.96	0.94	0.91	0.89	0.90	0.87	0.85	0.85	0.83	-6	51	-1	95
Stockton, CA	Small	0.64	0.72	0.83	0.85	0.86	0.87	0.90	0.96	0.97	0.99	1.00	1.00	1.02	1.04	1.05	1.08	1.11	1.11	1.15	1.20	1.12	1.11	1.11	1.12	-3	25	48	6
Tampa-St. Petersburg, FL	Large	1.04	1.09	1.13	1.18	1.17	1.18	1.18	1.16	1.14	1.14	1.13	1.12	1.13	1.17	1.20	1.21	1.26	1.27	1.29	1.28	1.22	1.21	1.21	1.19	-10	82	15	77
Toledo, OH-MI	Medium	0.54	0.61	0.65	0.64	0.68	0.72	0.78	0.81	0.86	0.88	0.89	0.89	0.91	0.91	0.90	0.87	0.88	0.87	0.87	0.83	0.76	0.75	0.74	0.73	-14	91	19	71
Tucson, AZ	Medium	0.89	0.91	0.93	0.93	0.94	0.93	0.91	0.91	0.93	0.98	0.99	1.00	1.01	1.04	1.06	1.10	1.12	1.18	1.17	1.15	1.16	1.15	1.14	1.13	-4	37	24	54
Tulsa, OK	Medium	0.62	0.74	0.75	0.75	0.76	0.76	0.76	0.79	0.82	0.81	0.81	0.81	0.81	0.81	0.81	0.83	0.80	0.81	(R) 0.81	0.79	0.74	0.72	0.69	0.69	-12	86	7	89
Virginia Beach, VA	Large	0.78	0.82	0.85	0.83	0.83	0.84	0.87	0.89	0.92	0.95	0.96	0.98	0.99	0.99	1.02	1.02	1.02	1.02	(R) 1.01	1.01	1.02	1.03	1.03	1.02	1	7	24	50
Washington, DC-VA-MD	Very large	0.83	1.01	1.05	1.06	1.12	1.15	1.21	1.22	1.24	1.24	1.25	1.24	1.25	1.28	1.31	1.34	1.34	1.35	(R) 1.35	1.37	1.35	1.35	1.34	1.32	-3	29	49	4
Wichita, KS	Medium	0.49	0.49	0.53	0.55	0.56	0.58	0.57	0.56	0.56	0.57	0.57	0.57	0.56	0.55	0.54	0.54	0.55	0.55	0.56	0.56	0.54	0.54	0.54	0.52	-4	37	3	91
Winston-Salem, NC	Small	0.70	0.75	0.78	0.78	0.79	0.76	0.78	0.80	0.79	0.80	0.81	0.81	0.84	0.83	0.82	0.83	0.83	0.85	0.84	0.84	0.79	0.79	0.79	0.76	-8	67	6	90
Worcester, MA	Small	0.68	0.70	0.74	0.76	0.77	0.78	0.79	0.81	0.83	0.84	0.82	0.82	0.83	0.82	0.82	0.82	0.84	0.85	(R) 0.83	0.84	0.81	0.79	0.78	0.77	-6	49	9	88
439 Urban area average[b]	439 Areas	0.69	0.73	0.84	0.86	0.86	0.90	0.91	0.93	0.95	0.96	0.97	0.99	1.01	1.02	1.03	1.03	1.04	1.03	1.03	1.03	0.98	0.98	0.99	0.99	-4	NA	30	NA
101 Urban area average[b]	101 Areas	(R) 0.77	(R) 0.84	(R) 0.95	(R) 0.96	(R) 0.97	(R) 0.98	(R) 0.99	(R) 1.02	(R) 1.03	(R) 1.05	(R) 1.06	(R) 1.08	(R) 1.09	(R) 1.10	(R) 1.11	(R) 1.11	(R) 1.12	(R) 1.12	(R) 1.12	1.11	1.07	1.06	1.06	1.06	-6	NA	29	NA
Very large area average[b]	Very large	(R) 0.87	(R) 0.95	(R) 1.10	(R) 1.10	(R) 1.10	(R) 1.11	(R) 1.12	(R) 1.14	(R) 1.16	(R) 1.17	(R) 1.19	(R) 1.21	(R) 1.23	(R) 1.24	(R) 1.25	(R) 1.26	(R) 1.27	(R) 1.27	(R) 1.26	1.25	1.21	1.20	1.20	1.20	-6	NA	33	NA
Large area average[b]	Large	(R) 0.72	(R) 0.78	(R) 0.87	(R) 0.88	(R) 0.89	(R) 0.91	(R) 0.93	(R) 0.96	(R) 0.97	(R) 0.99	(R) 1.00	(R) 1.01	(R) 1.03	(R) 1.04	(R) 1.05	(R) 1.06	(R) 1.06	(R) 1.07	(R) 1.06	1.06	1.02	1.01	1.00	0.99	-7	NA	27	NA
Medium area average[b]	Medium	(R) 0.63	(R) 0.68	(R) 0.76	(R) 0.77	(R) 0.79	(R) 0.80	(R) 0.82	(R) 0.83	(R) 0.85	(R) 0.86	(R) 0.87	(R) 0.88	(R) 0.88	(R) 0.89	(R) 0.90	(R) 0.90	(R) 0.91	(R) 0.91	(R) 0.92	0.91	0.88	0.87	0.87	0.86	-6	NA	23	NA
Small area average[b]	Small	(R) 0.63	(R) 0.67	(R) 0.73	(R) 0.74	(R) 0.75	(R) 0.75	(R) 0.76	(R) 0.78	(R) 0.80	(R) 0.80	(R) 0.81	(R) 0.82	(R) 0.83	(R) 0.83	(R) 0.84	(R) 0.84	(R) 0.86	(R) 0.86	(R) 0.87	0.87	0.82	0.82	0.81	0.81	-6	NA	18	NA

KEY: NA = not applicable; R = revised.
Very large urban areas – 3 million and over population.
Large urban areas – 1 million to less than 3 million population.
Medium urban areas – 500,000 to less than 1 million population.
Small urban areas – less than 500,000 population.

[a] Rank is based on the calculated point change with the highest number corresponding to a rank of 1.
[b] Average weighted by vehicle miles traveled in city.

NOTES

The Roadway Congestion Index (RCI) is a measure of vehicle travel density on major roadways in an urban area. An RCI exceeding 1.0 indicates an undesirable congestion level, on an average, on the freeways and principal arterial street systems during the peak period. The urban areas included are those containing over 500,000 people and several smaller places mostly chosen by previous sponsors of the Texas Transportation Institute study on mobility. *Population group* is based on 2010 population.

SOURCE

Texas Transportation Institute, *Congestion Data for Your City,* Excel spreadsheet of the base statistics for the 101 urban areas and population group summary statistics (College Station, TX: 2012), available at http://mobility.tamu.edu as of Feb. 6, 2013.

Table 1-72: Annual Highway Congestion Cost

| Urban area | Population group | Annual congestion cost per auto commuter (2011 dollars) | | |

Table 1-73: Amtrak On-Time Performance Trends and Hours of Delay by Cause

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
On-time performance, total percent (weighted)	69.0	81.0	76.0	77.0	77.0	72.0	72.0	76.0	71.0	74.0	79.0	79.0	78.2	75.1	76.1	74.1	70.7	69.8	67.8	68.6	71.2	80.4	79.7
Short distance (<400 miles), percent	71.0	82.0	82.0	82.0	82.0	79.0	78.0	81.0	76.0	79.0	81.0	80.0	82.0	78.7	79.7	77.1	75.2	73.6	72.8	72.2	73.6	81.1	80.5
Long distance (>=400 miles), percent	64.0	78.0	53.0	59.0	61.0	47.0	49.0	57.0	49.0	53.0	59.0	54.6	55.0	52.1	51.6	52.8	40.7	42.1	29.9	39.5	52.0	75.5	73.7
Hours of delay by cause, total[a]	N	N	12,126	21,084	22,847	32,991	34,729	25,248	25,056	25,825	27,289	29,252	70,396	83,837	85,932	88,413	95,162	95,259	101,522	101,655	94,566	79,304	79,976
Amtrak[b]	N	N	3,565	5,915	6,433	8,488	8,538	5,527	5,193	5,310	4,796	4,891	23,337	27,822	26,575	25,711	28,328	25,549	23,968	22,902	23,223	21,813	23,404
Host railroad[c]	N	N	4,244	7,743	8,229	12,827	14,319	11,224	11,438	12,904	14,202	16,158	43,881	52,273	55,090	57,346	61,256	64,097	71,387	72,565	64,724	46,842	44,090
Other[d]	N	N	4,316	7,426	8,185	11,675	11,871	8,497	8,425	7,611	8,291	8,203	3,176	3,741	4,266	5,355	5,577	5,613	6,166	6,187	6,618	10,648	12,482

KEY: N = data do not exist.

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

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

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

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

NOTES

Host railroad is a freight or commuter railroad over which Amtrak trains operate for all or part of their trip.

Numbers may not add to totals due to rounding.

All percentages are based on Amtrak's fiscal year (October 1–September 30).

Amtrak trains are considered on time if arrival at the endpoint is within the minutes of scheduled arrival time as shown on the following chart. Trip length is based on the total distance traveled by that train from origin to destination:

Trip length (miles)	Minutes late at endpoint
0–250	10 or less
251–350	15 or less
351–450	20 or less
451–550	25 or less
> 551	30 or less

SOURCES:

1980: Amtrak, *National Railroad Passenger Corporation Annual Report* (Washington, DC: 1981).

1985-99: Ibid., *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual Issues).

2000-10: Amtrak, personal communication, October 2010.

Chapter 2

Transportation Safety

Section A
Multimodal

Table 2-1: Transportation Fatalities by Mode

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TOTAL fatalities	U	U	U	U	U	U	47,350	44,321	42,058	42,827	43,587	44,568	44,848	44,474	43,910	44,086	44,384	44,941	45,276	45,134	45,052	45,666	45,040	43,330	39,514	35,929	U	U
Air, total	1,286	1,290	1,456	1,473	1,382	1,595	866	(R) 1,039	988	811	1,057	963	1,093	724	670	683	764	1,166	616	699	637	603	774	540	(R) 567	(R) 548	(R) 473	(P) 485
U.S. air carrier[a]	499	261	146	124	1	526	39	(R) 62	33	1	239	168	380	8	1	12	92	531	0	22	14	22	50	1	3	52	2	(P) 0
Commuter carrier[b]	N	N	N	28	37	37	6	(R) 99	21	24	25	9	14	46	0	12	5	13	0	2	0	0	2	0	0	0	0	(P) 0
On-demand air taxi[c]	N	N	N	69	105	76	51	78	68	42	63	52	63	39	45	38	71	60	35	42	64	18	16	43	69	17	17	(P) 41
General aviation[d]	787	1,029	1,310	1,252	1,239	956	770	800	866	744	730	734	636	631	624	621	596	562	581	633	559	563	706	496	(R) 495	(R) 479	(R) 454	(P) 444
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	41,259	37,423	33,808	U	U
Passenger car occupants	N	N	N	25,929	27,449	23,212	24,092	22,385	21,387	21,566	21,997	22,423	22,505	22,199	21,194	20,862	20,699	20,320	20,569	19,725	19,192	18,512	17,925	16,614	14,646	13,095	U	U
Motorcyclists	790	1,650	2,280	3,189	5,144	4,564	3,244	2,806	2,395	2,449	2,320	2,227	2,161	2,116	2,294	2,483	2,897	3,197	3,270	3,714	4,028	4,576	4,837	5,174	5,312	4,462	U	U
Truck occupants[e], light	N	N	N	4,856	7,486	6,689	8,601	8,391	8,098	8,511	8,904	9,568	9,932	10,249	10,705	11,265	11,526	11,723	12,274	12,546	12,674	13,037	12,761	12,458	10,816	10,287	U	U
Truck occupants[e], large	N	N	N	961	1,262	977	705	661	585	605	670	648	621	723	742	759	754	708	689	726	766	804	805	805	682	503	U	U
Bus occupants	N	N	N	53	46	57	32	31	28	18	18	33	21	18	38	59	22	34	45	41	42	58	27	36	67	26	U	U
Pedestrians	7,210	7,990	8,950	7,516	8,070	6,808	6,482	5,801	5,549	5,649	5,489	5,584	5,449	5,321	5,228	4,939	4,763	4,901	4,851	4,774	4,675	4,892	4,795	4,699	4,414	4,092	U	U
Pedalcyclists	490	690	760	1,003	965	890	859	843	723	816	802	833	765	814	760	754	693	732	665	629	727	786	772	701	718	630	U	U
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	786	772	768	713	U	U
Railroad, total[g]	2,345	2,533	2,225	1,492	1,417	1,036	1,297	1,194	1,170	1,279	1,226	1,146	1,039	1,063	1,008	932	937	971	951	865	891	884	903	851	803	(R) 696	(R) 735	698
Highway-rail grade crossing[h]	1,421	1,610	1,440	917	833	582	698	608	579	626	615	579	488	461	431	402	425	421	357	334	371	359	369	339	290	249	(R) 260	251
Railroad	924	923	785	575	584	454	599	586	591	653	611	567	551	602	577	530	512	550	594	531	520	525	534	512	513	(R) 447	(R) 475	447
Transit, total[i]	N	N	N	N	N	N	339	300	273	281	320	274	264	275	286	299	295	267	280	234	248	236	227	288	240	230	279	278
Highway-rail grade crossing[j]	N	N	N	N	N	N	N	N	N	N	N	17	7	12	26	21	20	13	24	21	29	23	21	27	26	35	36	18
Transit	N	N	N	N	N	N	N	N	N	N	N	257	257	263	260	278	275	254	256	213	219	213	206	261	214	195	243	260
Waterborne, total[k]	N	N	2,016	2,039	1,847	1,377	1,051	1,010	1,032	1,026	992	1,016	906	989	1,033	928	888	828	863	833	822	835	839	811	827	886	(R) 765	820
Vessel-related[l]	N	N	178	243	206	131	85	30	97	105	77	53	55	48	69	58	53	53	59	69	86	78	73	67	51	(R) 50	(R) 41	28
Not related to vessel casualties[l]	N	N	420	330	281	130	101	56	119	121	131	134	142	120	149	136	134	94	54	61	60	60	56	59	67	(R) 53	(R) 52	34
Recreational boating[m]	739	1,360	1,418	1,466	1,360	1,116	865	924	816	800	784	829	709	821	815	734	701	681	750	703	676	697	710	685	709	736	672	758
Pipeline, total	N	N	30	15	19	33	9	14	15	17	22	21	53	10	21	22	38	7	12	12	23	14	21	15	9	13	22	14
Hazardous liquid pipeline	N	N	4	7	4	5	3	0	5	0	1	3	5	0	2	4	1	0	1	0	5	2	0	4	2	4	1	1
Gas pipeline	N	N	26	8	15	28	6	14	10	17	21	18	48	10	19	18	37	7	11	12	18	12	21	11	7	9	21	13

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

[a] Carriers operating under 14 CFR 121, all scheduled and nonscheduled service. Since Mar. 20, 1997, 14 CFR 121 include aircraft with 10 or more seats that formerly operated under 14 CFR 135. This change makes it difficult to compare pre-1997 data for 14 CFR 121 and 14 CFR 135 with more recent data. In 2001, other than the persons aboard the aircraft who were killed, fatalities resulting from the September 11 terrorist acts are excluded. *U.S. air carrier* figure does not include 12 persons killed aboard a commuter aircraft when it and a US Air airliner collided.

[b] All scheduled service operating under 14 CFR 135 (*Commuter air carriers*). Before Mar. 20, 1997, 14 CFR 135 applied to aircraft with 30 or fewer seats. Since Mar. 20, 1997, 14 CFR 135 includes only aircraft with fewer than 10 seats. This change makes it difficult to compare pre-1997 data for 14 CFR 121 and 14 CFR 135 with more recent data. *Commuter air carrier* figure does not include 22 persons killed aboard a US Air airliner when it and a commuter aircraft collided.

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

[d] All operations other than those operating under 14 CFR 121 and 14 CFR 135. 2006 includes the 154 persons killed aboard a foreign registered aircraft operated by Gol Airlines in a collision with another aircraft over Brazil.

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

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

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

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

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

[j] Includes motor bus, commuter rail, heavy rail, light rail, demand response, van pool, and automated guideway. Fatalities occurring at *highway-rail crossings* resulting from operations of public transit rail modes including commuter rail. Data for fatalities at light rail grade crossings are: 1995 (7); 1996 (3); 1997 (3); 1998 (10); 1999 (7); 2000 (12); 2001 (1); 2002 (1); 2003 (4); 2004 (10); 2005 (8); 2006 (7); 2007 (5); 2008 (8); 2009 (14); and 2010 (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.

NOTES

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

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

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

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

SOURCES

Total: Multiple sources as cited in U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics*National Transportation Statistics* , table 2-4, available at http://www.bts.gov/publications/national_transportation_statistics/ as of April 2012.

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.

1985-2010: Ibid., *Aviation Accident Statistics* (Washington, DC: Annual Issues), table 5, available at http://www.ntsb.gov/data/aviation_stats.html as of Jan. 29, 2012.

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.

1985-2010: Ibid., *Aviation Accident Statistics* (Washington, DC: Annual Issues), table 8, available at http://www.ntsb.gov/data/aviation_stats.html as of Jan. 29, 2012.

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.

1985-2010: Ibid., *Aviation Accident Statistics* (Washington, DC: Annual Issues), table 9, available at http://www.ntsb.gov/data/aviation_stats.html as of Jan. 28, 2012.

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.

1985-2010: Ibid., *Aviation Accident Statistics* (Washington, DC: Annual Issues), table 10, available at http://www.ntsb.gov/data/aviation_stats.html as of Jan. 29, 2012.

Highway:

1960-65: U.S. Department of Transportation, National Highway Traffic Safety Administration from data supplied by U.S. Department of Health and Human Services, National Center for Health Statistics, and individual state accident reports (adjusted to 30-day deaths).

1970-1993: U.S. Department of Transportation, National Highway Traffic Safety Administration,*Traffic Safety Facts* (Annual Editions), available at http://www-nrd.nhtsa.dot.gov/cats/index.aspx as of December 2008.

1994-2009: Ibid., Fatality Analysis Reporting System (FARS),*General Trends,* available at http://www-fars.nhtsa.dot.gov/Main/reportslinks.aspx as of Sept. 29, 2010.

Rail:

Highway-rail grade crossing:

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

1975-80: U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development, personal communication.

1985-90: Ibid., *Rail-Highway Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual Issues), table S.

1991-95: Ibid., *Railroad Safety Statistics* , available at http://safetydata.fra.dot.gov/officeofsafety/ as of Sept. 9, 2008.

1996-2000: Ibid., *Railroad Safety Statistics* , table 1-3, available at http://safetydata.fra.dot.gov/officeofsafety/ as of Sept. 29, 2010.

2001-2010: Ibid., *Ten Year Accident/Incident Overview by Railroads* (Washington, DC: December Issue), available at http://safetydata.fra.dot.gov/officeofsafety/ as of Jan. 31, 2012.

Railroad:

1960-65: National Safety Council,*Accident Facts, 1974* (Washington, DC: 1974).

1970-90: U.S. Department of Transportation, Federal Railroad Administration,*Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual Issues), table 7.

1991-95: Ibid., *Railroad Safety Statistics* , available at http://safetydata.fra.dot.gov/officeofsafety/ as of Sept. 9, 2008.

1996-2000: Ibid., *Railroad Safety Statistics* , table 1-1, available at http://safetydata.fra.dot.gov/officeofsafety/ as of Sept. 29, 2010.

2001-2010: Ibid., *Ten Year Accident/Incident Overview by Railroad* (Washington, DC: December Issue), available at http://safetydata.fra.dot.gov/officeofsafety/ as of Jan. 31, 2012.

Transit:

Highway-rail grade crossing:

U.S. Department of Transportation, Federal Transit Administration, Office of Program Management, personal communications, Aug. 28, 2007 and Jan. 18, 2013.

Transit:

1990-92: U.S. Department of Transportation, Federal Transit Administration,*Safety Management Information Statistics 1999* (Washington, DC: 2001), p. 41.

1993-2007: U.S. Department of Transportation, Federal Transit Administration,*Transit Safety and Security Statistics and Analysis Annual Report,* (Washington, DC: Annual Issues), available at http://transit-safety.volpe.dot.gov/data/SAMIS.asp as of Oct. 22, 2009.

2008-2011: U.S. Department of Transportation, Research and Innovative Technology Administration, Volpe Center, Transit Safety and Security Statistics and Analysis Program, personal communication, Nov. 4, 2010, Oct. 15, 2011, and Jan. 22, 2013.

Water:

Vessel- and nonvessel-related:

U.S. Department of Homeland Security, U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communication, Sept. 30, 2010, Oct. 4, 2011, and Nov. 20, 2012.

Recreational boating:

U.S. Department of Homeland Security, U.S. Coast Guard, Office of Boating Safety,*Boating Statistics* (Washington, DC: Annual Issues), table 31, available at http://www.uscgboating.org as of Dec. 12, 2012.

Hazardous liquid and gas pipeline:

1970-85: U.S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety*Accident and Incident Summary Statistics by Year* , available at http://ops.dot.gov as of Nov. 18, 2003.

1990-2011: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety*Accident and Incident Summary Statistics by Year* , available at http://phmsa.dot.gov/pipeline as of Dec. 12, 2012.

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	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Air,[a] total	N	N	822	850	757	589	485	515	456	430	484	452	467	417	369	406	357	368	337	367	303	304	290	291	(R) 296	301	(R) 277	360
U.S. air carrier[b]	N	N	107	81	19	30	29	26	22	19	31	25	77	43	30	67	29	19	24	31	20	14	9	16	(R) 23	23	(R) 16	20
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	2	1	2	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	23	16	20	(R) 12	4	(R) 3	15
General aviation[e]	N	N	715	769	681	501	409	432	408	385	415	396	366	350	327	322	309	321	297	323	266	267	264	255	(R) 259	273	256	325
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	2,491,000	2,346,000	2,217,000	U	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	1,573,396	1,474,536	1,379,181	1,304,006	1,216,000	U	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	87,335	88,652	102,994	95,986	90,000	U	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	872,137	856,896	841,451	768,410	759,000	U	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	27,284	23,815	23,314	22,947	17,000	U	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	11,133	9,839	12,141	15,149	12,000	U	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	64,446	60,924	70,286	68,832	59,000	U	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	45,439	44,012	43,481	52,395	51,000	U	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	17,806	17,989	17,685	18,011	14,000	U	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	9,264	9,194	9,550	8,797	9,669	9,065	8,025	8,346	8,283
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	1,035	1,094	1,053	1,070	1,059	990	742	879	1,023
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	8,229	8,100	8,497	7,727	8,610	8,075	7,283	7,467	7,260
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	20,944	23,105	21,420	23,414	22,136
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	224	271	279	321	363
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	20,720	22,834	21,141	23,093	21,773
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	4,245	4,422	3,947	3,931	3,867	3,867
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	190	152	196	172	105
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	559	464	377	542	654
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	3,474	3,673	3,331	3,358	3,153	3,108
Pipeline, total	N	N	254	231	192	126	76	98	118	111	1,971	64	127	77	81	108	81	61	49	71	60	48	36	50	59	64	109	60
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	2	4	4	2
Gas pipeline	N	N	233	214	177	108	69	89	80	101	113	53	114	72	75	88	77	51	49	66	44	46	34	40	57	60	105	58

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

[a] Injuries classified as serious. See definitions of injuries in the glossary.
[b] All scheduled and nonscheduled service operating under 14 CFR 121. 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] 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 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 vehicles.
[g] Includes occupants of other unknown vehicle types and other nonmotorists.
[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 system.
[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, any injury was reportable.
[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 (56); 2004 (62); 2005 (138); 2006 (44); 2007 (139); 2008 (86); 2009 (195); and 2010 (252).
[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 excluded.

NOTES

Totals may not sum from the components due to rounding.
Highway numbers are not actual counts, but estimates of the actual counts. The estimates are calculated from data obtained from a nationally representative sample of crashes collected through NHTSA's General Estimates System (GES). Estimates are rounded to the nearest 1,000. Estimates less than 500 indicate that the sample size was too small to produce a meaningful estimate and should be rounded to 0.

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Table 2-3: Transportation Accidents by Mode

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Air	4,883	5,279	4,767	4,232	3,818	2,935	2,388	2,334	2,227	2,172	2,139	2,178	2,046	1,987	2,037	2,043	1,985	1,852	1,823	1,870	1,717	(R) 1,782	1,611	(R) 1,746	(R) 1,662	1,556	1,501	(P) 1,501
U.S. air carrier[a]	90	83	55	37	19	21	24	26	18	23	23	36	37	49	50	51	56	46	41	54	30	40	33	28	28	30	(R) 29	(P) 31
Commuter carrier[b]	N	N	N	48	38	18	15	23	23	16	10	12	11	16	8	13	12	7	7	2	4	6	3	3	7	2	6	(P) 4
On-demand air taxi[c]	N	N	N	152	171	157	107	88	76	69	85	75	90	82	77	74	80	72	60	73	66	65	52	62	58	47	31	(P) 50
General aviation[d]	4,793	5,196	4,712	3,995	3,590	2,739	2,242	2,197	2,110	2,064	2,021	2,055	1,908	1,840	1,902	1,905	1,837	1,727	1,715	1,741	1,617	(R) 1,671	1,523	(R) 1,653	(R) 1,569	(R) 1,480	(R) 1,439	(P) 1,466
Highway, total crashes[e]	N	N	N	N	N	N	6,471,000	6,117,000	6,000,000	6,106,000	6,496,000	6,699,000	6,770,000	6,624,000	6,335,000	6,279,000	6,394,000	6,323,000	6,316,000	6,328,000	6,181,000	6,159,000	5,973,000	6,024,000	5,811,000	5,505,000	5,419,000	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	U	U	U	U
Motorcycle	N	N	N	N	N	N	103,114	105,030	72,177	74,565	68,752	66,354	66,224	61,451	54,477	57,322	68,783	73,342	76,004	79,131	85,557	100,686	101,474	U	U	U	U	U
Truck[f], light	N	N	N	N	N	N	2,152,486	2,200,134	2,191,171	2,407,212	2,573,701	2,749,596	2,880,782	2,900,896	2,866,729	3,079,617	3,207,738	3,254,105	3,272,326	3,345,367	3,370,062	3,381,985	3,355,291	U	U	U	U	U
Truck[f], large	N	N	N	N	N	N	371,801	318,637	362,807	383,220	444,697	362,883	378,335	421,377	391,807	452,444	437,861	409,372	416,477	436,161	399,156	423,016	367,920	U	U	U	U	U
Bus	N	N	N	N	N	N	60,412	56,285	49,705	51,353	55,818	58,847	57,185	53,376	53,385	62,591	55,594	54,264	57,958	57,674	52,148	50,427	51,554	U	U	U	U	U
Railroad, total[g]	N	N	11,654	20,117	18,817	10,194	8,594	8,046	7,269	7,503	7,483	7,092	6,700	6,262	6,083	6,257	6,485	6,260	5,815	5,996	6,470	6,332	(R) 5,940	5,471	(R) 4,910	(R) 3,841	(R) 3,954	4,064
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	3,085	3,066	2,942	2,778	(R) 2,429	(R) 1,932	(R) 2,052	2,054
Railroad[i]	N	N	8,095	8,041	8,205	3,275	2,879	2,658	2,359	2,611	2,504	2,459	2,443	2,397	2,575	2,768	2,983	3,023	2,738	3,019	3,385	3,266	(R) 2,998	2,693	(R) 2,481	(R) 1,909	(R) 1,902	2,010
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	5,154	3,513	3,492	3,572
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	232	190	201	204
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	4,922	3,323	3,291	3,368
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	9,565	9,885	9,545	9,188	(R) 9,889	10,574
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	4,598	4,694	4,756	4,458	(R) 5,285	5,986
Recreational boating	2,738	3,752	3,803	6,308	5,513	6,237	6,411	6,573	6,048	6,335	6,906	8,019	8,026	8,047	8,061	7,931	7,740	6,419	5,705	5,438	4,904	4,969	4,967	5,191	4,789	4,730	4,604	4,588
Pipeline, total	N	N	1,428	1,592	1,770	517	379	449	389	445	467	349	381	346	389	339	380	341	644	673	(R) 673	721	(R) 642	615	(R) 663	626	(R) 588	594
Hazardous liquid pipeline	N	N	351	254	246	183	180	216	212	229	245	188	194	171	153	167	146	130	460	435	377	369	(R) 355	(R) 332	375	(R) 340	(R) 349	347
Gas pipeline	N	N	1,077	1,338	1,524	334	199	233	177	216	222	161	187	175	236	172	234	211	184	238	(R) 296	352	287	(R) 283	(R) 288	(R) 286	(R) 239	247

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

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

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

[c] Nonscheduled service operating under 14 CFR 135.

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

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

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

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

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

[i] Train accidents only.

[j] Accident figures include collisions with vehicles, objects, and people, derailments / vehicles going off the road. Accident figures do not include fires and personal casualties. The drop in the number of accidents in 2002 is due largely to a change in definitions by the Federal Transit Administration, particularly the definition of injuries. Beginning in 2002, only injuries requiring immediate medical treatment away from the scene qualified as reportable. In 2008, the property damage threshold was changed to $25,000. Previously, any accident with property damage equal to or greater than $7,500 was reported.

[k] Accidents occurring at highway-rail grade crossings resulting from operations of public transit rail modes including commuter rail. Data for light rail crossings are: 1995 (98); 1996 (97); 1997 (66); 1998 (66); 1999 (103); 2000 (106); 2001 (54); 2002 (112); 2003 (68); 2004 (106); 2005 (81); 2006 (95); 2007 (93); 2008 (107); 2009 (119); and 2010 (116).

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

[m] 1992-97 data are obtained from the Marine Safety Management Information System. Between 1998 and 2000, the U.S. Coast Guard phased in a new computer system to track safety data, the Marine Information for Safety and Law Enforcement System. During this period, data are obtained from combining entries in the Marine Safety Management Information System with entries in the Marine Information for Safety and Law Enforcement System. Data after 2002 comes from the Marine Information for Safety and Law Enforcement System. Statistics for prior years may not be directly comparable due to the revised method of capture.

NOTES

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

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

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2008-2011: U.S. Department of Transportation, Federal Transit Administration, personal communication, Oct. 14, 2010, Nov. 4, 2011, and Jan. 18, 2013.

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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.

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Table 2-4: Distribution of Transportation Fatalities by Mode

	1999		2000		2001		2002		2003		2004		2005		2006		2007		(R) 2008		2009	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
TOTAL of all modes[a]	44,086	100.00	44,384	100.00	44,941	100.00	(R) 45,276	100.00	45,134	100.00	45,052	100.00	(R) 45,666	100.00	(R) 45,040	100.00	(R) 43,330	100.00	39,514	100.00	(P) 35,929	100.00
Passenger car occupants	20,862	47.32	20,699	46.64	20,320	45.21	20,569	45.43	19,725	43.70	19,192	42.60	18,512	40.54	17,925	39.80	16,614	(R) 38.34	14,646	37.07	13,095	36.45
Light-truck occupants	11,265	25.55	11,526	25.97	11,723	26.09	12,274	27.11	12,546	27.80	12,674	28.13	13,037	28.55	12,761	28.33	12,458	28.75	10,816	27.37	10,287	28.63
Pedestrians struck by motor vehicles	4,939	11.20	4,763	10.73	4,901	10.91	4,851	10.71	4,774	10.58	4,675	10.38	4,892	10.71	4,795	10.65	4,699	10.84	4,414	11.17	4,092	11.39
Motorcyclists	2,483	5.63	2,897	6.53	3,197	7.11	3,270	7.22	3,714	8.23	4,028	8.94	4,576	10.02	4,837	10.74	5,174	11.94	5,312	13.44	4,462	12.42
Large-truck occupants	759	1.72	754	1.70	708	1.58	689	1.52	726	1.61	766	1.70	804	1.76	805	1.79	805	1.86	682	1.73	503	1.40
Pedalcyclists struck by motor vehicles	754	1.71	693	1.56	732	1.63	665	1.47	629	1.39	727	1.61	786	1.72	772	1.71	701	1.62	718	1.82	630	1.75
Recreational boating	734	1.66	701	1.58	681	1.52	750	1.66	703	1.56	676	1.50	697	1.53	710	1.58	685	1.58	709	1.79	736	2.05
Other and unknown motor vehicle occupants	447	1.01	450	1.01	458	1.02	528	1.17	589	1.31	602	1.34	659	1.44	601	1.33	614	1.42	580	1.47	563	1.57
General aviation	621	1.41	596	1.34	562	1.25	581	1.28	633	1.40	559	1.24	563	1.23	(R) 706	1.57	496	1.14	494	1.25	(P) 474	1.32
Railroad trespassers[b] (excluding grade crossings)	479	1.09	463	1.04	511	1.14	540	1.19	498	1.10	472	1.05	458	1.00	511	1.13	470	1.08	457	1.16	(P) 428	1.19
Other nonoccupants struck by motor vehicles[c]	149	0.34	141	0.32	123	0.27	114	0.25	140	0.31	130	0.29	186	0.41	185	0.41	158	0.36	188	0.48	150	0.42
Grade crossings, not involving motor vehicles[d]	57	0.13	64	0.14	76	0.17	47	0.10	62	0.14	85	0.19	76	0.17	65	0.14	73	0.17	69	0.17	(P) 66	0.18
Air taxi	38	0.09	71	0.16	60	0.13	35	0.08	42	0.09	64	0.14	18	0.04	16	0.04	43	0.10	69	0.17	(P) 17	0.05
Heavy rail transit (subway)	84	0.19	80	0.18	59	0.13	73	0.16	49	0.11	59	0.13	35	0.08	23	0.05	32	0.07	61	0.15	96	0.27
Waterborne transportation (nonvessel-related)	136	0.31	134	0.30	94	0.21	54	0.12	61	0.14	60	0.13	60	0.13	56	0.12	59	0.14	67	0.17	93	0.26
Bus occupants (school, intercity, and transit)	59	0.13	22	0.05	34	0.08	45	0.10	41	0.09	42	0.09	58	0.13	27	0.06	36	0.08	67	0.17	(P) 26	0.07
Waterborne transportation (vessel-related)	58	0.13	53	0.12	53	0.12	59	0.13	69	0.15	86	0.19	78	0.17	73	0.16	67	0.15	51	0.13	57	0.16
Private grade crossings, with motor vehicles	36	0.08	55	0.12	30	0.07	39	0.09	30	0.07	30	0.07	26	0.06	38	0.08	37	0.09	22	0.06	(P) 19	0.05
Railroad employees, contractors, and volunteers on duty (excluding grade crossings)	31	0.07	22	0.05	23	0.05	22	0.05	20	0.04	27	0.06	28	0.06	19	0.04	21	0.05	28	0.07	(P) 18	0.05
Light rail transit	17	0.04	30	0.07	21	0.05	13	0.03	17	0.04	22	0.05	19	0.04	17	0.04	32	0.07	15	0.04	33	0.09
Railroad-related, not otherwise specified (excluding grade crossings)	17	0.04	23	0.05	13	0.03	25	0.06	11	0.02	20	0.04	26	0.06	5	0.01	21	0.05	7	0.02	10	0.03
Gas distribution pipelines	16	0.04	22	0.05	5	0.01	(R) 10	0.02	11	0.02	18	0.04	(R) 12	0.03	18	0.04	9	0.02	6	0.02	9	0.03
Transit buses, fatalities not related to accidents[e]	12	0.03	8	0.02	6	0.01	14	0.03	14	0.03	16	0.04	17	0.04	18	0.04	14	0.03	5	0.01	4	0.01
Air carriers[f]	12	0.03	92	0.21	531	1.18	0	0.00	22	0.05	14	0.03	22	0.05	50	0.11	1	0.00	3	0.01	(P) 52	0.14
Hazardous liquid pipelines	4	0.01	1	0.00	0	0.00	1	0.00	0	0.00	5	0.01	2	0.00	0	0.00	4	0.01	2	0.01	4	0.01
Passengers on railroad trains (excluding grade crossings)	3	0.01	4	0.01	3	0.01	7	0.02	2	0.00	3	0.01	16	0.04	2	0.00	5	0.01	24	0.06	(P) 3	0.01
Demand response transit, fatalities not related to accidents[e]	0	0.00	0	0.00	2	0.00	0	0.00	3	0.01	0	0.00	1	0.00	0	0.00	0	0.00	2	0.01	2	0.01
Commuter air	12	0.03	5	0.01	13	0.03	0	0.00	2	0.00	0	0.00	2	0.00	2	0.00	0	0.00	0	0.00	(P) 0	0.00
Gas transmission pipelines	2	0.00	15	0.03	2	0.00	1	0.00	1	0.00	0	0.00	0	0.00	3	0.01	2	0.00	0	0.00	0	0.00
Other counts, redundant with above[g]																						
Large-truck occupants and nonoccupants	5,380	12.20	5,282	11.90	5,111	11.37	4,939	10.91	5,036	11.16	5,235	11.62	5,240	11.47	5,027	11.16	4,822	11.13	4,245	10.74	3,380	9.41
Public grade crossings, with motor vehicles	309	0.70	306	0.69	315	0.70	271	0.60	241	0.53	249	0.55	255	0.56	266	0.59	225	0.52	198	0.50	(P) 161	0.45
Commuter rail	95	0.22	87	0.20	87	0.19	116	0.26	77	0.17	86	0.19	105	0.23	85	0.19	124	0.29	93	0.24	67	0.19
Transit buses, accident-related fatalities	90	0.20	82	0.18	89	0.20	64	0.14	73	0.16	61	0.14	49	0.11	76	0.17	76	0.18	72	0.18	63	0.18
Outside planes in crashes[h]	5	0.01	14	0.03	11	0.02	6	0.01	6	0.01	1	0.00	U	U	U	U	U	U	U	U	U	U
Demand response transit, accident-related fatalities	1	0.00	8	0.02	3	0.01	0	0.00	1	0.00	0	0.00	7	0.02	7	0.02	8	0.02	5	0.01	5	0.01

KEY: NA = not applicable; P = preliminary; R = revised; U = data are unavailable.

[a] Includes fatalities outside the vehicle, unless otherwise specified.
[b] Includes fatalities outside trains, except at grade crossings.
[c] Includes all nonoccupant fatalities, except pedalcyclists and pedestrians.
[d] *Public grade-crossing fatalities involving motor vehicles* are included in counts for motor vehicles.
[e] Fatalities not related to *Transit bus* and *Demand responsive transit* accidents are not included under highway submodes.
[f] In 2001, other than the persons aboard the aircraft who were killed, fatalities resulting from the September 11 terrorist acts are excluded.
[g] Fatalities at grade crossings with motor vehicles are included under relevant motor vehicle modes. *Commuter rail* fatalities are counted under railroad. For *Transit bus* and *Demand responsive transit* accidents, occupant fatalities are counted under "bus" and nonoccupant fatalities are counted under "*Pedestrians*," "*Pedalcyclists*," or other motor vehicle categories.
[h] Includes nonoccupant fatalities resulting from aviation accidents.

SOURCES

Air:
National Transportation Safety Board, *Aviation Accident Statistics*, available at www.ntsb.gov/aviation/Stats.htm as of Nov. 2, 2010.

Highway:
U.S. Department of Transportation, National Highway Traffic Safety Administration, *Fatality Analysis Reporting System (FARS), General Trends*, available at http://www-fars.nhtsa.dot.gov/Main/reportslinks.aspx as of Nov. 2, 2010.

Railroad:
1999-2005: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety and Analysis, *Railroad Safety Statistics Annual Report* (Annual Issues), available at http://safetydata.fra.dot.gov/officeofsafety/ as of Oct. 28, 2009.
2006-09: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety and Analysis, *Railroad Safety Statistics Preliminary Annual Report*, tables 1-3 and 7-4, available at http://safetydata.fra.dot.gov/officeofsafety/ as of Nov. 3, 2010.

Transit:
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U.S. Department of Homeland Security, U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communications, Oct. 27, 2009 and Sept. 30, 2010.

Recreational boating:
U.S. Department of Homeland Security, U.S. Coast Guard, Office of Boating Safety, *Boating Statistics,* table 30, available at http://www.uscgboating.org as of Nov. 2, 2010.

Pipeline:
U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, *Pipeline Incidents and Mileage Reports*, available at http://ops.dot.gov/stats/stats.htm as of Nov. 3, 2010.

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

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	(R) 2007	(R) 2008	(R) 2009
Fatalities[a]	1,440	917	833	582	698	608	579	626	615	579	488	461	431	402	425	421	357	334	371	359	369	339	290	249
Injured persons	3,272	3,860	3,890	2,687	2,407	2,094	1,975	1,837	1,961	1,894	1,610	1,540	1,303	1,396	1,219	1,157	999	1,035	1,094	1,053	1,070	1,059	989	741
Accidents[a]	3,559	12,126	10,796	7,073	5,715	5,388	4,910	4,892	4,979	4,633	4,257	3,865	3,508	3,489	3,502	3,237	3,077	2,977	3,085	3,066	(R) 2,942	2,778	2,429	1,931

KEY: R = revised.

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

NOTE

The Federal Railroad Administration recommended not to report property damage statistics, which had been done in previous editions of NTS, due to inconsistencies in the reporting of data.

SOURCES

1970: U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development, *Rail-Highway Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual Issue), tables S and 11.

1975-1998: *FRA Accident/Incident Database*, available at http://safetydata.fra.dot.gov/OfficeofSafety/ as of June 28, 2010.

1999-2011: Ibid., Office of Safety Analysis, *2010 Preliminary Railroad Safety Statistics* (Washington, DC: April 2012), table 1-1, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of Apr. 20, 2012.

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

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total fatalities	27	19	8	8	10	16	15	11	7	120	12	13	9	16	12	10	15	14	34	6	9	(R) 10	(R) 12	8
Accident-related	21	14	7	7	10	15	14	11	6	7	10	8	7	11	8	9	9	13	29	6	8	6	(R) 7	5
Air fatalities[a]	0	0	0	0	0	0	0	0	0	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Accident-related	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0
Highway fatalities	27	17	8	8	10	16	15	11	7	8	12	13	9	16	9	9	15	11	24	6	9	6	(R) 11	8
Accident-related	21	12	7	7	10	15	14	11	6	5	10	8	7	11	8	8	9	10	19	6	8	6	(R) 6	5
Rail fatalities	0	2	0	0	0	0	0	0	0	2	0	0	0	0	3	1	0	3	10	0	0	1	1	0
Accident-related	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	3	10	0	0	0	1	0
Water[b] fatalities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(R) 3	0	0
Accident-related	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other[c] fatalities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Accident-related	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total injured persons	648	626	253	423	439	604	627	577	400	1,175	221	195	265	251	168	136	119	288	(R) 915	234	228	223	201	170
Accident-related	168	47	16	18	40	98	62	111	18	864	16	13	15	16	12	15	16	96	700	13	45	9	44	5
Air injured persons	5	8	4	39	31	23	50	57	33	33	24	20	12	5	13	4	1	11	(R) 44	2	8	7	10	2
Accident-related	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Highway injured persons	527	493	195	311	333	465	511	425	296	216	152	151	218	164	109	118	105	155	178	192	(R) 160	153	153	153
Accident-related	156	43	9	9	27	34	61	95	14	22	11	9	15	15	12	14	16	12	45	11	45	9	34	5
Rail injured persons[d,e]	99	121	53	73	75	116	66	95	71	926	45	22	35	82	46	14	13	122	693	25	(R) 57	63	38	13
Accident-related	12	4	7	9	13	64	1	16	4	842	5	4	0	1	0	1	0	84	655	2	0	0	10	0
Water[b] injured persons	2	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	15	3	0	0	2
Accident-related	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other[c] injured persons	15	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Accident-related	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total incidents	10,951	15,719	6,019	8,879	9,110	9,393	12,838	16,105	14,853	14,077	14,065	15,495	17,616	17,557	17,792	15,114	15,156	(R) 14,843	15,929	20,339	(R) 19,300	(R) 16,930	14,819	14,795
Accident-related	440	486	364	297	303	283	266	296	303	338	320	332	398	394	413	362	342	(R) 328	(R) 383	(R) 359	(R) 383	(R) 337	(R) 290	361
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	(R) 1,654	(R) 2,406	1,556	1,278	(R) 1,356	1,293
Accident-related	0	0	0	0	0	1	0	0	0	0	1	3	2	3	2	2	0	0	9	7	7	8	2	2
Highway incidents	10,063	14,161	4,752	7,296	7,644	7,843	11,095	14,011	12,869	12,034	11,929	13,108	14,953	15,063	15,804	13,502	13,594	(R) 13,068	(R) 13,461	(R) 17,162	(R) 16,930	(R) 14,804	(R) 12,730	12,646
Accident-related	330	347	302	249	249	245	217	244	253	294	267	277	331	329	357	319	300	281	(R) 323	(R) 308	(R) 322	302	(R) 251	321
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	703	(R) 753	(R) 749	643	751
Accident-related	109	134	61	48	54	36	49	52	50	44	52	52	65	62	54	41	42	(R) 47	51	44	(R) 54	(R) 27	37	37
Water[b] incidents	28	34	7	7	12	8	8	6	12	6	5	11	8	17	6	10	10	17	69	68	61	(R) 99	90	105
Accident-related	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Other[c] incidents	19	30	304	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Accident-related	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total property damage (current $ thousands)[f]	8,091	10,828	22,994	32,354	38,350	36,229	22,816	44,196	30,900	46,849	33,533	46,312	65,369	78,132	69,442	58,177	53,597	(R) 62,902	55,946	70,971	(R) 74,692	(R) 51,159	(R) 68,995	71,794
Accident-related	6,051	6,236	20,269	24,792	30,184	28,708	13,179	25,552	23,602	37,775	25,318	37,049	51,710	62,636	56,546	41,113	40,824	44,517	(R) 44,115	56,689	(R) 63,613	(R) 39,967	(R) 57,837	60,855
Air property damage	8.9	12.3	12.3	142	77	99	88	178	100	87	336	267	286	272	309	109	100	188	198	671	88	191	(R) 708	20
Accident-related	0	0	0	0	0	0	0	0	0	0	0	0	0	42	50	61	0	0	0	0	0	7	327	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	(R) 47,158	40,179	59,502	(R) 47,280	(R) 42,796	(R) 50,629	63,841
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	34,322	31,052	47,467	(R) 38,456	(R) 34,383	(R) 42,383	56,135
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	(R) 27,305	(R) 8,032	17,557	7,358
Accident-related	2,357	2,357	10,094	10,660	6,231	10,233	1,916	12,014	7,260	15,460	7,446	15,452	28,625	24,756	20,092	7,524	3,175	10,195	13,063	9,222	25,157	(R) 5,576	15,126	4,697
Water[b] property damage	6.1	505	3.2	70	154	143	213	92	174	120	38	1,015	61	283	147	248	261	1,655	114	59	19	138	101	574
Accident-related	0	81	0	0	0	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
Other[c] property damage	3.5	35	14.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Accident-related	0.3	15.6	<0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

KEY: R = revised.

[a] The 1996 spike in *Air Fatalities* was due to the ignition of an undeclared cache of chemical oxygen generators in a flight over Florida that killed 110 people, according to the U.S. Department of Transportation Biennial Report on Hazardous Materials Transportation, 1996-1997.

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

[c] *Other* category includes freight forwarders and modes not otherwise specified

[d] The 1996 spike in *Rail Injured Persons* is due to a train derailment in Alberton, Montana, which caused 787 minor injuries from chlorine gas inhalation, according to the U.S. Department of Transportation Biennial Report on Hazardous Materials Transportation, 1996-1997. For more information, see http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/96_97biennial.rpt.pdf.

[e] The 2005 spike in *Rail Injured Persons* is due to a chlorine accident by a train operated by the Norfolk Southern Railway Co. in Graniteville, South Carolina, on January 6, 2005. 9 people died and 631 people were injured. For more information, see the PHMSA Incident Report Database at https://hazmatonline.phmsa.dot.gov/IncidentReportsSearch/.

[f] Property damage under $30,000 is reported to the nearest $100. Property damage $30,000 or greater is reported to the nearest $1,000; therefore the components may not add to the totals. Different cost thresholds for reporting property damage exist by property type. See NTS table 2-8 for the various thresholds.

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.

1990-2010: Ibid., Pipeline and Hazardous Materials Safety Administration, Office of Hazardous Material Safety, available at http://www.phmsa.dot.gov/hazmat/library/data-stats/incidents as of Dec. 20, 2011.

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	2008	(R) 2009	(P) 2010
All occupational fatalities	6,217	6,331	6,632	6,275	6,202	6,238	6,055	6,054	5,920	5,915	5,534	5,575	5,764	5,734	5,840	5,657	5,214	4,551	4,547
Transportation-related fatalities, total[b]	2,484	2,499	2,762	2,587	2,601	2,605	2,645	2,618	2,573	2,524	2,385	2,364	2,490	2,493	2,459	2,351	2,130	1,795	1,776
Highway[c]	1,158	1,242	1,343	1,346	1,346	1,393	1,442	1,496	1,365	1,409	1,373	1,353	1,398	1,437	1,356	1,414	1,215	985	968
Nonhighway[d]	436	392	409	387	374	377	388	352	399	326	323	347	338	340	345	296	284	261	272
Aircraft	353	282	426	283	324	261	224	228	280	247	194	211	231	149	217	174	191	159	151
Pedestrian struck by vehicle[e]	346	365	391	388	353	367	413	377	370	383	356	337	378	391	379	345	329	268	277
Water vehicle[f]	109	119	94	87	119	109	112	102	84	90	71	69	91	88	96	71	76	86	52
Railway[g]	66	86	81	82	74	93	60	56	71	62	64	43	50	83	65	49	34	34	44
As a percent of all occupational fatalities																			
Transportation-related fatalities, total[b]	40.0	39.5	41.6	41.2	41.9	41.8	43.7	43.2	43.5	42.7	43.1	42.4	43.2	43.5	42.1	41.6	40.9	34.4	34.1
Highway	18.6	19.6	20.3	21.5	21.7	22.3	23.8	24.7	23.1	23.8	24.8	24.3	24.3	25.1	23.2	25.0	23.3	18.9	18.6
Nonhighway	7.0	6.2	6.2	6.2	6.0	6.0	6.4	5.8	6.7	5.5	5.8	6.2	5.9	5.9	5.9	5.2	5.4	5.0	5.2
Aircraft	5.7	4.5	6.4	4.5	5.2	4.2	3.7	3.8	4.7	4.2	3.5	3.8	4.0	2.6	3.7	3.1	3.7	3.0	2.9
Pedestrian struck by vehicle	5.6	5.8	5.9	6.2	5.7	5.9	6.8	6.2	6.3	6.5	6.4	6.0	6.6	6.8	6.5	6.1	6.3	5.1	5.3
Water vehicle	1.8	1.9	1.4	1.4	1.9	1.7	1.8	1.7	1.4	1.5	1.3	1.2	1.6	1.5	1.6	1.3	1.5	1.6	1.0
Railway	1.1	1.4	1.2	1.3	1.2	1.5	1.0	0.9	1.2	1.0	1.2	0.8	0.9	1.4	1.1	0.9	0.7	0.7	0.8

KEY: P = preliminary; R = revised.

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

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

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

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

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

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

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

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

NOTES

Percentages may not add to totals due to rounding.

The above categories do not define the types of jobs people had, nor the industries in which they worked. The categories define the ways in which they died. 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/iif/oshcfoi1.htm as of Aug. 26, 2011.

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 $9,200 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 severities.
Federal Transit Administration	More than $25,000.
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 May 17, 2011).

Federal Highway Administration: U.S. Department of Transportation, Federal Highway Administration, personal communication, Dec 2007.
Federal Railroad Administration: 49 CFR 225.19 (as of May 17, 2011).
National Highway Traffic Safety Administration: U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2006* , DOT HS 810 818 (Washington, DC: 2006), available at: http://www-nrd.nhtsa.dot.gov/Pubs/810818.pdf, as of may 17, 2011.

Federal Transit Administration: U.S. Department of Transportation, Federal Transit Administration, National Transit Database, *2010 Safety and Security Reporting Manual* (Washington, DC: 2010), available at:
http://www.ntdprogram.gov/ntdprogram/pubs/safetyRM/2010/pdf/2010_S&S_Reporting_Manual.pdf as of May 17, 2011.

Pipeline and Hazardous Materials Safety Administration:
Gas pipeline: 49 CFR 191.3 (as of May 17, 2011).
Hazardous liquid pipelines: 49 CFR 195.50 (as of May 17, 2011).
U.S. Coast Guard:
Commercial shipping: 46 CFR 4.05-1 (as of May 17, 2011).
Recreational boating: 33 CFR 173.55 (as of May 17, 2011).

Section B
Air

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

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	(R) 2010	(P) 2011
Total fatalities	**499**	**261**	**146**	**124**	**1**	**526**	**39**	**50**	**33**	**1**	**239**	**168**	**380**	**8**	**1**	**12**	**92**	**531**	**0**	**22**	**14**	**22**	**50**	**1**	**3**	**52**	**2**	**0**
Total seriously injured persons	**N**	**N**	**107**	**81**	**19**	**30**	**29**	**26**	**22**	**19**	**31**	**25**	**77**	**43**	**30**	**67**	**(R) 31**	**19**	**24**	**31**	**20**	**14**	**9**	**16**	**23**	**23**	**16**	**20**
Total accidents	**90**	**83**	**55**	**37**	**19**	**21**	**24**	**26**	**18**	**23**	**23**	**36**	**37**	**49**	**50**	**51**	**56**	**46**	**41**	**54**	**30**	**40**	**33**	**28**	**28**	**30**	**29**	**31**
Fatal accidents	17	9	8	3	1	7	6	4	4	1	4	3	5	4	1	2	3	6	0	2	2	3	2	1	2	2	1	0
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**	**(R) 8,316**	**(R) 8,069**	**(R) 7,456**	**7,598**	**7,686**
Rates per 100 million aircraft-miles																												
Fatalities	44.159	16.992	5.438	5.004	0.034	14.486	0.788	1.036	0.655	0.019	4.363	2.971	6.470	0.119	0.015	0.169	1.223	7.280	0.000	0.302	0.177	0.269	0.614	0.012	0.037	0.697	0.026	0.000
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	(R) 0.412	0.260	0.334	0.426	0.252	0.171	0.111	0.192	0.285	0.308	0.211	0.260
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	0.337	0.347	0.402	0.382	0.403
Total accidents, fatal	1.504	0.586	0.298	0.121	0.034	0.193	0.121	0.083	0.079	0.019	0.073	0.053	0.085	0.060	0.015	0.028	0.040	0.082	0.000	0.027	0.025	0.037	0.025	0.012	0.025	0.027	0.013	0.000
Aircraft departures (thousands)	**N**	**N**	**N**	**N**	**5,479**	**6,307**	**8,092**	**7,815**	**7,881**	**8,073**	**8,238**	**8,457**	**8,229**	**10,318**	**10,980**	**11,309**	**11,468**	**10,955**	**10,508**	**10,433**	**11,023**	**11,130**	**10,821**	**10,928**	**10,437**	**(R) 9,683**	**9,629**	**9,061**
Rates per 100,000 aircraft departures																												
Fatalities	N	N	N	N	0.018	8.340	0.482	0.640	0.419	0.012	2.901	1.986	4.618	0.078	0.009	0.106	0.802	4.847	0.000	0.211	0.127	0.198	0.462	0.009	0.029	(R) 0.537	0.021	0.000
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	(R) 0.270	0.173	0.228	0.297	0.181	0.126	0.083	0.146	0.220	(R) 0.2375	0.166	0.221
Total accidents	N	N	N	N	0.347	0.333	0.297	0.333	0.228	0.285	0.279	0.426	0.450	0.475	0.455	0.451	0.488	0.420	0.390	0.518	0.272	0.359	0.305	0.256	0.268	(R) 0.310	0.301	0.342
Total accidents, fatal	N	N	N	N	0.018	0.111	0.074	0.051	0.051	0.012	0.049	0.035	0.061	0.039	0.009	0.018	0.026	0.055	0.000	0.019	0.018	0.027	0.025	0.012	0.025	0.027	0.013	0.000
Flight hours (thousands)	**N**	**4,691**	**6,470**	**5,607**	**7,067**	**8,710**	**12,150**	**11,781**	**12,360**	**12,706**	**13,124**	**13,505**	**13,746**	**15,838**	**16,817**	**17,555**	**18,299**	**17,814**	**17,290**	**17,468**	**18,883**	**19,390**	**19,263**	**19,637**	**19,098**	**(R) 17,604**	**17,739**	**17,756**
Rates per 100,000 flight hours																												
Fatalities	N	5.564	2.257	2.212	0.014	6.039	0.321	0.424	0.267	0.008	1.821	1.244	2.764	0.051	0.006	0.068	0.503	2.981	0.000	0.126	0.074	0.113	0.260	0.005	0.016	(R) 0.2954	0.011	0.000
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	(R) 0.1694	0.107	0.139	0.177	0.106	0.072	0.047	0.081	0.120	(R) 0.1306	0.090	0.113
Total accidents	N	1.769	0.850	0.660	0.269	0.241	0.198	0.221	0.146	0.181	0.175	0.267	0.269	0.309	0.297	0.291	0.306	0.258	0.237	0.309	0.159	0.206	0.171	0.143	0.147	(R) 0.170	0.163	0.175
Total accidents, fatal	N	0.192	0.124	0.054	0.014	0.080	0.049	0.034	0.032	0.007	0.030	0.022	0.036	0.025	0.006	0.011	0.016	0.034	0.000	0.011	0.011	0.015	0.010	0.005	0.010	0.011	0.006	0.000

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

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

NOTES

Aircraft-miles , *Aircraft departures* , and *Flight hours* are compiled by the U.S. Department of Transportation, Federal Aviation Administration. *Rates* are computed by dividing the number of *Fatalities* , *Seriously injured persons* , *Total accidents* , and *Fatal accidents* by the number of *Aircraft-miles* , *Aircraft departures* , or *Flight hours* . These figures are based on information provided by airlines to the U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information. The illegal acts, such as suicide, sabotage and terrorism, are included in the totals for accidents, fatalities, and rate computation. 1991 data do not include the 12 persons killed aboard a SkyWest commuter aircraft when it and a U.S. Air aircraft collided. For 2001, fatalities resulting from the September 11 terrorist acts are excluded, other than the persons aboard the aircraft who were killed.

SOURCES

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

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

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

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

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

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

1985-2011: Ibid., *Aviation Accident Statistics* , table 5, available at http://www.ntsb.gov/data/aviation_stats.html as of July 19, 2012.

Serious injuries:

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

1990-2011: Ibid., Analysis and Data Division, personal communication, April 2011 and July 2012.

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

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	(P) 2011
Total fatalities[b]	**37**	**37**	**6**	**77**	**21**	**24**	**25**	**9**	**14**	**46**	**0**	**12**	**5**	**13**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**
Total seriously injured persons	**14**	**14**	**11**	**31**	**7**	**2**	**6**	**17**	**2**	**1**	**2**	**2**	**7**	**4**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	**1**	**2**	**0**
Total accidents[c]	**38**	**18**	**15**	**23**	**23**	**16**	**10**	**12**	**11**	**16**	**8**	**13**	**12**	**7**	**7**	**2**	**4**	**6**	**3**	**3**	**7**	**2**	**6**	**4**
Total accidents, fatal	8	7	3	8	7	4	3	2	1	5	0	5	1	2	0	1	0	0	1	0	0	0	0	0
Aircraft-miles (millions)	**192**	**301**	**450**	**434**	**508**	**555**	**594**	**550**	**591**	**246**	**51**	**52**	**45**	**43**	**42**	**47**	**47**	**46**	**47**	**46**	**46**	**(R) 45**	**(R) 47**	**47**
Rates per 100 million aircraft-miles																								
Fatalities	19.27	12.30	1.33	17.75	4.13	4.33	4.21	1.64	2.37	18.70	0.00	22.90	11.13	30.16	0.00	4.22	0.00	0.00	4.30	0.00	0.00	0.00	0.00	0.00
Seriously injured persons	7.29	4.65	2.44	7.14	1.38	0.36	1.01	3.09	0.34	0.41	3.94	3.82	15.58	9.28	0.00	2.11	0.00	0.00	2.15	0.00	4.31	(R) 2.22	(R) 4.21	0.00
Total accidents[a]	19.79	5.98	3.33	5.30	4.53	2.89	1.68	2.18	1.86	6.50	15.76	24.81	26.70	16.24	16.81	4.22	8.55	13.12	6.45	6.51	15.08	(R) 4.44	(R) 12.64	8.43
Total accidents[d], fatal	4.17	2.33	0.67	1.84	1.38	0.72	0.50	0.36	0.17	2.03	0.00	9.54	2.23	4.64	0.00	2.11	0.00	0.00	2.15	0.00	0.00	0.00	0.00	0.00
Aircraft departures (thousands)	**1,777**	**2,561**	**3,160**	**2,820**	**3,115**	**3,602**	**3,581**	**3,220**	**3,515**	**1,394**	**707**	**672**	**604**	**558**	**513**	**572**	**538**	**527**	**568**	**593**	**576**	**(R) 578**	**(R) 593**	**560**
Rates per 100 thousand aircraft departures																								
Fatalities	2.08	1.44	0.19	2.73	0.67	0.67	0.70	0.28	0.40	3.30	0.00	1.78	0.83	2.33	0.00	0.35	0.00	0.00	0.35	0.00	0.00	0.00	0.00	0.00
Seriously injured persons	0.79	0.55	0.35	1.10	0.22	0.06	0.17	0.53	0.06	0.07	0.28	0.30	1.16	0.72	0.00	0.17	0.00	0.00	0.18	0.00	0.35	(R) 0.17	(R) 0.34	0.00
Total accidents[d]	2.14	0.70	0.47	0.82	0.74	0.44	0.28	0.37	0.31	1.15	1.13	1.93	1.99	1.25	1.36	0.35	0.74	1.14	0.53	0.51	1.21	(R) 0.35	(R) 1.01	0.71
Total accidents[d], fatal	0.45	0.27	0.09	0.28	0.22	0.11	0.08	0.06	0.03	0.36	0.00	0.74	0.17	0.36	0.00	0.17	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00
Flight hours (thousands)	**1,176**	**1,737**	**2,342**	**2,292**	**2,335**	**2,638**	**2,784**	**2,628**	**2,757**	**983**	**354**	**343**	**370**	**300**	**274**	**319**	**302**	**300**	**301**	**292**	**293**	**(R) 306**	**(R) 308**	**307**
Rates per 100 thousand flight hours																								
Fatalities	3.15	2.13	0.26	3.36	0.90	0.91	0.90	0.34	0.51	4.68	0.00	3.50	1.35	4.33	0.00	0.63	0.00	0.00	0.66	0.00	0.00	0.00	0.00	0.00
Seriously injured persons	1.19	0.81	0.47	1.35	0.30	0.08	0.22	0.65	0.07	0.10	0.57	0.58	1.89	1.33	0.00	0.31	0.00	0.00	0.33	0.00	0.68	(R) 0.33	(R) 0.65	0.00
Total accidents[d]	3.23	1.04	0.64	1.00	0.98	0.61	0.36	0.46	0.40	1.63	2.26	3.79	3.25	2.33	2.56	0.63	1.32	2.00	1.00	1.03	2.39	(R) 0.65	(R) 1.95	1.30
Total accidents[d], fatal	0.68	0.40	0.13	0.35	0.30	0.15	0.11	0.08	0.04	0.51	0.00	1.46	0.27	0.67	0.00	0.31	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00

KEY: P = preliminary; R = revised.

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

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

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

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

NOTES

Miles, departures, and hours are compiled by the U.S. Department of Transportation, Federal Aviation Administration. *Rates* are computed by dividing the number of *Fatalities* , *Serious injured persons* , *Total accidents* , and *Total accidents, fatal* by the number of *Aircraft-miles, Aircraft departures* , or *Flight hours* . These figures are based on information provided by airlines to the U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information.

The illegal acts, such as suicide, sabotage and terrorism, are included in the totals for accidents, fatalities, and rate computation.

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.

1985-2011: National Transportation Safety Board, *Aviation Accident Statistics* , table 8, available at http://www.ntsb.gov/data/aviation_stats.html as of July 20, 2012.

Serious injuries:

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

1990-2011: Ibid., Analysis and Data Division, personal communications, Apr. 16, 2011, and July 18, 2012.

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

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total fatal accidents	**6**	**4**	**4**	**1**	**4**	**3**	**5**	**4**	**1**	**2**	**3**	**6**	**0**	**2**	**2**	**3**	**2**	**1**	**2**	**2**	**1**	**0**
Phase of operation																						
Approach / descent / landing	1	2	1	0	2	0	0	0	0	1	0	0	0	0	2	1	0	0	0	1	0	0
Taxi/takeoff / climb	3	1	2	0	1	0	3	2	0	0	2	2	0	1	0	1	1	0	0	0	0	0
Cruise (in-flight)[c]	1	0	0	0	0	0	1	1	0	0	1	4	0	0	0	0	0	0	0	0	0	0
Standing (static)	1	1	1	1	0	0	0	0	1	1	0	0	0	1	0	1	1	1	0	0	0	0
Maneuvering	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other / not reported	0	0	0	0	0	3	1	1	0	0	0	0	0	0	0	0	0	0	2	1	1	0

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

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

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

SOURCE

National Transportation Safety Board, personal communications, Dec. 20, 2010, Aug. 10, 2011, and July 18, 2012.

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

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TOTAL fatal accidents	**3**	**8**	**7**	**4**	**3**	**2**	**1**	**5**	**0**	**5**	**1**	**2**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**
Phase of operation																						
Approach / descent / landing	0	3	5	1	2	0	1	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0
Taxi / takeoff / climb	0	0	1	1	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	0	0
Cruise (in-flight)	2	2	1	1	1	0	0	0	0	3	0	0	0	0	0	0	1	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	0	0	0	0
Maneuvering[b]	1	1	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other / not reported	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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, Dec. 20, 2010, and Aug. 11, 2011, July 18, 2012.

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	2008	2009	(R) 2010	(P) 2011
Total fatalities	**69**	**105**	**76**	**51**	**78**	**68**	**42**	**63**	**52**	**63**	**39**	**45**	**38**	**71**	**60**	**35**	**42**	**64**	**18**	**16**	**43**	**69**	**17**	**17**	**41**
Total seriously injured persons	**U**	**43**	**44**	**36**	**26**	**19**	**24**	**32**	**14**	**22**	**23**	**10**	**15**	**12**	**24**	**16**	**12**	**17**	**20**	**11**	**20**	**12**	**4**	**6**	**15**
Total accidents	**152**	**171**	**157**	**107**	**88**	**76**	**69**	**85**	**75**	**90**	**82**	**77**	**74**	**80**	**72**	**60**	**73**	**66**	**65**	**52**	**62**	**58**	**47**	**31**	**50**
Total accidents, fatal	**24**	**46**	**35**	**29**	**28**	**24**	**19**	**26**	**24**	**29**	**15**	**17**	**12**	**22**	**18**	**18**	**18**	**23**	**11**	**10**	**14**	**20**	**2**	**6**	**16**
Flight hours (thousands)	**2,526**	**3,618**	**2,570**	**2,249**	**2,241**	**2,844**	**2,324**	**2,465**	**2,486**	**3,220**	**3,098**	**3,802**	**3,204**	**3,930**	**2,997**	**2,911**	**2,927**	**3,238**	**3,815**	**3,742**	**4,033**	**3,205**	**2,901**	**3,113**	**3,325**
Rates per 100,000 flight hours[b]																									
Fatalities	2.73	2.90	2.96	2.27	3.48	2.39	1.81	2.56	2.09	1.96	1.26	1.18	1.19	1.81	2.00	1.20	1.43	1.98	0.47	0.43	1.07	2.15	0.59	0.55	1.23
Seriously injured persons	U	1.19	1.71	1.60	1.16	0.67	1.03	1.30	0.56	0.68	0.74	0.26	0.47	0.31	0.80	0.55	0.41	0.53	0.52	0.29	0.50	0.37	0.14	0.19	0.45
Total accidents	6.02	4.73	6.11	4.76	3.93	2.67	2.97	3.45	3.02	2.80	2.65	2.03	2.31	2.04	2.40	2.06	2.49	2.04	1.70	1.39	1.54	1.81	1.62	1.00	1.50
Total accidents, fatal	0.95	1.27	1.36	1.29	1.25	0.84	0.82	1.05	0.97	0.90	0.48	0.45	0.37	0.56	0.60	0.62	0.61	0.71	0.29	0.27	0.35	0.62	0.07	0.19	0.48

KEY: P = preliminary; R = revised; U = data are unavailable.

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

[b] Rates are computed by dividing the number of *Total fatalities* , *Total seriously injured persons* , *Total accidents* , and *Total accidents, fatal* by the number of *Flight hours* .

NOTE

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

SOURCES

Fatalities, accidents and flight hours:

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

1985-2011: National Transportation Safety Board, *Aviation Accident Statistics* , table 9, available at http://www.ntsb.gov/data/aviation_stats.html as of July 20, 2012.

Serious injuries:

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

1990-2011: Ibid., Analysis and Data Division, personal communications, July 1, 2010, July 20, 2011, and July 20, 2012.

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	2008	2009	(R) 2010	(P) 2011
Total fatalities	**787**	**1,029**	**1,310**	**1,252**	**1,239**	**956**	**770**	**800**	**866**	**744**	**730**	**734**	**636**	**631**	**624**	**621**	**596**	**562**	**581**	**633**	**559**	**563**	**706**	**496**	**(R) 495**	**(R) 479**	**454**	**444**
Total seriously injured persons	**U**	**U**	**715**	**769**	**681**	**501**	**409**	**431**	**408**	**385**	**415**	**396**	**366**	**350**	**327**	**322**	**309**	**321**	**297**	**323**	**265**	**271**	**265**	**255**	**259**	**(R) 273**	**254**	**327**
Total accidents[a,b]	**4,793**	**5,196**	**4,712**	**3,995**	**3,590**	**2,739**	**2,242**	**2,197**	**2,110**	**2,064**	**2,021**	**2,055**	**1,908**	**1,840**	**1,902**	**1,905**	**1,837**	**1,727**	**(R) 1,716**	**1,741**	**(R) 1,619**	**1,671**	**1,523**	**(R) 1,653**	**1,569**	**1,480**	**1,439**	**1,466**
Total accidents[a,b], fatal	**429**	**538**	**641**	**633**	**618**	**498**	**444**	**439**	**450**	**401**	**404**	**412**	**361**	**350**	**364**	**340**	**345**	**325**	**345**	**352**	**314**	**321**	**308**	**288**	**(R) 276**	**275**	**268**	**263**
Flight hours (thousands)	**13,121**	**16,733**	**26,030**	**28,799**	**36,402**	**28,322**	**28,510**	**27,678**	**24,780**	**22,796**	**22,235**	**24,906**	**24,881**	**25,591**	**25,518**	**29,246**	**27,838**	**25,431**	**25,545**	**25,998**	**24,888**	**23,168**	**23,963**	**23,819**	**22,805**	**20,862**	**21,688**	**22,514**
Rates per 100,000 flight hours[c]																												
Fatalities	6.00	6.15	5.03	4.35	3.40	3.38	2.70	2.89	3.49	3.26	3.28	2.95	2.56	2.47	2.45	2.12	2.14	2.21	2.27	2.43	2.25	2.43	2.95	2.08	(R) 2.17	(R) 2.30	2.09	1.97
Seriously injured persons	U	U	2.75	2.67	1.87	1.77	1.43	1.56	1.65	1.69	1.87	1.59	1.47	1.37	1.28	1.10	1.11	1.27	1.16	1.24	1.06	1.17	1.11	1.07	1.14	(R) 1.31	1.17	1.45
Total accidents[a,b]	36.53	31.05	18.10	13.87	9.86	9.67	7.86	7.94	8.51	9.05	9.09	8.25	7.67	7.19	7.45	6.51	6.60	6.79	(R) 6.72	6.70	(R) 6.51	7.21	6.36	(R) 6.94	6.88	7.09	6.64	6.51
Total accidents, fatal[a,b]	3.27	3.22	2.46	2.20	1.70	1.76	1.56	1.59	1.82	1.76	1.82	1.65	1.45	1.37	1.43	1.16	1.24	1.28	1.35	1.35	1.26	1.39	1.29	1.21	(R) 1.21	1.32	1.24	1.17

KEY: P = preliminary; R = revised; U = data are unavailable.

[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, fatalities and rate computation in this table are: 1985 (11 accidents, 6 fatal accidents); 1990 (4,1); 1991 (8,5); 1992 (2,1); 1993 (5,4); 1994 (3,2); 1995 (10,6); 1996 (4,0); 1997 (5,2); 1998 (6,4); 1999 (3,1); 2000 (7,7); 2001 (3,1); 2002 (7,6); 2003 (4,3); 2004 (3,0); 2005 (2,1); 2006 (2,1); 2007 (2,2); 2008 (2,0); 2009 (3,0); 2010 (2,1), 2011 (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 *Total fatalities* , *Total seriously injured persons* , *Total accidents* , and *Total accidents, fatal* by the number of *Flight hours* , except for the exclusions mentioned in footnote a.

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

NOTES

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

SOURCES

Fatalities, accidents, flight hours and rates per 100,000 flight hours:

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

1975-2011: National Transportation Safety Board, *Aviation Accident Statistics: U.S. General Aviation,* table 10, available athttp://www.ntsb.gov/data/aviation_stats.html as of July 20, 2012.

Serious injuries:

1970-85: National Transportation Safety Board, *Annual Review of Aircraft Accident Data: General Aviation* (Washington, DC: Annual Issues).

1990-2011: Ibid., Analysis and Data Division, personal communications, July 1, 2010, July 20, 2011, and July 18, 2012.

Table 2-15: Number of Pilot-Reported Near Midair Collisions (NMAC) by Degree of Hazard

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total, all degrees of hazard	568	758	454	348	311	254	275	238	194	238	211	257	239	211	180	161	144	(R) 137	106	108	92
Critical[a]	118	180	74	52	46	35	47	32	26	31	22	28	30	37	26	15	16	14	6	15	10
Potential[b]	319	423	266	197	195	158	139	139	101	105	100	110	130	96	85	88	62	78	55	52	43
No hazard[c]	122	133	114	99	70	61	71	63	55	70	53	55	49	51	42	37	31	20	17	21	11
Unclassified[d]	9	22	0	0	0	0	18	4	12	32	36	64	30	27	27	21	35	25	28	20	28
NMAC involving aircraft operating under 14 CFR 121[e]	U	U	136	117	76	60	71	50	56	82	70	66	75	48	53	55	44	42	24	24	8

KEY: R = revised, U = data are unavailable.

[a] A situation where collision avoidance was due to chance, rather than an act on the part of the pilot. Less than 100 feet of aircraft separation would be considered critical.

[b] An incident that would probably have resulted in a collision if no action had been taken by either pilot. Less than 500 feet would usually be required in this case.

[c] When direction and altitude would have made a midair collision improbable regardless of evasive action taken.

[d] No determination could be made due to insufficient evidence or unusual circumstances, or because incident is still under investigation.

[e] Before Mar. 20, 1997, 14 CFR 121 applied only to aircraft with more than 30 seats or a maximum payload capacity of more than 7,500 pounds. Since Mar. 20, 1997, 14 CFR 121 includes aircraft with 10 or more seats that formerly operated under 14 CFR 125. This change makes it difficult to compare pre-1997 data with more recent years' data.

NOTES

NMACs are reported voluntarily to the FAA so these numbers may not be representative. Reporters consist of pilots of air carriers, general aviation and other aircraft involved in public-use operations. Incidents involving military aircraft may be included if they also involved a civilian aircraft.

SOURCES

All data except NMAC involving 121 aircraft:

1980-85: U.S. Department of Transportation, Federal Aviation Administration, *Aviation Safety Statistical Handbook Annual Report* (Washington, DC: Annual issues) and personal communication, Aug. 6, 2002.

1990-2011: Ibid., *Aviation Safety Information Analysis and Sharing (ASIAS) System,* NMACS Database Query Tool, available at http://www.asias.faa.gov/portal/page/portal/asias_pages/asias_home/ as of May 2, 2012.

NMAC involving 121 aircraft:

1980-85: U.S. Department of Transportation, Federal Aviation Administration, Air Traffic Resource Management, personal communication, Aug. 6, 2002.

1990-2011: Ibid., *Aviation Safety Information Analysis and Sharing (ASIAS) System,* NMACS Database Query Tool, available at http://www.asias.faa.gov/portal/page/portal/asias_pages/asias_home/ as of May 2, 2012.

Table 2-16b: Prohibited Items Intercepted at Airport Screening Checkpoints[a]

	2002	2003	2004	2005	2006	2007	2008	2009
Enplanements	(R) 551,960,680	(R) 583,293,766	(R) 629,769,620	(R) 657,261,487	(R) 658,362,620	(R) 679,185,450	(R) 651,721,539	617,977,733
Total prohibited items	3,775,345	6,114,612	7,089,599	15,887,596	13,711,759	6,516,022	972,810	129,461
Firearms	927	683	650	2,217	2,075	1,416	902	889
Knives[b]	1,036,697	1,961,849	2,058,652	1,822,752	1,607,125	1,056,687	626,182	U
Box cutters[b]	32,788	20,991	22,350	21,315	15,999	11,908	6,284	U
Other cutting instruments[b]	1,846,207	2,973,413	3,567,731	3,276,691	163,419	101,387	59,459	U
Clubs[b]	11,131	25,139	28,813	20,531	12,296	9,443	6,447	U
Incendiaries	79,341	494,123	693,649	398,830	113,700	89,623	116,200	127,176
Other[b]	768,254	638,414	717,754	10,345,260	11,797,145	5,245,558	157,336	1,396

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

[a] All data for 2002, except enplanements, are for April through December.
[b] 2008 consists of data up to Aug. 8, 2008 with the exception of *Firearms* and *Incendiaries*. TSA has stopped the collection of data on all prohibited items except for *Firearms* and *Incendiaries* as of Aug. 8, 2008.

NOTES:
The large increase in 2005 and decrease in 2007 was primarily due to the prohibition of lighters on board from April 2005 to August 2007. Fluctuations in counts can be attributed to changes in definitions and regulations governing prohibited items, in addition to the proportion of passengers carrying prohibited items and the intensity of search.
Other cutting instruments include scissors, hatchets, swords, sabers, meat cleavers, ice axes, and picks. Effective Dec. 22, 2005, scissors less than 4 inches and tools less than 7 inches were no longer prohibited.
Knives include any length and type except round-bladed, butter, and plastic cutlery.
Clubs includes martial arts items, baseball bats, night sticks, hammers, pool cues, and billy clubs.
Firearms includes any weapon (including a starter gun) that is designed to or may readily be converted to expel a projectile by the action of an explosive, as well as spear guns, BB guns, flare pistols, compressed air guns, and stunning devices.
Other refers to tools, self-defense items, compressed gas cylinders, bleach, lighters, and certain sporting goods. Lighters (except for torch lighters and micro torches) were removed from the prohibited items list effective Aug. 4, 2007.

SOURCES
All data, except enplanements:
U.S. Department of Homeland Security, Transportation Security Administration, *Performance Measurement Information System* (PMIS) and personal communication, November 2010.
Enplanements:
U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *T-100 Domestic Market Data*, as of November 2010.

Table 2-16b: Prohibited Items Intercepted at Airport Screening Checkpoints[a]

	2002	2003	2004	2005	2006	2007	2008	2009
Enplanements	(R) 551,960,680	(R) 583,293,766	(R) 629,769,620	(R) 657,261,487	(R) 658,362,620	(R) 679,185,450	(R) 651,721,539	617,977,733
Total prohibited items	3,775,345	6,114,612	7,089,599	15,887,596	13,711,759	6,516,022	972,810	129,461
Firearms	927	683	650	2,217	2,075	1,416	902	889
Knives[b]	1,036,697	1,961,849	2,058,652	1,822,752	1,607,125	1,056,687	626,182	U
Box cutters[b]	32,788	20,991	22,350	21,315	15,999	11,908	6,284	U
Other cutting instruments[b]	1,846,207	2,973,413	3,567,731	3,276,691	163,419	101,387	59,459	U
Clubs[b]	11,131	25,139	28,813	20,531	12,296	9,443	6,447	U
Incendiaries	79,341	494,123	693,649	398,830	113,700	89,623	116,200	127,176
Other[b]	768,254	638,414	717,754	10,345,260	11,797,145	5,245,558	157,336	1,396

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

[a] All data for 2002, except enplanements, are for April through December.
[b] 2008 consists of data up to Aug. 8, 2008 with the exception of *Firearms* and *Incendiaries*. TSA has stopped the collection of data on all prohibited items except for *Firearms* and *Incendiaries* as of Aug. 8, 2008.

NOTES:
The large increase in 2005 and decrease in 2007 was primarily due to the prohibition of lighters on board from April 2005 to August 2007. Fluctuations in counts can be attributed to changes in definitions and regulations governing prohibited items, in addition to the proportion of passengers carrying prohibited items and the intensity of search.
Other cutting instruments include scissors, hatchets, swords, sabers, meat cleavers, ice axes, and picks. Effective Dec. 22, 2005, scissors less than 4 inches and tools less than 7 inches were no longer prohibited.
Knives include any length and type except round-bladed, butter, and plastic cutlery.
Clubs includes martial arts items, baseball bats, night sticks, hammers, pool cues, and billy clubs.
Firearms includes any weapon (including a starter gun) that is designed to or may readily be converted to expel a projectile by the action of an explosive, as well as spear guns, BB guns, flare pistols, compressed air guns, and stunning devices.
Other refers to tools, self-defense items, compressed gas cylinders, bleach, lighters, and certain sporting goods. Lighters (except for torch lighters and micro torches) were removed from the prohibited items list effective Aug. 4, 2007.

SOURCES
All data, except enplanements:
U.S. Department of Homeland Security, Transportation Security Administration, *Performance Measurement Information System* (PMIS) and personal communication, November 2010.
Enplanements:
U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *T-100 Domestic Market Data*, as of November 2010.

Section C
Highway

Table 2-17: Motor Vehicle Safety Data

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008
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	43,510	42,708	41,259	37,423
Injured persons	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	2,698,976	2,574,664	2,490,533	2,345,737
Crashes	N	N	N	N	N	N	(R) 6,471,202	(R) 6,117,359	(R) 6,000,310	(R) 6,105,915	(R) 6,495,988	6,699,415	6,769,583	6,624,149	6,334,573	6,279,036	(R) 6393624	6,322,963	6,315,708	6,327,955	6,181,027	6,159,350	5,973,213	6,024,008	5,810,846
Vehicle-miles (millions)	718,763	887,811	1,109,724	1,327,664	1,527,295	(R) 1,774,826	2,144,362	2,172,050	2,247,151	2,296,378	2,357,588	2,422,823	2,484,080	2,552,233	2,628,148	2,690,241	2,746,925	2,795,610	2,855,508	2,890,221	2,964,788	2,989,430	3,014,371	3,031,124	2,976,528
Rates per 100 million vehicle-miles																									
Fatalities	5.06	5.30	4.74	3.35	3.35	2.47	2.08	1.91	1.75	1.75	1.73	1.73	1.69	1.65	1.58	1.55	1.53	1.51	1.51	1.48	1.44	1.46	1.42	1.36	1.26
Injured persons	N	N	N	N	N	N	151	143	137	137	139	143	140	131	121	120	116	108	102	100	94	90	85	82	79
Crashes	N	N	N	N	N	N	(R) 302	(R) 282	(R) 267	(R) 266	(R) 276	277	273	260	241	233	(R) 233	226	221	219	208	206	198	199	195

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

NOTE

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.

Crashes are the rounded sum of fatal crashes, an actual count from the Fatality Analysis Reporting System, and injury crashes and property damage only crashes, which are estimates from the National Automotive Sampling System-General Estimates System.

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).

1975-2009: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis*Traffic Safety Facts 2009: Early Edition* (Washington, DC), table 2, available at http://www-nrd.nhtsa.dot.gov/cats/listpublications.aspx as of Apr. 8, 2011.

2010: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, personal communication, Jun. 12, 2012.

Injured persons:

1990-2001: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis*Traffic Safety Facts 2002,* DOT HS 809 620 (Washington, DC: January 2004), table 2.

2002-09: Ibid., *Traffic Safety Facts 2009: Early Edition* (Washington, DC), table 2, available at http://www-nrd.nhtsa.dot.gov/cats/listpublications.aspx as of Apr. 8, 2011.

2010: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, personal communication, Jun. 12, 2012.

Crashes:

1990-2009: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis*Traffic Safety Facts 2009: Early Edition* (Washington, DC), table 1, available at http://www-nrd.nhtsa.dot.gov/cats/listpublications.aspx as of Apr. 8, 2011.

2010: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, personal communication, Jun. 12, 2012.

Vehicle-miles:

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, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Apr. 13, 2011.

1970-2009: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, and similar tables in earlier editions, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Apr. 13, 2011.

2010: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, personal communication, Jun. 12, 2012.

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	2007	2008
Fatalities																	
Rural, total	29,545	24,492	25,786	23,978	24,510	24,889	24,751	25,185	23,640	23,396	25,693	25,203	24,740	23,549	23,099	22,707	20,807
Interstate	2,263	2,141	2,707	2,675	2,905	3,033	3,105	3,244	3,199	3,105	3,297	3,241	3,246	3,216	2,870	2,658	2,416
Other arterials[a]	12,268	9,940	9,893	9,947	9,458	9,821	9,594	9,573	8,913	8,692	9,358	9,823	10,061	8,968	8,768	8,758	7,873
Collector[b]	10,004	8,209	8,852	7,401	7,481	7,578	7,593	7,595	7,147	7,305	7,974	7,726	7,353	7,154	7,242	7,027	6,491
Local	5,010	4,202	4,334	3,955	4,666	4,457	4,459	4,773	4,381	4,294	5,064	4,413	4,080	4,211	4,219	4,264	4,027
Urban, total	21,546	19,333	18,813	17,839	17,555	17,078	16,143	15,970	15,695	15,219	16,759	16,825	17,161	17,752	18,309	17,467	15,956
Interstate	2,184	2,025	2,252	2,154	2,323	2,281	2,283	2,353	2,388	2,371	2,452	2,374	2,516	2,658	2,619	2,608	2,259
Other arterials[a]	12,752	12,521	11,742	10,916	10,756	10,243	9,902	9,628	9,442	8,838	9,702	9,827	10,003	10,413	10,672	9,876	9,056
Collector	2,226	1,696	1,427	1,441	1,290	1,399	1,037	1,031	987	1,007	1,136	1,197	1,339	1,361	1,478	1,437	1,239
Local	4,384	3,091	3,392	3,328	3,186	3,155	2,921	2,958	2,878	3,003	3,469	3,427	3,303	3,320	3,540	3,546	3,402
Vehicle-miles of travel (VMT) (millions)																	
Rural, total	672,030	730,728	868,878	933,289	960,194	999,277	1,032,528	1,062,623	1,083,152	1,109,363	1,127,394	1,084,443	1,068,426	1,032,426	1,037,146	1,032,790	988,235
Interstate	135,084	154,357	200,173	223,382	232,565	240,255	251,520	260,166	268,180	273,619	280,609	269,650	266,245	256,642	257,915	256,438	243,221
Other arterials[a]	262,774	282,803	330,866	368,595	378,847	392,057	403,484	413,320	420,599	427,482	433,930	417,299	409,413	396,455	394,582	393,465	374,235
Collector[b]	189,468	206,669	240,460	236,148	241,030	254,100	257,868	264,453	267,231	272,074	274,869	262,799	260,664	250,701	251,367	246,927	236,954
Local	84,704	86,899	97,379	105,164	107,752	112,865	119,656	124,684	127,142	136,188	137,986	134,695	132,104	128,628	133,282	135,960	133,825
Urban, total	855,265	1,044,098	1,275,484	1,489,534	1,523,886	1,552,956	1,595,620	1,627,618	1,663,773	1,686,247	1,728,114	1,805,778	1,896,362	1,957,004	1,977,225	1,998,334	1,988,293
Interstate	161,242	216,188	278,901	341,528	351,579	361,433	374,622	383,259	393,465	399,986	409,208	432,757	455,538	470,925	477,287	483,315	476,114
Other arterials[a]	484,189	578,270	699,233	815,170	834,623	846,627	862,996	878,153	900,392	913,936	937,935	974,933	1,021,705	1,051,088	1,060,266	1,067,127	1,061,589
Collector	83,043	89,578	106,297	126,929	129,310	130,146	131,905	131,603	135,372	137,921	141,964	154,453	162,218	170,265	173,216	175,966	177,140
Local	126,791	160,062	191,053	205,907	208,374	214,750	226,097	234,603	234,544	234,404	239,007	243,635	256,901	264,726	266,456	271,926	273,450
Fatality rates per 100 million vehicle miles																	
Rural, total	4.40	3.35	2.97	2.57	2.55	2.49	2.40	2.37	2.18	2.11	2.28	2.32	2.32	2.28	2.23	2.20	2.11
Interstate	1.68	1.39	1.35	1.20	1.25	1.26	1.23	1.25	1.19	1.13	1.17	1.20	1.22	1.25	1.11	1.04	0.99
Other arterials[a]	4.67	3.51	2.99	2.70	2.50	2.50	2.38	2.32	2.12	2.03	2.16	2.35	2.46	2.26	2.22	2.23	2.10
Collector[b]	5.28	3.97	3.68	3.13	3.10	2.98	2.94	2.87	2.67	2.68	2.90	2.94	2.82	2.85	2.88	2.85	2.74
Local	5.91	4.84	4.45	3.76	4.33	3.95	3.73	3.83	3.45	3.15	3.67	3.28	3.09	3.27	3.17	3.14	3.01
Urban, total	2.52	1.85	1.47	1.20	1.15	1.10	1.01	0.98	0.94	0.90	0.97	0.93	0.90	0.91	0.93	0.87	0.80
Interstate	1.35	0.94	0.81	0.63	0.66	0.63	0.61	0.61	0.61	0.59	0.60	0.55	0.55	0.56	0.55	0.54	0.47
Other arterials[a]	2.63	2.17	1.68	1.34	1.29	1.21	1.15	1.10	1.05	0.97	1.03	1.01	0.98	0.99	1.01	0.93	0.85
Collector[b]	2.68	1.89	1.34	1.14	1.00	1.07	0.79	0.78	0.73	0.73	0.80	0.77	0.83	0.80	0.85	0.82	0.70
Local	3.46	1.93	1.78	1.62	1.53	1.47	1.29	1.26	1.23	1.28	1.45	1.41	1.29	1.25	1.33	1.30	1.24

[a] *Urban Other arterials* for all years and *Rural Other arterials* for 2009 and 2010 are the sum of other freeways and expressways, other principal arterials, and minor arterials. *Rural Other arterials* for all other years are the sum of other principal arterials and minor arterials.
[b] *Collector* is the sum of major and minor collectors.

KEY: R = revised.

NOTES
Includes the 50 states and the District of Columbia.
Fatalities data reflect original numbers received by the Federal Highway Administration (FHWA) from the National Highway Traffic Safety Administration (NHTSA). Thus, the *Fatalities* data in this table could be slightly different from the revised NHTSA numbers that appear in other tables in this volume.

SOURCES
Fatalities:
1980-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* (Washington, DC: July 1997), table FI-220, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Apr. 20, 2011.
1996-97: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table FI-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Apr. 20, 2011.
1998-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table FI-20, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of May 10, 2012.
Vehicle miles:
U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-202, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of May 10, 2012.
Fatality rates:
Calculated by the U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics.

Table 2-19: Occupant Fatalities by Vehicle Type and Nonoccupant Fatalities

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total traffic fatalities	44,525	51,091	43,825	44,599	41,508	39,250	40,150	40,716	41,817	(f) 42,065	42,013	41,501	41,717	41,945	42,196	43,005	42,884	42,836	(R) 43,510	42,642
Occupant fatalities (by vehicle type)	35,925	41,927	36,043	37,134	34,740	32,880	33,574	34,318	35,291	35,695	35,725	35,382	35,875	36,348	36,440	37,375	37,341	(R) 37,203	(R) 37,574	36,902
Passenger car, total	25,929	27,449	23,212	24,092	22,385	21,387	21,566	21,997	22,423	22,505	22,199	21,194	20,862	20,699	20,320	20,569	19,725	(R) 19,091	(R) 18,440	17,800
Subcompact[a]	3,834	7,299	7,993	8,309	7,694	7,028	6,968	7,060	6,791	6,618	6,838	6,012	5,504	5,291	4,886	4,674	4,073	3,681	(R) 2,979	2,630
Compact[b]	614	927	2,635	5,310	5,338	5,354	5,707	6,322	6,899	7,288	7,992	7,589	7,432	7,525	7,211	7,348	7,013	6,807	(R) 6,245	6,044
Intermediate[c]	1,869	3,878	4,391	4,849	4,681	4,418	4,483	4,407	4,666	4,670	3,308	3,273	3,556	4,115	4,426	4,709	4,857	4,900	(R) 5,548	5,420
Full[d]	10,800	11,580	6,586	4,635	4,040	3,796	3,675	3,560	3,413	3,417	3,924	4,303	4,365	3,744	3,765	3,775	3,682	3,603	(R) 3,276	3,277
Unknown	8,812	3,765	1,607	989	632	791	733	648	654	512	137	17	5	24	32	63	100	100	(R) 392	429
Truck[e], total	5,817	8,748	7,666	9,306	9,052	8,683	9,116	9,574	10,216	10,553	10,972	11,447	12,024	12,280	12,431	12,963	13,272	13,440	(R) 13,841	13,526
Light	4,856	7,486	6,689	8,601	8,391	8,098	8,511	8,904	9,568	9,932	10,249	10,705	11,265	11,526	11,723	12,274	12,546	12,674	(R) 13,037	12,721
Large	961	1,262	977	705	661	585	605	670	648	621	723	742	759	754	708	689	726	766	(R) 804	805
Other vehicles, total	4,179	5,730	5,165	3,736	3,303	2,810	2,892	2,747	2,652	2,637	2,554	2,741	2,989	3,369	3,689	3,843	4,344	4,672	(R) 5,293	5,576
Motorcycle	3,189	5,144	4,564	3,244	2,806	2,395	2,449	2,320	2,227	2,161	2,116	2,294	2,483	2,897	3,197	3,270	3,714	4,028	(R) 4,576	4,810
Bus	53	46	57	32	31	28	18	18	33	21	18	38	59	22	34	45	41	42	57	
Other / unknown vehicle type	937	540	544	460	466	387	425	409	392	455	420	409	447	450	458	528	589	602	(R) 659	739
Nonoccupant fatalities, total	8,600	9,164	7,782	7,465	6,768	6,370	6,576	6,398	6,526	6,368	6,288	6,119	5,842	5,597	5,756	5,630	5,543	5,532	(R) 5,864	5,740
Pedestrian	7,516	8,070	6,808	6,482	5,801	5,549	5,649	5,489	5,584	5,449	5,321	5,228	4,939	4,763	4,901	4,851	4,774	4,675	(R) 4,892	4,784
Pedalcyclist	1,003	965	890	859	843	723	816	802	833	765	814	760	754	693	732	665	629	727	(R) 786	773
Other	81	129	84	124	124	98	111	107	109	154	153	131	149	141	123	114	140	130	(R) 186	183

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

[a] Includes minicompact cars (wheelbase under 95 inches) and subcompact cars (wheelbase between 95 and 99 inches).
[b] Includes cars with a wheelbase of between 100 and 104 inches.
[c] Includes cars with a wheelbase of between 105 and 109 inches.
[d] Includes cars with a wheelbase of 110 inches or greater.
[e] Large trucks - trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors. Light trucks - trucks of 10,000 pounds gross vehicle weight rating or less, including pickups, vans, truck-based station wagons, and utility vehicles.
[f] Includes two fatalities that could not be assigned to a category below.

SOURCES
1975-2006: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis*Traffic Safety Facts 2006*, DOT HS 809 919 (Washington, DC: 2006), table 4.

Breakout of passenger car types:
1975-96: Ibid., personal communications, Dec. 18, 2003, Nov. 17, 2004, and Mar. 15, 2005.

1997-2004: Ibid., *Traffic Safety Facts, Research Note: Passenger Vehicle Occupant Fatality Rates by Type and Size of Vehicle,* DOT HS 809 979 (Washington, DC: 2006), table 4, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/2006/809979.pdf as of Mar. 25, 2008.
2005 - 2006:Ibid, Traffic Safety Facts, A Compilation of Motor Vehicle Crash Data from the Fatality Analysis Reporting System and the General Estimates System DOT HS 810 631and DOT HS 810 818, Table 75, Internet site http://www-nrd.nhtsa.dot.gov/Pubs/TSF2005.PDF and http://www-nrd.nhtsa.dot.gov/Pubs/TSF2006.PDF as of April 21, 2008

Table 2-20: Occupant and Nonmotorist Fatalities in Crashes by Number of Vehicles and Alcohol Involvement (AI)

	1985		1990		1991		1992		1993		1994		1995		1996		1997		1998		1999	
	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI
TOTAL fatalities	43,825	23,167	44,599	22,587	41,508	20,159	39,250	18,290	40,150	17,908	40,716	17,308	41,817	17,732	42,065	17,749	42,013	16,711	41,501	16,673	41,717	16,572
AI as a percent of total fatalities		52.9		50.6		48.6		46.6		44.6		42.5		42.4		42.2		39.8		40.2		39.7
Motorist fatalities, TOTAL	36,043	19,271	37,134	18,953	34,740	16,917	32,880	15,301	33,574	14,857	34,318	14,437	35,291	14,796	35,695	14,830	35,725	14,051	35,382	13,896	35,875	13,958
Single-vehicle crashes	17,130	10,882	18,159	11,162	17,280	10,208	15,958	9,045	15,932	8,761	15,997	8,330	16,732	8,868	16,723	8,781	16,529	8,244	16,666	8,417	17,075	8,516
Two-vehicle crashes	16,467	7,296	16,262	6,676	15,025	5,821	14,449	5,341	15,161	5,205	15,664	5,219	15,744	5,017	15,935	5,084	16,218	4,904	15,742	4,638	15,726	4,562
More than two-vehicle crashes	2,446	1,093	2,713	1,115	2,435	888	2,473	916	2,481	891	2,657	888	2,815	911	3,037	965	2,978	904	2,974	841	3,074	880
Nonmotorist fatalities, TOTAL	7,782	3,897	7,465	3,636	6,768	3,241	6,370	2,989	6,576	3,051	6,398	2,871	6,526	2,936	6,368	2,919	6,288	2,660	6,119	2,777	5,842	2,613
Pedestrians fatalities, total	6,808	3,575	6,482	3,264	5,801	2,891	5,549	2,721	5,649	2,735	5,489	2,578	5,584	2,607	5,449	2,593	5,321	2,350	5,228	2,463	4,939	2,314
Pedestrians, single-vehicle crashes	6,342	3,278	5,990	2,966	5,302	2,588	5,099	2,454	5,180	2,464	5,027	2,308	5,110	2,364	5,024	2,358	4,876	2,112	4,801	2,228	4,516	2,074
Pedestrians, multiple-vehicle crashes	466	297	492	298	499	303	450	267	469	271	462	270	474	243	425	235	445	239	427	235	423	240
Pedalcyclists fatalities, total	890	284	859	315	843	305	723	228	816	279	802	262	833	290	765	265	814	252	760	268	754	270
Pedalcyclists, single-vehicle crashes	864	271	832	301	815	296	690	211	792	264	781	252	807	279	739	253	788	244	736	259	718	253
Pedalcyclists, multiple-vehicle crashes	26	13	27	14	28	9	33	17	24	15	21	10	26	11	26	12	26	8	24	9	36	17
Others/unknown	84	38	124	57	124	45	98	39	111	37	107	31	109	39	154	61	153	58	131	47	149	29

	2000		2001		2002		2003		2004		2005		2006		2007		(R) 2008		2009	
	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI	Fatal	AI
TOTAL fatalities	41,945	17,380	42,196	17,400	43,005	17,524	42,643	17,013	42,636	16,694	43,443	16,885	42,708	17,738	41,259	17,158	37,423	15,449	33,808	14,188
AI as a percent of total fatalities		41.4		41.2		40.7		39.9		39.2		38.9		41.5		41.6		41.3		42.0
Motorist fatalities, TOTAL	36,348	14,834	36,440	14,708	37,375	14,954	37,132	14,476	37,142	14,196	37,594	14,370	36,956	14,959	35,701	14,487	32,103	12,962	28,936	11,890
Single-vehicle crashes	17,471	8,964	17,753	8,973	18,600	9,238	18,175	8,939	18,288	8,808	18,806	9,016	18,890	9,376	18,472	9,246	17,121	8,554	15,386	7,806
Two-vehicle crashes	15,758	4,854	15,618	4,739	15,628	4,744	15,795	4,606	15,737	4,492	15,649	4,449	15,070	4,622	14,349	4,313	12,648	3,684	11,458	3,443
More than two-vehicle crashes	3,119	1,016	3,069	996	3,147	972	3,162	931	3,117	896	3,139	905	2,996	961	2,880	929	2,334	723	2,092	641
Nonmotorist fatalities, TOTAL	5,597	2,546	5,756	2,693	5,630	2,571	5,511	2,535	5,494	2,498	5,849	2,515	5,752	2,779	(R) 5,558	(R) 2,670	5,320	2,488	4,872	2,298
Pedestrians fatalities, total	4,763	2,254	4,901	2,371	4,851	2,292	4,749	2,253	4,641	2,211	4,881	2,180	4,795	2,401	4,699	2,334	4,414	2,168	4,092	1,997
Pedestrians, single-vehicle crashes	4,340	2,015	4,480	2,123	4,445	2,069	4,292	2,014	4,207	1,976	4,443	1,946	4,332	2,138	4,305	2,110	4,006	1,930	3,736	1,806
Pedestrians, multiple-vehicle crashes	423	239	421	248	406	223	457	239	434	234	438	234	463	263	394	224	408	237	356	191
Pedalcyclists fatalities, total	693	246	732	283	665	243	622	238	725	248	784	281	772	311	701	281	718	265	630	252
Pedalcyclists, single-vehicle crashes	668	236	709	271	628	229	589	220	697	237	755	268	732	292	673	270	690	249	600	237
Pedalcyclists, multiple-vehicle crashes	25	10	23	12	37	14	33	19	28	11	29	14	40	19	28	11	28	16	30	16
Others/unknown	141	46	123	39	114	36	140	46	128	39	184	54	185	67	158	55	188	55	150	49

KEY: AI = Alcohol involvement; Fatal = fatalities; R = revised.

NOTES

Alcohol involvement pertains to any driver, pedestrian, or pedalcyclist involved in the accident. Alcohol results are determined from positive blood alcohol concentration tests and police-reported alcohol involvement and are adjusted by the U.S. Department of Transportation, National Highway Traffic Safety Administration.

In 2001, the National Highway Traffic Safety Administration (NHTSA) adopted a new method, i.e., multiple imputation, to estimate missing blood alcohol concentration (BAC) test result data. This new method is being used by NHTSA's National Center for Statistics and Analysis (NCSA) to improve the scope of alcohol involvement statistics by the Fatality Analysis Reporting System (FARS). As a result, alcohol involvement fatalities have undergone a complete revision.

The sum of individual categories may not add to totals because NCSA generates a separate estimate for each category of fatalities, including total fatalities. The estimates are rounded to the nearest whole number.

The total motorist and nonmotorist fatalities data in this table are not comparable to total motorist and nonmotorist fatality data in other NTS tables that cite the U.S. Department of Transportation, National Highway Traffic Safety Administration's *Traffic Safety Facts* publication as a source.

SOURCES

U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis *Fatality Analysis Reporting System (FARS) Database* , personal communications, Sept. 6, 2006, Dec. 9, 2008, Oct. 20, 2009, and Nov. 22, 2010

Table 2-21: Passenger Car Occupant Safety Data

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	(R) 2007	2008
Fatalities	25,929	27,449	23,212	24,092	22,385	21,387	21,566	21,997	22,423	22,505	22,199	21,194	20,862	20,699	20,320	20,569	19,725	19,192	18,512	17,925	16,614	14,587
Injured persons	N	N	N	2,376,439	2,234,594	2,231,703	2,264,809	2,363,595	2,469,358	2,458,080	2,340,612	2,201,375	2,137,503	2,051,609	1,926,625	1,804,788	1,756,495	1,642,549	1,573,000	1,475,000	1,379,000	1,304,000
Vehicles involved in crashes	N	N	N	(R) 8,357,085	(R) 7,730,291	(R) 7,521,817	(R) 7,450,233	(R) 7,941,273	(R) 8,279,940	(R) 8,195,727	(R) 7,882,059	(R) 7,470,040	(R) 6,935,027	(R) 6,890,802	(R) 6,705,586	(R) 6,606,374	(R) 6,511,562	(R) 6,231,682	(R) 6,087,169	(R) 5,864,260	5,744,856	(P) 5,575,376
Vehicle-miles (millions)	1,030,376	1,107,056	1,248,981	1,427,178	1,411,655	1,436,035	1,445,106	1,459,208	1,478,352	1,499,139	1,528,399	1,555,901	1,566,808	1,580,735	1,595,443	1,611,860	1,612,237	1,628,266	1,615,225	1,614,564	1,608,808	1,578,948
Rates per 100 million vehicle-miles																						
Fatalities	2.5	2.5	1.9	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.1	1.1	1.0	0.9
Injured persons	N	N	N	167	158	155	157	162	167	164	153	141	136	130	121	112	109	101	97	91	86	83
Vehicles involved in crashes	N	N	N	(R) 586	(R) 548	(R) 524	(R) 516	(R) 544	(R) 560	(R) 547	(R) 516	(R) 480	(R) 443	(R) 436	(R) 420	(R) 410	(R) 404	(R) 383	(R) 377	(R) 363	357	(P) 353

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

NOTES

Vehicle-miles in this table and in table 2-23 are taken from NHTSA revised data and are not based exclusively on USDOT, Federal Highway Administration (FHWA) data. The change was made to reflect the different vehicle classification schemes used by FHWA and NHTSA. Thus, *Vehicle-miles* for passenger cars, and light and large trucks in this table and table 2-23 should not be compared with *Vehicle-miles* in chapter 1, which are taken directly from FHWA. *Rates per 100 million vehicle-miles* figures may differ from those in the source data due to rounding by the source. *Vehicles involved in crashes* figures in this table are not comparable to figures in previous editions due to a change in the source.

SOURCES

All, except Vehicles involved in crashes : U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis *Traffic Safety Facts (Final Edition)* (Washington, DC: Annual Issues), tables 4 and 7 and similar tables in previous editions, available at http://www-nrd.nhtsa.dot.gov/cats/listpublications.aspx?Id=E&ShowBy=DocType as of July 23, 2010.

Vehicles involved in crashes: Ibid., *Fatality Analysis Reporting System (FARS) Database* , *National Automotive Sampling System General Estimates System (NASS GES) Database,* personal communication, July 23, 2010.

Table 2-22: Motorcycle Rider Safety Data

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(P) 2009
Fatalities	3,189	5,144	4,564	3,244	2,806	2,395	2,449	2,320	2,227	2,161	2,116	2,294	2,483	2,897	3,197	3,270	3,714	4,028	4,576	4,837	5,174	5,312	4,462
Injured persons	N	N	N	84,285	80,435	65,099	59,436	57,405	57,480	55,281	52,574	48,974	49,986	57,723	60,236	64,713	67,103	76,379	87,000	88,000	103,000	96,000	90,000
Motorcycles involved in crashes	N	N	N	103,114	105,030	72,177	74,565	68,752	66,354	66,224	61,451	54,477	57,322	68,783	73,342	76,004	79,131	85,538	103,000	104,000	123,000	114,000	106,000
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	12,175	11,120	11,171	11,384	14,975	13,773	19,157	21,396	20,811	20,800
Rates per 100 million vehicle-miles																							
Fatalities	56.7	50.4	50.2	33.9	30.6	25.1	24.7	22.7	22.7	21.8	21.0	22.3	23.5	23.8	28.7	29.3	32.6	26.9	33.2	25.2	24.2	25.5	21.5
Injured persons	N	N	N	881.9	876.4	681.2	600.0	560.6	586.7	557.3	521.5	476.3	472.3	474.1	541.7	579.3	589.5	510.0	631.7	459.4	481.4	461.3	432.7
Motorcycles involved in crashes	N	N	N	1078.9	1144.4	755.2	752.7	671.4	677.3	667.6	609.6	529.8	541.6	564.9	659.5	680.4	695.1	571.2	747.8	542.9	574.9	547.8	509.6

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

NOTES

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

Fatalities, *Injured persons* and *Motorcycles involved in crashes* data for 2009 are preliminary.

Since *Vehicle-miles* data for 2000 and later years are estimated using enhanced methodology, data for these years are not comparable with prior years or with numbers published in the previous NTS reports.

SOURCES

Fatalities and injuries :

1975-2004: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts*, *Final Edition*, (Washington, DC: Annual Issues), table 10, available at http://www-nrd.nhtsa.dot.gov/ as of March 2009.

2005-09: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts*, *Early Edition*, (Washington, DC: 2010), table 10, available at http://www-nrd.nhtsa.dot.gov/cats/index.aspx as of Jan. 31, 2011.

Motorcycles involved in crashes:

1975-2004: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Fatality Analysis Reporting System Database and General Estimates System Database*, personal communication, May 25, 2006.

2005-08: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts*, *Final Edition*, (Washington, DC: Annual Issues), table 35, available at http://www-nrd.nhtsa.dot.gov/Cats/index.aspx as of Jan. 31, 2011.

2009: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts 2009, Early Edition*, (Washington, DC: 2010), table 36, available at http://www-nrd.nhtsa.dot.gov/Cats/index.aspx as of Jan. 31, 2011.

Vehicle-miles:

1970-2009: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, and similar tables in earlier editions, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Apr. 12, 2011.

Table 2-23: Truck Occupant Safety Data

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	(R) 2007	2008
Fatalities, total	5,817	8,748	7,666	9,306	9,052	8,683	9,116	9,574	10,216	10,553	10,972	11,447	12,024	12,280	12,431	12,963	13,272	13,440	13,841	13,566	13,263	11,441
Light	4,856	7,486	6,689	8,601	8,391	8,098	8,511	8,904	9,568	9,932	10,249	10,705	11,265	11,526	11,723	12,274	12,546	12,674	13,037	12,761	12,458	10,764
Large	961	1,262	977	705	661	585	605	670	648	621	723	742	759	754	708	689	726	766	804	805	805	677
Injured persons, total	N	N	N	546,966	590,632	578,435	632,976	661,619	752,840	794,238	785,733	791,273	879,757	917,398	889,951	905,580	915,941	927,458	899,000	880,000	864,000	791,000
Light	N	N	N	505,144	562,601	544,657	600,874	631,411	722,496	761,478	754,820	762,506	846,865	886,566	860,527	879,338	889,048	900,171	872,000	857,000	841,000	768,000
Large	N	N	N	41,822	28,031	33,778	32,102	30,208	30,344	32,760	30,913	28,767	32,892	30,832	29,424	26,242	26,893	27,287	27,000	23,000	23,000	23,000
Trucks involved in crashes, total	N	N	N	2,783,396	2,809,179	2,852,683	3,139,660	3,411,997	3,568,059	3,757,001	3,834,545	3,805,318	4,150,879	4,307,493	4,347,654	4,423,255	4,516,020	4,570,388	4,591,915	4,541,177	4,605,443	4,341,138
Light	N	N	N	2,398,620	2,478,832	2,476,648	2,742,332	2,951,353	3,190,587	3,363,246	3,396,628	3,393,363	3,675,959	3,850,498	3,917,831	3,988,668	4,059,299	4,154,486	4,150,964	4,156,411	4,191,810	3,962,072
Large	N	N	N	384,776	330,347	376,035	397,328	460,644	377,472	393,755	437,917	411,955	474,920	456,995	429,823	434,587	456,721	415,902	440,951	384,766	413,633	379,066
Vehicle-miles (millions)																						
Light	204,274	295,475	388,778	555,659	595,924	642,397	675,353	711,515	749,971	787,255	824,896	861,951	903,314	942,611	976,096	1,012,648	1,043,936	1,098,807	1,134,247	1,158,460	1,175,930	1,145,505
Large	81,330	108,491	123,504	146,242	149,543	153,384	159,888	170,216	178,156	182,971	191,477	196,380	202,688	205,520	209,032	214,603	217,917	220,792	222,523	222,513	227,060	227,458
Rates per 100 million vehicle-miles																						
Fatalities																						
Light	2.4	2.5	1.7	1.5	1.4	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	0.9
Large	1.2	1.2	0.8	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3
Injured persons																						
Light	N	N	N	90.9	94.4	84.8	89.0	88.7	96.3	96.7	91.5	88.5	93.8	94.1	88.2	86.8	85.2	81.9	76.9	74.0	71.5	67.0
Large	N	N	N	28.6	18.7	22.0	20.1	17.7	17.0	17.9	16.1	14.6	16.2	15.0	14.1	12.2	12.3	12.4	12.1	10.3	10.1	10.1
Trucks involved in crashes																						
Light	N	N	N	432	416	386	406	415	425	427	412	394	407	408	401	394	389	378	366	359	356	346
Large	N	N	N	263	221	245	249	271	212	215	229	210	234	222	206	203	210	188	198	173	182	167

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

NOTES

Large trucks - trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors.*Light* trucks - trucks of 10,000 pounds gross vehicle weight rating or less, including pickups, vans, truck-based station wagons, and utility vehicles. The injury and crash data in this table are from the U.S. Department of Transportation (USDOT), National Highway Traffic Safety Administration's (NHTSA) General Estimates System (GES). The data from GES, which began operation in 1988, are obtained from a nationally representative probability sample selected from all police-reported crashes. The GES sample includes only crashes where a police accident report was completed and the crash resulted in property damage, injury, or death. The resulting figures do not take into account crashes that were not reported to the police or that did not result in property damage.

Vehicle-miles in this table and in table 2-19 are taken from NHTSA revised data and are not based exclusively on USDOT, Federal Highway Administration (FHWA) data, as they have been in earlier reports. The change was made to reflect the different vehicle classification schemes used by FHWA and NHTSA. Thus,*Vehicle-miles* for passenger cars and *Light* and *Large* trucks in table 2-19 and this table should not be compared with *Vehicle-miles* in Chapter 1, which are taken directly from FHWA.

Rates per 100 million vehicle-miles figures may not match those in the source data due to rounding by the source. The category*Trucks involved in crashes, total* , is not comparable to the category*Crashes* , that appeared in this table in 2008 and previous editions.

SOURCES

Fatalities, injuries, and vehicle-miles:

1975-2008: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis,*Traffic Safety Facts 2008 (Final Edition)* (Washington, DC: Annual Issues), tables 8 and 9, available at http://www-nrd.nhtsa.dot.gov/ as of April 2010.

Trucks involved in crashes:

1975-2008: Ibid., National Center for Statistics and Analysis,*Fatality Analysis Reporting System (FARS) Database* and *General Estimates System (NASS GES) Database* , personal communications, May 25, 2006 and July 23, 2010.

Table 2-24: Bus Occupant Safety Data[a]

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	(R) 2007	2008
Fatalities	53	46	57	32	31	28	18	18	33	21	18	38	59	22	34	45	41	42	58	27	36	67
Injured persons	N	N	N	32,691	20,959	20,144	17,056	15,767	19,214	20,291	16,887	15,559	21,958	17,769	15,427	18,819	18,174	16,410	11,000	10,000	12,000	15,000
Vehicles involved in crashes	N	N	N	(R) 61,289	(R) 56,274	(R) 49,285	(R) 52,263	(R) 56,258	(R) 58,271	(R) 57,326	(R) 54,297	(R) 53,289	(R) 62,319	(R) 56,325	(R) 54,292	(R) 58,274	(R) 58,291	(R) 52,279	(R) 51,280	(R) 52,305	57,281	(P) 60,247
Vehicle-miles (millions)	6,055	6,059	4,478	5,726	5,750	5,778	6,125	6,409	6,420	6,563	6,842	7,007	7,662	7,590	7,077	6,845	6,783	6,801	6,980	6,783	6,980	7,114
Rates per 100 million vehicle-miles																						
Fatalities	0.9	0.8	1.3	0.6	0.5	0.5	0.3	0.3	0.5	0.3	0.3	0.5	0.8	0.3	0.5	0.7	0.6	0.6	0.8	0.4	0.5	0.9
Injured persons	N	N	N	571	365	349	278	246	299	309	247	222	287	234	218	275	268	241	158	147	172	211
Vehicles involved in crashes	N	N	N	(R) 1,070	(R) 979	(R) 853	(R) 853	(R) 878	(R) 908	(R) 873	(R) 794	(R) 761	(R) 813	(R) 742	(R) 767	(R) 851	(R) 859	(R) 769	(R) 735	(R) 771	821	(P) 847

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

[a] Bus includes school, transit, and intercity buses.

NOTES

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

Rates per 100 million vehicle-miles figures may differ from those in the source data due to rounding by the source.

SOURCES

Fatalities, and injuries:

1975-2008: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts 2008 (Final Edition)* (Washington, DC: Annual Issues), table 4, available at http://www-nrd.nhtsa.dot.gov/Cats/listpublications.aspx?Id=E&ShowBy=DocType as of April 2010.

Vehicle-miles:

1975-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/index.cfm as of March 2009.

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

Vehicles involved in crashes:

U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Fatality Analysis Reporting System (FARS) Database*, *National Automotive Sampling System General Estimates System (NASS GES) Database*, personal communications, May 25, 2006, and July 23, 2010.

Table 2-25: State Laws on Distracted Driving- Ban on Hand-Held Devices and Texting While Driving: As of Febuary 2013

State	AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	Total
Ban on hand-held devices for all drivers					Y		Y	Y	Y												Y						
Ban on texting for all drivers	Y	Y		Y	Y	Y	Y	Y	Y		Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			
State	MT	NE	NV	NH	NJ	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	PR	
Ban on hand-held devices for all drivers			Y		Y		Y					Y							Y			Y					**11**
Ban on texting for all drivers		Y	Y	Y	Y		Y	Y	Y	Y		Y	Y	Y			Y		Y	Y	Y	Y	Y	Y	Y		**40**

NOTES: The totals are the sum of the individual state's data. In Iowa, Nebraska, and Virginia, secondary enforcement is applied to texting while driving. In Maryland, and Nebraska, secondary enforcement is applied to using hand-held devices while driving. The term "secondary enforcement" means that motorists must be stopped for another violation before they can be cited for texting or using a mobile phone.

SOURCE: U.S. Department of Transportation, National Highway Traffic Safety Administration, *State Laws on Distracted Driving* , available at http://www.distraction.gov/content/get-the-facts/state-laws.html as of Feb. 20, 2013.

Table 2-26: Fatalities by Highest Blood Alcohol Concentration (BAC) in Highway Crashes

	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	(R) 2008	(P) 2009
Total fatalities	43,825	44,599	41,508	39,250	40,150	40,716	41,817	42,065	42,013	41,501	41,717	41,945	42,196	43,005	42,884	42,836	43,510	42,708	41,259	37,423	33,808
Fatalities in alcohol-related crashes (BAC = .01+)	21,098	20,607	18,307	16,401	16,039	15,626	15,893	15,866	14,973	14,899	14,790	15,746	15,731	15,793	15,423	15,311	15,985	15,970	15,534	13,826	12,744
Percent	48.1	46.2	44.1	41.8	39.9	38.4	38.0	37.7	35.6	35.9	35.5	37.5	37.3	36.7	36.0	35.7	36.7	37.4	37.6	36.9	37.7
BAC = 0.00																					
Number	22,589	23,823	23,025	22,726	23,979	24,948	25,768	26,052	26,902	26,477	26,798	26,082	26,334	27,080	27,328	27,413	27,423	26,633	25,611	23,499	20,961
Percent	51.5	53.4	55.5	57.9	59.7	61.3	61.6	61.9	64.0	63.8	64.2	62.2	62.4	63.0	63.7	64.0	63.0	62.4	62.1	62.8	62.0
BAC = 0.01 - 0.07																					
Number	2,974	2,901	2,480	2,352	2,300	2,236	2,416	2,415	2,216	2,353	2,235	2,422	2,441	2,321	2,327	2,212	2,404	2,479	2,494	2,115	1,905
Percent	6.8	6.5	6.0	6.0	5.7	5.5	5.8	5.7	5.3	5.7	5.4	5.8	5.8	5.4	5.4	5.2	5.5	5.8	6.0	5.7	5.6
BAC = 0.08+																					
Number	18,125	17,705	15,827	14,049	13,739	13,390	13,478	13,451	12,757	12,546	12,555	13,324	13,290	13,472	13,096	13,099	13,582	13,491	13,041	11,711	10,839
Percent	41.4	39.7	38.1	35.8	34.2	32.9	32.2	32.0	30.4	30.2	30.1	31.8	31.5	31.3	30.5	30.6	31.2	31.6	31.6	31.3	32.1

KEY: BAC = blood alcohol concentration; P = preliminary; R = revised.

NOTES

BAC values have been assigned by U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA) when alcohol test results are unknown. Alcohol-related crashes pertain to the BAC of the driver and nonoccupants struck by motor vehicles. For some years, numbers for *Fatalities in alcohol-related crashes (BAC = .01+)* may not add to totals due to rounding.

In 2001, the NHTSA adopted a new method to estimate missing blood alcohol concentration (*BAC*) test result data. This new method, multiple imputation, is being used by NHTSA's National Center for Statistics and Analysis (NCSA) to improve the scope of alcohol involvement statistics by the Fatality Analysis Reporting System. As a result of the methodology change, BAC 0.08 breakouts, which coincide with many state laws, can now be determined. Thus, NHTSA's general reporting categories have been modified to reflect this and are now *BAC 0.00*, *BAC 0.01-0.07*, and *BAC 0.08+*.

SOURCE

U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *Traffic Safety Facts 2009: Early Edition* (Washington, DC: Annual Issues), table 13, available at http://www-nrd.nhtsa.dot.gov/cats/Index.aspx as of Feb. 1, 2011.

Table 2-27: Number of States with Different Types of Anti-DUI / DWI Legislation in Effect as of January 1 of the Listed Year

	1986	1990	1992	1994	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BAC = 0.08 per se laws[a,b,c]	2	4	5	10	13	13	15	16	18	20	29	33	47	52	52	52	52	52	52	52	52	52
BAC level 0.02 or less for persons younger than 21 years[d]	0	0	3	12	28	38	51	51	51	51	51	51	51	51	51	51	51	51	(R) 52	(R) 52	(R) 52	52
Administrative license revocation (ALR) for DUI / DWI offenders[e,f]	21	27	30	33	38	40	41	41	41	41	41	41	42	42	42	42	42	42	42	42	42	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] Includes the District of Columbia in 2000 and 2001.
[c] Includes the District of Columbia and Puerto Rico beginning in 2003.
[d] Includes the District of Columbia beginning in 1996. Includes the District of Columbia and Puerto Rico beginning in 2010.
[e] States that impose additional thresholds for ALR beyond those imposed for DUI/DWI are not included in these figures.
[f] Includes the District of Columbia for all years.

NOTES

National Uniform Minimum Drinking Age Act, which standardized the minimum drinking age at 21, was enacted in 1984.

Although Puerto Rico lacks an Age 21 Minimum Drinking Age law, it has a Zero Tolerance law for people under 18 and a .02% BAC law for people between the ages of 18 and 21 as of Jan. 1, 2010.

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, 2002-13: Ibid., Impaired Driving Division, personal communications, May 22, 2000, Feb. 5, 2004, Oct. 15, 2004, Apr. 20, 2010, and Feb. 12, 2013.

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*, available at 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.

2003-13: Ibid., .08 BAC Laws (Washington, DC: 2004), available at http://www.nhtsa.dot.gov/people/injury/alcohol/blood.htm as of Oct. 19, 2004 and personal communication, Aug. 21, 2004, Aug. 17, 2007, Apr. 20, 2011, Mar. 6, 2012, and Feb. 12, 2013.

Table 2-28: Motor Vehicle Fatal Crashes by Day of Week, Time of Day, and Weather and Light Conditions (percent)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
TOTAL fatal crashes	**39,836**	**36,937**	**34,942**	**35,780**	**36,254**	**37,241**	**37,494**	**37,324**	**37,107**	**37,140**	**37,526**	**37,862**	**38,491**	**38,477**	**38,444**	**39,252**	**38,648**	**37,435**	**(R) 34,172**	**30,862**	**30,196**
Day of week																					
Sunday	16.1	16.2	15.9	15.8	15.9	15.7	15.2	15.8	15.4	15.7	16.1	16.0	15.9	16.0	16.2	15.9	16.8	16.6	16.3	16.3	15.9
Monday	11.7	11.5	11.6	12.1	12.4	12.4	12.7	12.1	12.4	12.6	12.3	12.6	12.2	12.3	12.4	12.6	12.2	12.8	12.1	12.3	12.5
Tuesday	11.5	11.5	11.5	11.8	11.7	11.8	12.4	11.9	12.4	11.9	12.0	12.1	12.4	12.2	11.6	11.8	12.2	11.6	12.4	11.7	11.7
Wednesday	11.5	11.9	12.3	12.0	12.3	11.9	12.2	13.0	12.4	12.5	12.2	12.2	12.6	12.6	12.4	12.4	12.2	12.5	12.3	12.1	12.3
Thursday	12.6	12.5	13.3	13.0	12.7	13.0	13.3	13.0	12.1	12.9	13.0	12.7	12.8	12.8	13.3	12.9	12.8	12.4	12.7	13.0	13.1
Friday	16.7	16.5	16.1	16.3	16.3	16.6	16.1	16.1	15.8	15.9	16.0	16.2	15.8	15.7	16.0	15.7	15.5	15.5	15.8	15.8	16.2
Saturday	20.0	19.9	19.3	19.0	18.6	18.5	18.2	18.0	18.0	18.5	18.5	18.2	18.2	18.4	18.1	18.6	18.3	18.5	18.5	18.8	18.2
Unknown	0.02	0.03	0.01	0.02	0.04	0.03	0.04	0.05	0.0	0.01	0.01	0.04	0.02	0.05	0.05	0.03	0.00	0.00	0.00	0.00	0.00
Time of day																					
Midnight to 3 a.m.	15.7	15.3	14.3	13.8	13.1	12.8	12.6	12.2	12.3	12.2	12.5	12.5	13.1	12.5	12.4	12.8	13.0	13.3	13.2	12.9	12.5
3 a.m. to 6 a.m.	7.7	7.9	7.4	7.4	7.3	7.5	7.4	7.2	7.3	7.6	8.0	7.6	8.1	7.8	7.9	8.1	8.3	8.5	8.2	8.4	8.3
6 a.m. to 9 a.m.	8.6	8.6	8.5	8.9	9.3	9.2	9.5	9.9	9.7	10.1	9.9	9.8	9.7	9.7	9.7	9.9	10.0	9.6	9.5	9.1	9.8
9 a.m. to noon	8.5	8.6	8.8	9.7	9.6	9.4	9.7	9.9	10.2	10.1	9.9	10.0	9.7	9.9	9.9	9.5	9.5	9.3	9.7	9.5	9.8
Noon to 3 p.m.	11.6	11.7	12.4	12.5	13.1	12.9	12.7	13.3	13.4	13.2	13.1	13.2	13.1	13.1	13.4	12.9	12.9	12.8	12.8	12.9	13.1
3 p.m. to 6 p.m.	15.7	15.7	16.0	16.0	16.6	16.8	16.9	16.6	16.8	16.8	16.7	16.6	16.0	16.6	16.3	16.5	15.6	16.0	15.7	16.0	16.1
6 p.m. to 9 p.m.	15.6	15.6	16.5	16.2	15.7	15.9	15.7	15.9	15.6	15.4	15.3	15.4	15.4	15.3	15.7	15.7	15.6	15.5	15.7	16.2	15.9
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	(R) 14.5	14.2	13.8
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	(R) 0.7	0.8	0.8
Atmospheric condition																					
Normal	86.7	86.7	85.7	87.0	87.3	86.7	86.3	86.4	87.2	89.0	88.0	88.4	88.0	87.3	87.0	88.2	89.5	89.4	(R) 88.3	88.2	89.4
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	(R) 6.5	(R) 7.2	7.9	6.3
Snow/sleet	1.6	1.9	2.0	2.2	1.8	2.4	2.7	2.5	1.7	1.6	2.3	1.8	1.9	2.2	1.9	2.0	1.2	(R) 2.1	(R) 2.4	1.9	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	(R) 2.2	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	48.3	48.5	49.2
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	(R) 17.2	17.6	17.8
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	30.1	29.5	28.3
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	4.0	4.0	4.2
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	(R) 0.4	0.5	0.5

NOTES

The *Atmospheric condition, Other/unknown* category for 2010 includes unreported conditions. For 2009-10, the *Light condition, Dark* category includes fatal crashes where it was unknown whether the area was lit. The *Light condition, Unknown* category in 2009 also includes other light conditions, and for 2010 includes other light conditions and unreported light conditions.

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 Mar. 9, 2012.

Table 2-29: Motor Vehicle Fatal Crashes by Posted Speed Limit

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	(R) 2008	2009	2010
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**	**(R) 37,435**	**34,172**	**30,862**	**30,196**
Under 55 mph, total	**15,233**	**20,079**	**19,278**	**19,136**	**17,507**	**16,827**	**16,985**	**16,948**	**17,439**	**17,345**	**17,258**	**17,018**	**16,963**	**17,054**	**17,582**	**17,651**	**17,422**	**17,758**	**18,461**	**18,327**	**17,767**	**16,555**	**15,058**	**20,816**
5,10,15, 20, 25 mph[a]	2,617	2,865	2,504	2,234	2,097	1,911	1,895	1,890	1,893	1,896	1,955	1,873	1,863	1,827	1,919	1,897	1,883	1,904	1,947	1,972	2,054	1,910	1,700	2,196
30, 35 mph	6,099	8,527	7,890	7,756	6,908	6,696	6,759	6,565	6,681	6,445	6,383	6,025	5,946	6,079	6,260	6,090	5,995	6,064	6,337	6,347	5,946	5,773	5,141	6,849
40, 45 mph	4,276	6,256	6,812	7,092	6,608	6,345	6,454	6,632	6,938	7,096	7,132	7,349	7,245	7,315	7,576	7,784	7,717	7,964	8,359	8,172	7,994	7,343	6,679	9,610
50 mph	2,241	2,431	2,072	2,054	1,894	1,875	1,877	1,861	1,927	1,908	1,788	1,771	1,909	1,833	1,827	1,880	1,827	1,826	1,818	1,836	1,773	1,529	1,538	2,161
55 mph and above, total	**16,095**	**20,352**	**18,871**	**19,749**	**18,630**	**17,450**	**18,144**	**18,698**	**19,140**	**19,460**	**19,251**	**19,333**	**19,373**	**19,735**	**19,416**	**19,898**	**19,995**	**19,780**	**19,857**	**19,252**	**18,675**	**16,771**	**14,990**	**15,054**
55 mph	16,094	20,352	18,863	17,556	16,543	15,444	15,980	16,512	16,753	14,097	12,897	12,522	12,184	12,143	11,847	12,268	12,155	11,893	11,760	11,337	10,997	9,820	8,859	8,853
60 mph	0	0	2	18	9	4	9	13	16	523	935	1,073	1,069	1,163	1,221	1,270	1,364	1,296	1,347	1,359	1,332	1,236	1,078	1,062
65 mph	1	0	2	2,175	2,078	2,002	2,155	2,173	2,323	3,214	3,311	3,421	3,537	3,686	3,721	3,742	3,848	3,856	3,966	3,960	3,816	3,424	3,040	3,059
70 mph	0	0	3	0	0	0	0	0	38	1,282	1,633	1,835	2,079	2,230	2,116	2,027	2,039	2,127	2,198	2,077	2,074	1,836	1,629	1,710
Over 70 mph	0	0	1	0	0	0	0	0	10	344	475	482	504	513	511	591	589	608	586	519	456	455	384	370
Unknown[b]	**7,833**	**4,853**	**1,047**	**951**	**800**	**665**	**651**	**608**	**662**	**689**	**815**	**756**	**804**	**737**	**864**	**942**	**1,060**	**906**	**934**	**1,069**	**(R) 993**	**846**	**814**	**1,336**

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. The 2010 figure includes fatal crashes where the speed limit was not reported.

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.

1994-2010: 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 Mar. 9, 2012.

Table 2-30: Safety Belt and Motorcycle Helmet Use (percent)[a]

	1994	1996	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
OVERALL Safety Belt Use	58	61	69	67	71	73	75	79	80	82	81	82	83	84	85	84
Drivers	59	62	70	67	72	74	76	80	81	83	82	83	84	85	86	84
Passengers	55	59	65	64	68	72	73	77	76	78	78	81	81	82	83	82
Passenger cars[b]	63	65	71	70	74	76	77	81	81	83	82	84	84	86	86	85
Drivers	64	65	72	71	75	77	78	U	U	U	U	U	U	U	U	U
Passengers	59	62	68	66	70	74	74	U	U	U	U	U	U	U	U	U
Light trucks[b,c]	50	56	66	62	68	69	73	U	U	U	U	U	U	U	U	U
Drivers	51	58	67	62	69	70	73	U	U	U	U	U	U	U	U	U
Passengers	49	53	61	60	65	69	72	U	U	U	U	U	U	U	U	U
Vans and sport utility vehicles[c]	U	U	U	U	U	U	U	83	83	85	84	86	86	87	88	87
Pickup trucks[c]	U	U	U	U	U	U	U	69	70	73	74	72	74	74	75	74
Motorcycle Helmet Use[d]	63	64	67	U	71	U	58	U	58	48	51	58	63	67	54	U
Operators	67	66	64	U	72	U	59	U	63	56	57	59	64	69	55	U
Riders	54	58	84	U	62	U	48	U	41	29	33	56	54	55	51	U

KEY: U = data are 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 longer reports separate 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, available at http://www-nrd.nhtsa.dot.gov/Pubs/809500.PDF as of June 24, 2009.

2003: Ibid., *Safety Belt Use in 2003*, T*raffic Safety Facts*, *Research Note DOT HS 809 646* (Washington, DC: 2003), available at http://www.nhtsa.dot.gov/people/injury/airbags/809646.pdf as of June 24, 2009.

2004: Ibid., *Safety Belt use in 2005–Overall Results*, *Traffic Safety Facts, Research Note DOT HS 809 932* (Washington, DC: 2005), available at http://www.westernite.org/Sections/sbr/articles/Seatbelt-usage.pdf as of June 24, 2009.

2005-06: Ibid., *Seat Belt Use in 2006–Overall Results*, *Traffic Safety Facts, Research Note DOT HS 810 677* (Washington, DC: 2006), available at http://www-nrd.nhtsa.dot.gov/Pubs/810677.PDF as of June 24, 2009.

2007: Ibid., *Seat Belt Use in 2008–Overall Results*, *Traffic Safety Facts, Research Note DOT HS 811 036* (Washington, DC: 2008), available at http://www-nrd.nhtsa.dot.gov/Pubs/811036.PDF as of June 24, 2009.

2008: Ibid., *Seat Belt Use in 2009–Overall Results*, *Traffic Safety Facts, Research Note DOT HS 811 100* (Washington, DC: 2009), available at http://www-nrd.nhtsa.dot.gov/Pubs/811100.PDF as of July 6, 2010.

2009: Ibid., *Seat Belt Use in 2010–Overall Results, Traffic Safety Facts, Research Note DOT HS 811 378* (Washington, DC: 2010), available at http://www-nrd.nhtsa.dot.gov/Pubs/811378.pdf as of Sept. 2010.

2010-11: Ibid., *Seat Belt Use in 2011–Overall Results, Traffic Safety Facts, Research Note DOT HS 811 544* (Washington, DC: 2011), available at http://www-nrd.nhtsa.dot.gov/Pubs/811544.pdf as of Dec. 2011.DC: 2010), available at http://www-nrd.nhtsa.dot.gov/Pubs/811378.pdf as of December 2011.

Motorcycle helmet use:

1994-98: U.S. Department of Transportation, National Highway Traffic Safety Administration, *Research Note, Observed Safety Belt Use in 1998* (Washington, DC: September 1999), table 3, available at 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, available at 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), available at 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), available at 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 2008–Overall Results,* DOT HS 811 044 (Washington, DC: 2008), available at http://www-nrd.nhtsa.dot.gov/Pubs/811044.PDF as of June 24, 2009.

2008: Ibid., *Motorcycle Helmet Use in 2009–Overall Results,* DOT HS 811 254 (Washington, DC: 2008), available at www-nrd.nhtsa.dot.gov/Pubs/811254.PDF as of July 6, 2010.

2009-10: Ibid., *Motorcycle Helmet Use in 2010–Overall Results,* DOT HS 811 419 (Washington, DC: December 2010), available at http://www-nrd.nhtsa.dot.gov/Pubs/811419.pdf as of December 2011.

Table 2-31: Estimated Number of Lives Saved by Occupant Protection, Motorcycle Helmets, and Drinking Age Law

	1975-1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	(R) 2008	2009	Total 1975-2009
Safety belts[a,b]	68,940	9,882	10,710	11,259	11,680	11,941	12,882	13,295	14,264	15,095	15,548	15,688	15,458	15,223	13,312	12,713	267,890
Air bags[c]	730	536	783	973	1,208	1,491	1,716	1,978	2,324	2,519	2,660	2,752	2,824	2,800	2,557	2,381	30,232
Motorcycle helmets	15,076	624	617	627	660	745	872	947	992	1,173	1,324	1,554	1,667	1,788	1,836	1,483	31,985
Age 21 minimum legal drinking age	14,816	851	846	846	861	901	922	927	922	918	927	882	888	831	716	623	27,677
Child restraints	3,107	408	480	444	438	447	479	388	383	447	455	424	427	388	286	309	9,310

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 2009 (Final Edition)* (Washington DC: 2011), http://www-nrd.nhtsa.dot.gov/cats/listpublications.aspx?Id=E&ShowBy=DocType as of Dec. 16, 2011.

Section D
Transit

Table 2-32: Transit Safety and Property Damage Data

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	(R) 2008	2009	2010
Fatalities[a]	339	300	273	281	320	274	264	275	286	299	295	267	280	234	248	236	227	288	220	243	232
Injuries[a,b]	54,556	52,125	55,089	52,668	58,193	57,196	55,288	56,132	55,990	55,325	56,697	53,945	19,260	18,235	18,982	18,131	19,238	20,625	23,067	24,486	23,455
Accidents[b,c]	58,002	46,467	36,380	30,559	29,972	25,683	25,166	24,924	23,937	23,310	24,261	23,891	13,968	7,793	7,842	8,151	8,970	9,398	3,366	3,433	3,400
Incidents[a,b,c] (includes accidents)	90,163	83,139	73,531	64,986	70,693	62,471	59,392	61,561	60,094	58,703	59,898	58,149	30,331	19,797	20,939	21,016	22,593	23,935	22,163	22,920	21,463
Vehicle-miles (millions)	2,490	2,478	2,510	2,535	2,581	2,620	2,605	2,702	2,833	2,927	3,002	3,090	3,084	3,071	3,139	3,098	3,126	3,166	3,254	3,330	3,330
Rates per 100 million vehicle-miles[d]																					
Fatalities (all reportable incidents)	13.6	12.1	10.9	11.1	12.4	10.5	10.1	10.2	10.1	10.2	9.8	8.6	9.1	7.6	7.9	7.6	7.3	9.1	6.8	7.3	7.0
Injuries (all reportable incidents)	2,191	2,103	2,195	2,077	2,254	2,183	2,122	2,078	1,976	1,890	1,889	1,746	624	594	605	585	615	651	709	735	704
Accidents	2,329	1,875	1,450	1,205	1,161	980	966	922	845	796	808	773	453	254	250	263	287	297	103	103	102
Property damage[b,e] (current $ millions)	38.0	37.5	37.5	44.9	38.4	46.3	57.6	55.5	61.5	55.3	58.9	73.1	32.2	59.2	43.4	71.7	37.9	39.7	57.9	62.6	50.3

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 2-34.

[b] The drop in the number of *Incidents, Accidents, Injuries* , and *Property damage* beginning from 2002 is due largely to a change in definitions by the Federal Transit Administration, particularly the definition of *Injuries* . The *Injury* threshold for filing an incident report changed to be two or more Injuries requiring immediate medical transportation away from the scene, or one or more Injuries requiring immediate medical transportation away from the scene in the case of incidents at grade crossings or along rail right-of-ways in 2002. Previously, any *Injury* was reportable. There were National Transportation Database definition changes made in 2008 to simplify the injury thresholds for filing an incident report. FTA simplified this threshold to being simply one or more Injuries requiring immediate medical transportation away from the scene. This simplification resulted in larger reported number in *Injuries* since 2008. Commuter rail data are now derived from the Federal Railroad Administration's Rail Accident Incident Reporting System (RAIRS). The threshold for reporting *Property damage* was changed from $1,000 in transit *Property damage* to $7,500 in total *property damage* from 2002 to 2007. In 2008, the property damage threshold was changed to $25,000. This change in coverage caused a large drop in the number of accidents beginning in 2008.

[c] *Accidents* include collisions with other vehicles, objects, and people (except suicides), and derailments/buses going off the road. *Incidents* include *Accidents* plus personal casualties (inside vehicles, inside stations, and boarding and alighting vehicle) and fires.

[d] *Fatality* and *Injury rates* are based on total *Incidents* including *Accidents* and were calculated by dividing the number of *Fatalities, Injuries* , and *Incidents* in this table by the number of *Vehicle miles* .

[e] Total does not include *Property damage* for cable car, inclined plane, jitney, and ferry boat, which were: 1990–$335,000; 1991–$410,000; 1992–$288,000; 1993–$221,000; 1994–$322,000; 1995–$3,263,000; 1996–$157,000; 1997–$67,000; 1998–$24,000; 1999–$104,000; 2000–$77,000; 2001–$1,605,000; 2002–$254,000; 2003–$15,348,000; 2004–$604,000; 2005–$44,000; 2006– $555,000; 2007–$1,234,000; 2008–$1,065,000; 2009– $274,607; 2010–$250,000. The large increase in excluded *Property damage* reported in 2003 is a result of the Staten Island Ferry Incident on Oct. 16, 2003 which resulted in $15,000,000 of *Property damage.*

NOTES

Data are provided only for transit systems that furnished safety data for inclusion in the U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis,* annual reports.

Transit *vehicle-miles* in this table differ from those reported in Chapter 1. The American Public Transit Association, which is the source for the *vehicle-miles* table in Chapter 1, includes all transit systems, while *Transit Safety and Security Statistics and Analysis Annual Report* covers only directly operated urban transit systems.

Prior to the 2000 edition, *Transit Safety and Security Statistics and Analysis Report* was entitled *Safety Management Information Statistics* (SAMIS) annual report.

SOURCES

1990-2007: U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis Report* (Cambridge, MA: Annual Issues), available at http://transit-safety.volpe.dot.gov/Data/Samis.asp as of Mar. 23, 2009.
2008-10: U.S. Department of Transportation, Federal Transit Administration, personal communication, May 11, 2011.

Table 2-33: Transit Safety Data by Mode[a] for All Reported Accidents[b]

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Fatalities, total	212	215	173	191	225	179	152	185	192	190	183	197	109	120	111	106	121	149	144
Motor bus[c]	92	80	91	79	90	69	82	100	90	91	82	89	64	73	61	49	76	76	63
Light rail	5	11	6	14	10	10	5	3	14	13	22	15	8	13	14	15	11	18	14
Heavy rail	51	59	33	37	41	43	32	28	18	21	19	26	30	17	15	7	12	25	31
Commuter rail	63	63	43	59	82	56	30	52	67	64	56	64	7	16	18	28	14	22	33
Demand responsive	0	2	0	2	2	1	3	2	2	1	4	3	0	1	0	7	7	8	3
Van pool	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0
Automated guideway	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Injured persons, total[d]	20,023	20,594	21,653	22,081	20,939	22,159	22,950	21,452	21,341	21,727	22,140	21,260	7,771	10,271	7,829	8,102	8,062	8,719	6,576
Motor bus[c]	18,876	19,016	20,556	20,862	19,663	20,879	21,222	20,145	20,136	20,291	20,329	19,532	7,211	8,905	7,164	7,187	7,186	7,775	5,805
Light rail	465	474	468	361	327	355	680	320	332	427	415	305	177	192	245	268	255	373	269
Heavy rail	296	308	273	365	309	348	431	336	261	286	425	598	90	218	158	86	94	102	62
Commuter rail	84	560	110	210	216	159	213	99	66	54	53	108	50	102	51	263	100	60	180
Demand responsive	286	200	233	224	399	395	379	499	492	632	869	679	200	836	174	280	373	383	240
Van pool	16	36	13	58	24	23	25	52	53	37	49	38	43	18	37	18	47	25	20
Automated guideway	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	7	1	0
Accidents, total[d]	58,002	46,468	36,380	30,559	29,972	25,683	25,166	24,924	23,937	23,310	24,261	23,891	13,968	7,793	7,838	8,152	8,970	8,288	3,452
Motor bus[c]	55,289	44,467	34,282	28,596	27,754	23,819	23,425	22,995	22,277	21,407	22,127	21,799	12,821	6,720	6,837	6,983	7,738	7,233	2,921
Light rail	699	671	600	449	512	309	341	363	328	300	357	344	558	556	490	625	634	623	189
Heavy rail	144	188	613	662	744	637	346	325	293	396	364	328	183	152	171	117	131	142	74
Commuter rail	175	248	181	208	266	216	201	192	193	215	258	237	89	89	93	68	77	128	103
Demand responsive	1,613	814	668	524	659	647	774	886	664	862	997	976	283	267	219	249	356	130	158
Van pool	81	79	35	119	36	54	78	160	179	130	157	207	34	9	28	110	32	31	7
Automated guideway	1	1	1	1	1	1	1	3	3	0	1	0	0	0	0	0	2	1	0
Vehicle-miles (millions), total	2,490	2,478	2,510	2,535	2,581	2,620	2,605	2,702	2,833	2,927	3,002	3,090	3,084	3,071	3,139	3,098	3,126	3,166	3,228
Motor bus[c]	1,668	1,661	1,688	1,690	1,702	1,702	1,687	1,719	1,779	1,835	1,868	1,911	1,919	1,876	1,891	1,853	1,849	1,872	1,907
Light rail	24	27	28	27	34	34	37	41	43	48	52	53	60	64	63	67	72	80	84
Heavy rail	529	522	520	518	522	537	543	558	566	578	595	608	621	630	643	645	649	654	671
Commuter rail	187	188	188	206	210	217	203	216	242	249	253	257	255	256	279	271	283	289	275
Demand responsive	74	71	72	77	94	109	108	134	157	167	179	205	172	189	203	196	196	181	191
Van pool	8	8	13	16	18	19	25	33	44	49	52	54	56	55	58	65	77	87	99
Automated guideway	0.6	0.5	1.0	1.0	1.2	1.1	1.4	1.4	1.4	1.4	1.6	1.8	1.8	1.5	1.5	1.7	1.8	1.8	2
Rates per 100 million vehicle-miles[e]																			
Fatalities, all modes	8.5	8.7	6.9	7.5	8.7	6.8	5.8	6.8	6.8	6.5	6.1	6.4	3.5	3.9	3.5	3.4	3.9	4.7	4.5
Motor bus[c]	5.5	4.8	5.4	4.7	5.3	4.1	4.9	5.8	5.1	5.0	4.4	4.7	3.3	3.9	3.2	2.6	4.1	4.1	3.3
Light rail	20.8	40.3	21.2	51.1	29.6	29.0	13.3	7.4	32.3	27.1	42.3	28.5	13.3	20.4	22.1	22.3	15.4	22.5	16.7
Heavy rail	9.6	11.3	6.3	7.1	7.9	8.0	5.9	5.0	3.2	3.6	3.2	4.3	4.8	2.7	2.3	1.1	1.8	3.8	4.6
Commuter rail	33.6	33.4	22.9	28.6	39.0	25.8	14.8	24.1	27.6	25.7	22.1	24.9	2.7	6.2	6.5	10.3	5.0	7.6	12.0
Demand responsive	0.0	2.8	0.0	2.6	2.1	0.9	2.8	1.5	1.3	0.6	2.2	1.5	0.0	0.5	0.0	3.6	3.6	4.4	1.6
Van pool	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0	1.3	0.0	0.0
Automated guideway	162.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	69.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Injured persons, all modes[d]	804	831	863	871	811	846	881	794	753	742	738	688	252	334	249	262	258	275	204
Motor bus[c]	1,132	1,145	1,218	1,234	1,155	1,227	1,258	1,172	1,132	1,106	1,088	1,022	376	475	379	388	389	415	304
Light rail	1,933	1,735	1,654	1,318	968	1,030	1,815	785	767	889	798	580	293	302	386	398	357	466	320
Heavy rail	56	59	52	71	59	65	79	60	46	50	71	98	14	35	25	13	14	16	9
Commuter rail	45	297	59	102	103	73	105	46	27	22	21	42	20	40	18	97	35	21	65
Demand responsive	386	282	324	292	425	361	349	372	313	379	485	331	117	443	86	143	191	211	125
Van pool	208	430	103	363	132	123	101	158	121	75	94	70	77	33	64	28	61	29	20
Automated guideway	0	0	0	104	85	0	0	70	69	0	0	0	0	0	0	0	389	56	0
Accidents, all modes[d]	2,329	1,875	1,450	1,205	1,161	980	966	922	845	796	808	773	453	254	250	263	287	262	107
Motor bus[c]	3,315	2,678	2,031	1,692	1,631	1,400	1,389	1,338	1,252	1,166	1,184	1,141	668	358	362	377	418	386	153
Light rail	2,906	2,456	2,121	1,639	1,516	897	910	891	758	624	687	654	925	874	773	928	886	778	225
Heavy rail	27	36	118	128	142	119	64	58	52	69	61	54	29	24	27	18	20	22	11
Commuter rail	93	132	96	101	127	100	99	89	80	86	102	92	35	35	33	25	27	44	37
Demand response	2,177	1,147	928	682	702	591	714	661	423	516	557	476	165	141	108	127	182	72	83
Van pool	1,052	944	278	744	198	289	314	485	408	263	301	380	61	16	48	170	42	36	7
Automated guideway	162	204	102	104	85	87	69	209	207	0	62	0	0	0	0	0	111	56	0

[a] *Accident* statistics for cable car, inclined plane, jitney, and ferry boat are not available. The number of incidents, *Fatalities*, and *Injuries* for these modes appear in the footnotes for table 2-33a

[b] *Accidents* includes collisions with vehicles, objects, people (except suicides), and derailments/vehicles going off road.

[c] *Motor bus* also includes trolley bus

[d] In 2002 the drop in the number of *Accidents* and *Injuries* is due largely to a change in definitions by the Federal Transit Administration, particularly the definition of *Injuries*. Only *Injuries* requiring immediate medical treatment away from the scene now qualify as reportable. Previously, any *Injury* was reportable. *Commuter rail* data are now derived from the Federal Railroad Administration's Rail Accident Incident Reporting System (RAIRS).

[e] Rates are based on total incidents including *Accidents* and were calculated by dividing the number of *Fatalities*, *Injuries*, and *Accidents* in this table by the number of *Vehicle-miles*.

NOTES

Data are provided only for transit systems that furnished safety data for inclusion in the U.S. Department of Transportation, Federal Transit Administration *Transit Safety and Security Statistics and Analysis* annual reports. Data covers only directly operated urban transit systems *Vehicle-miles* for all transit systems including nonurban and purchased can be found in the *Vehicle-miles* table in chapter 1.

Prior to the 2000 edition, *Transit Safety and Security Statistics and Analysis Report* was entitled *Safety Management Information Statistics* (SAMIS) annual report.

Analysts for the FTA believe the change in reporting requirements in 2002 may have resulted in unreliable data in that year, particularly for *Injuries* and *Accidents*. The reliability of reporting is believed to be much better in 2003 and is expected to improve in the future.

Details may not add to totals due to rounding.

SOURCE

1990-2008: U.S. Department of Transportation, Federal Transit Administration *Transit Safety and Security Statistics*, available at http://transit-safety.volpe.dot.gov/Data/Samis.asp as of Sept. 15, 2009, and personal communications, Oct. 8, 2004, Apr. 22, 2005, Apr. 24, 2006, June 14, 2007, June 18, 2008, and Sept. 1, 2010.

Table 2-34: Transit Safety Data by Mode[a] for All Reported Incidents[b]

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	(R) 2009	2010
Fatalities, total	339	300	273	281	320	274	264	275	286	299	295	267	289	259	263	249	246	307	(R) 264	290	U
Motor bus[c]	110	88	99	83	108	82	101	109	109	102	90	95	80	109	82	75	108	105	81	78	84
Light rail	7	13	9	15	13	15	6	3	23	17	30	21	13	15	21	19	17	33	16	34	24
Heavy rail	117	103	91	83	85	79	74	77	54	84	80	59	73	47	60	35	23	32	67	100	96
Commuter rail	104	93	74	98	112	92	72	79	94	95	87	87	116	77	86	105	85	124	(R) 93	66	U
Demand responsive	0	3	0	2	2	6	11	7	4	1	8	5	6	11	6	12	12	11	7	7	10
Van pool	0	0	0	0	0	0	0	0	0	0	0	0	1	0	7	0	1	1	0	4	1
Automated guideway	1	0	0	0	0	0	0	0	2	0	0	0	0	0	1	3	0	1	0	1	1
Injured persons, total[f]	54,556	52,125	55,089	52,668	58,193	57,196	55,288	56,132	55,990	55,325	56,697	53,945	20,313	20,175	20,794	19,696	21,433	23,350	(R) 26,260	27,870	U
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	12,323	12,537	12,925	12,385	12,852	14,126	(R) 14,266	15,470	14,901
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	539	556	654	614	656	843	1,006	1,054	917
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	4,833	4,154	4,759	3,814	4,820	5,015	7,264	7,536	7,521
Commuter rail	2,438	2,308	2,546	1,560	2,374	2,374	1,953	2,388	1,677	1,761	1,783	1,813	1,483	1,597	1,364	1,672	1,426	1,548	(R) 1,700	1,808	U
Demand responsive	807	622	713	652	731	935	882	1,121	1,064	1,345	1,736	1,374	1,070	1,283	1,031	1,180	1,607	1,768	1,979	1,896	1,642
Van pool	21	40	19	59	29	25	27	54	67	41	52	40	37	19	46	29	55	39	23	69	39
Automated guideway	4	0	7	10	10	8	20	16	12	21	15	36	28	29	15	2	17	11	22	37	89
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	25,827	22,490	23,490	23,828	26,109	25,468	(R) 24,935	25,897	22,531
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	13,883	12,006	12,593	12,767	14,274	13,601	(R) 11,555	12,496	11,466
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	1,056	985	939	1,129	1,130	1,181	1,009	986	810
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	6,919	5,534	6,270	5,738	6,267	6,963	8,902	8,697	8,724
Commuter rail	3,031	2,716	3,160	2,111	3,115	2,847	2,449	3,078	2,410	2,499	2,072	2,159	1,720	1,749	1,598	1,663	1,575	1,732	(R) 1,707	1,937	U
Demand responsive	2,965	1,241	1,137	946	1,062	1,173	1,284	1,454	1,221	1,577	1,871	1,719	2,195	2,171	2,037	2,402	2,816	1,924	1,724	1,716	1,437
Van pool	84	83	40	121	39	58	80	162	194	135	160	209	31	12	34	123	36	46	12	25	14
Automated guideway	3	1	8	10	10	10	25	19	16	20	17	36	23	33	19	6	11	21	26	40	80
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	8,836	8,738	8,782	9,020	9,234	9,801	(R) 10,068	9,932	U
Motor bus[c]	4,912	4,780	4,728	4,585	4,567	4,539	4,464	4,554	4,712	4,926	4,959	5,065	5,333	5,255	5,200	5,333	5,374	5,375	5,548	5,463	U
Light rail	174	184	187	187	274	249	259	259	273	289	316	327	337	338	350	381	407	418	451	464	U
Heavy rail	2,252	2,123	2,119	1,960	2,149	2,034	2,157	2,429	2,393	2,521	2,632	2,728	2,688	2,667	2,748	2,808	2,927	3,460	3,547	3,490	U
Commuter rail	286	274	262	303	318	322	302	311	360	374	388	390	380	375	377	383	399	413	(R) 384	373	U
Demand responsive	14	13	13	15	17	18	17	48	22	23	24	27	78	82	83	87	88	91	96	100	U
Van pool	2	2	3	4	5	5	6	8	9	10	10	10	12	13	15	17	20	23	30	32	U
Automated guideway	6	4	5	5	6	6	6	6	6	5	6	8	8	8	9	12	18	21	12	10	U
Rates per 100 million unlinked passenger trips (millions)[e]																					
Fatalities, all modes	4.4	4.1	3.7	4.0	4.4	3.8	3.7	3.6	3.7	3.7	3.5	3.1	3.3	3.0	3.0	2.8	2.7	3.1	(R) 2.6	2.9	U
Motor bus[c]	2.2	1.8	2.1	1.8	2.4	1.8	2.3	2.4	2.3	2.1	1.8	1.9	1.5	2.1	1.6	1.4	2.0	2.0	1.5	1.4	U
Light rail	4.0	7.1	4.8	8.0	4.7	6.0	2.3	1.2	8.4	5.9	9.5	6.4	3.9	4.4	6.0	5.0	4.2	7.9	3.5	7.3	U
Heavy rail	5.2	4.9	4.3	4.2	4.0	3.9	3.4	3.2	2.3	3.3	3.0	2.2	2.7	1.8	2.2	1.2	0.8	0.9	1.9	2.9	U
Commuter rail	36.4	33.9	28.3	32.4	35.2	28.6	23.8	25.4	26.1	25.4	22.4	22.3	30.6	20.5	22.8	27.4	21.3	30.0	24.2	17.7	U
Demand responsive	0.0	22.6	0.0	13.5	12.0	33.9	65.5	14.6	18.1	4.3	32.8	18.6	7.7	13.5	7.2	13.9	13.6	12.1	7.3	7.0	U
Van pool	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	0.0	47.1	0.0	4.9	4.4	0.0	12.6	U
Automated guideway	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.5	0.0	0.0	0.0	0.0	0.0	10.7	26.0	0.0	4.8	0.0	9.5	U
Injured persons, all modes[f]	714	706	753	746	793	798	767	737	720	679	680	631	230	231	237	218	232	238	(R) 261	281	U
Motor bus[c]	815	808	848	848	924	910	890	860	871	837	825	767	231	239	249	232	239	263	257	283	U
Light rail	715	682	677	524	432	529	620	419	394	440	423	368	160	165	187	161	161	202	223	227	U
Heavy rail	446	437	493	537	543	553	514	506	462	383	412	390	180	156	173	136	165	145	205	216	U
Commuter rail	853	843	972	516	747	738	646	769	466	471	459	465	391	425	362	437	357	374	(R) 443	485	U
Demand responsive	5,835	4,678	5,393	4,401	4,390	5,286	5,251	2,336	4,821	5,846	7,113	5,117	1,369	1,569	1,242	1,363	1,820	1,943	2,072	1,892	U
Van pool	1,037	1,721	584	1,398	638	537	461	701	773	411	524	405	302	141	309	168	269	173	77	218	U
Automated guideway	68	0	127	194	160	123	317	272	195	389	239	464	364	353	160	17	94	53	189	353	U
All incidents, all modes[f]	1,179	1,126	1,005	921	964	871	824	808	773	720	718	680	292	257	267	264	283	260	(R) 248	261	U
Motor bus[c]	1,434	1,327	1,104	994	1,077	943	906	890	883	834	840	796	260	228	242	239	266	253	208	229	U
Light rail	842	841	796	606	516	512	522	452	411	410	417	398	314	292	268	297	278	282	224	212	U
Heavy rail	541	664	732	769	738	705	637	624	565	484	486	455	257	208	228	204	214	201	251	249	U
Commuter rail	1,060	991	1,207	698	980	885	810	991	670	668	533	554	453	466	424	435	394	419	(R) 445	519	U
Demand responsive	21,440	9,333	8,600	6,385	6,378	6,632	7,644	3,030	5,532	6,854	7,666	6,402	2,808	2,655	2,454	2,774	3,190	2,115	1,805	1,713	U
Van pool	4,147	3,570	1,229	2,867	858	1,245	1,366	2,104	2,238	1,353	1,611	2,116	253	89	229	714	176	204	40	79	U
Automated guideway	51	28	145	194	160	154	396	323	260	371	271	464	299	401	203	52	61	101	223	381	U

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

[a] The figures for cable car, inclined plane, jitney, and ferry boat are lumped together and appear in this footnote. Note that the 2003 data include 11 fatalities and 70 injuries that resulted from the Oct. 16, 2003 Staten Island Ferry incident.

Other Modes	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Fatalities:	**2**	**1**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**2**	**10**	**0**	**0**	**1**	**2**	**1**	**0**	**2**
Injuries:	**378**	**327**	**399**	**383**	**616**	**598**	**354**	**357**	**379**	**1,091**	**762**	**897**	**58**	**156**	**58**	**18**	**54**	**106**	**58**	**77**	**65**
Incidents:	**186**	**411**	**400**	**411**	**650**	**536**	**301**	**353**	**253**	**1,078**	**745**	**891**	**99**	**99**	**60**	**25**	**48**	**113**	**63**	**75**	**63**

[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.

NOTES

Data are provided only for transit systems that furnished safety data for inclusion in the U.S. Department of Transportation, Federal Transit Administration *Transit Safety and Security Statistics and Analysis* annual reports. Data covers only directly operated urban transit systems. Vehicle-miles for all transit systems including nonurban and purchased can be found in the vehicle-miles table in chapter 1.

Prior to the 2000 edition, *Transit Safety and Security Statistics and Analysis Report* was entitled *Safety Management Information Statistics* (SAMIS) annual report.

Analysts for the FTA believe the change in reporting requirements in 2002 may have resulted in unreliable data in that year, particularly for *Injuries* and *Incidents*. The reliability of reporting is believed to be much better in 2003 and is expected to improve in the future.

SOURCES

All modes except for commuter rail:

1990-2001: U.S. Department of Transportation, Federal Transit Administration *2004 Transit Safety and Security Statistics and Analysis Report* (Cambridge, MA: 2005).

2002-10: Ibid, National Transit Database, *Safety and Security Time Series Data* (Washington, DC: March 2010 Issue), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Sept. 14, 2011.

Commuter rail:

1990-2000: U.S. Department of Transportation, Federal Transit Administration *2004 Transit Safety and Security Statistics and Analysis Report* (Cambridge, MA: 2005).

2001-09: U.S. Department of Transportation, Federal Railroad Administration, Rail Accident Incident Reporting System (RAIRS).

Table 2-35: Transit and Grade-Crossing Fatalities by Rail Transit Mode

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	(R) 2008	(R) 2009	(P) 2010
All transit rail, total	186	152	159	171	196	197	167	202	143	167	159	125	184	121	129	111
Transit only	169	145	147	145	175	177	154	178	122	138	101	92	140	103	98	88
Grade crossing	17	7	12	26	21	20	13	24	21	29	58	33	44	18	31	23
Light rail, total	15	6	3	23	17	30	21	13	17	22	19	17	32	14	27	16
Transit only	N	N	N	N	N	18	20	12	13	12	9	9	21	7	13	7
Grade crossing	N	N	N	N	N	12	1	1	4	10	10	8	11	7	14	9
Heavy rail, total	79	74	77	54	84	80	59	73	49	59	35	23	32	32	48	36
Transit only	N	N	N	N	N	80	58	73	48	58	35	22	30	30	47	36
Grade crossing	N	N	N	N	N	0	1	0	1	1	0	1	2	2	1	0
Commuter rail, total	92	72	79	94	95	87	87	116	77	86	105	85	120	74	53	59
Transit only	N	N	N	N	N	79	76	93	61	68	57	61	89	66	37	45
Grade crossing	N	N	N	N	N	8	11	23	16	18	48	24	31	8	16	14

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

NOTES

Light rail and *Heavy rail Grade crossings* are regulated by the Federal Transit Administration. The Federal Transit Administration defines two types of *Grade crossings*: (1) At grade, mixed, and cross traffic crossings, meaning railway right-of-way over which other traffic moving in the same direction or other cross directions may pass. This includes city street right-of-way; (2) At grade with cross traffic crossings, meaning railway right-of-way over which no other traffic may pass, except to cross at grade-level crossings. This can include median strip rights-of-way with grade level crossings at intersecting streets.

Commuter rail Grade crossings are regulated by the Federal Railroad Administration. The Federal Railroad Administration defines a *Grade crossing* as a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade.

All transit rail, total includes data for other transit rail modes which are not presented in this table (such as monorail), thus details may not add to totals.

SOURCE

U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis Annual Report* (Washington, DC: Annual Issues), available at http://transit-safety.volpe.dot.gov/ as of Apr. 5, 2006, and personal communications on June 8, 2005, Apr. 5, 2006, June 14, 2007, June 18, 2008, Aug. 20, 2010, and Apr. 20, 2011.

Table 2-36: Transit and Grade-Crossing Injuries by Rail Transit Mode

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	(R) 2008	(R) 2009	(P) 2010
All transit rail, total	14,931	14,650	15,760	13,812	12,697	13,969	13,655	6,846	6,294	6,735	6,104	6,806	7,494	9,682	9,928	9,695
Transit only	14,736	14,466	15,634	13,754	12,538	13,846	13,581	6,738	6,177	6,582	5,910	6,598	7,281	9,503	9,695	9,410
Grade crossing	195	184	126	58	159	123	74	108	117	153	194	208	213	179	233	285
Light rail, total	1,319	1,604	1,087	1,076	1,271	1,338	1,201	557	539	633	618	659	838	950	911	723
Transit only	N	N	N	N	N	1,227	1,147	481	471	519	458	505	669	782	703	472
Grade crossing	N	N	N	N	N	111	54	76	68	114	160	154	169	168	208	251
Heavy rail, total	11,238	11,093	12,285	11,059	9,665	10,848	10,641	4,806	4,158	4,738	3,814	4,721	4,789	7,011	7,158	6,976
Transit only	N	N	N	N	N	10,847	10,634	4,801	4,158	4,738	3,813	4,721	4,773	7,008	7,157	6,974
Grade crossing	N	N	N	N	N	1	7	5	0	0	1	0	16	3	1	2
Commuter rail, total	2,374	1,953	2,388	1,677	1,761	1,783	1,813	1,483	1,597	1,364	1,672	1,426	1,867	1,700	1,808	1,905
Transit only	N	N	N	N	N	1,772	1,800	1,456	1,548	1,325	1,639	1,372	1,839	1,694	1,784	1,874
Grade crossing	N	N	N	N	N	11	13	27	49	39	33	54	28	6	24	31

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

NOTES

Light rail and *Heavy rail Grade crossings* are regulated by the Federal Transit Administration. The Federal Transit Administration defines two types of *Grade crossings* : (1) At grade, mixed, and cross traffic crossings, meaning railway right-of-way over which other traffic moving in the same direction or other cross directions may pass. This includes city street right-of-way; (2) At grade with cross traffic crossings, meaning railway right-of-way over which no other traffic may pass, except to cross at grade-level crossings. This can include median strip rights-of-way with grade level crossings at intersecting streets.

Commuter rail Grade crossings are regulated by the Federal Railroad Administration. The Federal Railroad Administration defines a *Grade crossing* as a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade.

The drop in the number of *Injuries* beginning from 2002 is due largely to a change in definitions by the Federal Transit Administration. The *Injury* threshold for filing an incident report changed to be two or more *Injuries* requiring immediate medical transportation away from the scene, or one or more *Injuries* requiring immediate medical transportation away from the scene in the case of incidents at grade crossings or along rail right-of-ways in 2002. Previously, any *Injury* was reportable. Further, there were National Transportation Database definition changes made in 2008 to simplify the *Injury* thresholds for filing an incident report. FTA simplified this threshold to being simply one or more *Injuries* requiring immediate medical transportation away from the scene. This simplification resulted in larger reported number in *Injuries* since 2008.

All transit rail, total includes data for other transit rail modes which are not presented in this table (such as monorail), thus details may not add to totals.

SOURCE

U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis Annual Report* , (Washington, DC: Annual Issues), available at http://transit-safety.volpe.dot.gov/ as of Apr. 5, 2006, and personal communications on June 8, 2005, Apr. 5, 2006, June 14, 2007, June 18, 2008, Aug. 20, 2010, and Apr. 20, 2011.

Table 2-37: Transit and Grade-Crossing Incidents by Rail Transit Mode

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	(R) 2008	(R) 2009	(P) 2010
All transit rail, total	18,450	17,547	19,402	17,047	15,877	16,173	15,864	9,903	8,286	8,751	8,534	8,889	9,883	9,514	9,732	9,541
Transit only	18,323	17,413	19,283	16,941	15,737	16,025	15,763	9,505	8,010	8,440	7,999	8,713	9,700	9,340	9,558	9,358
Grade crossing	127	134	119	106	140	148	101	398	276	311	535	176	183	174	174	183
Light rail, total	1,276	1,350	1,173	1,121	1,182	1,319	1,299	1,105	983	931	1,130	1,138	1,190	872	773	585
Transit only	1,178	1,253	1,107	1,055	1,079	1,213	1,245	785	766	693	689	1,041	1,090	759	667	470
Grade crossing	98	97	66	66	103	106	54	320	217	238	441	97	100	113	106	115
Heavy rail, total	14,327	13,748	15,151	13,516	12,196	12,782	12,406	7,078	5,554	6,222	5,741	6,176	6,753	6,932	6,985	6,808
Transit only	14,325	13,746	15,146	13,513	12,195	12,781	12,398	7,076	5,553	6,221	5,740	6,173	6,748	6,927	6,982	6,807
Grade crossing	2	2	5	3	1	1	8	2	1	1	1	3	5	5	3	1
Commuter rail, total	2,847	2,449	3,078	2,410	2,499	2,072	2,159	1,720	1,749	1,598	1,663	1,575	1,940	1,688	1,924	2,074
Transit only	2,820	2,414	3,030	2,373	2,463	2,031	2,120	1,644	1,691	1,526	1,570	1,499	1,862	1,635	1,859	2,008
Grade crossing	27	35	48	37	36	41	39	76	58	72	93	76	78	53	65	66

KEY: P = preliminary.

NOTES

Light rail and *heavy rail Grade crossings* are regulated by the Federal Transit Administration. The Federal Transit Administration (FTA) 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 National Transportation Database.The injury threshold for filing an incident report changed to be two or more injuries requiring immediate medical transportation away from the scene, or one or more injuries requiring immediate medical transportation away from the scene in the case of incidents at grade crossings or along rail right-of-ways in 2002. Previously, any injury was reportable. Further, there were National Transportation Database definition changes made in 2008 to simplify the injury thresholds for filing an incident report. FTA simplified this threshold to being simply one or more injuries requiring immediate medical transportation away from the scene.

All transit rail, total includes data for other transit rail modes which are not presented in this table (such as monorail), thus details may not add to totals.

SOURCE

U.S. Department of Transportation, Federal Transit Administration, *Transit Safety and Security Statistics and Analysis Annual Report* , (Washington, DC: Annual Issues), available at http://transit-safety.volpe.dot.gov/ as of Apr. 5, 2006, and personal communications on June 8, 2005, Apr. 5, 2006, June 14, 2007, June 18, 2008, Aug. 20, 2010, and Apr. 20, 2011.

Table 2-38: Reports of Violent Crime, Property Crime, and Arrests by Transit Mode

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Reported Offenses, Violent Crime																
Homicide[a]	19	20	19	51	21	12	16	0	4	1	1	2	4	9	9	14
Motor bus	8	9	6	40	7	7	8	0	2	0	1	0	4	3	4	6
Commuter rail	1	1	4	1	3	1	2	0	1	0	0	2	0	0	0	0
Demand responsive	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy rail	8	9	8	6	11	4	4	0	1	1	0	0	0	4	4	7
Light rail	2	1	1	4	0	0	2	0	0	0	0	0	0	2	1	1
Other[b]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forcible rape[c]	29	38	31	47	27	37	37	65	25	24	23	5	1	4	3	6
Motor bus	11	13	10	16	14	10	7	40	2	7	11	1	0	1	0	2
Commuter rail	5	4	7	1	3	3	5	1	3	0	2	0	0	1	0	0
Demand responsive	0	0	2	4	1	0	1	0	0	1	0	0	0	0	0	0
Heavy rail	13	19	8	24	8	20	9	20	15	12	4	3	0	2	1	2
Light rail	0	2	4	2	0	4	2	4	5	4	6	1	1	0	2	2
Other[b]	0	0	0	0	1	0	13	0	0	0	0	0	0	0	0	0
Robbery[d]	2,811	4,563	4,760	3,684	3,789	3,480	3,308	1,641	1,408	1,561	1,656	2,222	2,634	2,799	2,849	2,077
Motor bus	909	871	870	605	764	916	953	386	369	476	535	730	800	882	915	611
Commuter rail	181	242	187	133	183	144	144	89	29	44	107	126	110	91	92	76
Demand responsive	1	3	0	1	3	4	4	7	1	0	2	14	1	5	4	1
Heavy rail	1,490	3,164	3,394	2,686	2,588	2,174	1,966	864	762	676	630	861	1,196	1,239	1,302	1,000
Light rail	181	238	222	220	200	213	217	287	236	353	377	463	486	554	512	352
Other[b]	49	45	87	39	51	29	24	8	11	12	5	28	41	28	24	37
Aggravated assault[e]	2,701	3,084	3,105	2,314	2,448	2,217	2,286	2,560	1,638	1,330	1,332	1,768	2,066	310	300	0
Motor bus	1,941	1,677	1,294	1,186	1,268	1,070	1,146	1,383	957	774	760	1,007	1,263	205	192	0
Commuter rail	133	69	92	80	97	58	109	102	33	78	115	172	107	3	4	0
Demand responsive	6	13	13	13	14	16	8	24	4	3	6	19	11	0	0	0
Heavy rail	437	1,074	1,051	837	903	839	786	815	395	279	249	334	421	60	68	0
Light rail	157	199	143	170	135	208	187	227	220	184	177	217	235	35	33	0
Other[b]	27	52	512	28	31	26	50	9	29	12	25	19	29	7	3	0
Reported Offenses, Property Crime																
Theft[f]	10,596	13,238	14,486	11,830	12,896	13,393	13,636	12,843	8,146	7,847	6,007	6,409	7,943	8,446	9,267	5,959
Motor bus	2,738	3,408	2,920	2,327	2,487	2,548	2,826	2,631	1,846	1,787	1,593	1,520	1,560	1,996	2,236	1,587
Commuter rail	2,238	2,262	2,345	2,021	1,872	2,139	2,001	1,912	563	730	1,224	1,449	1,293	1,255	1,078	1,001
Demand responsive	2	8	40	15	4	19	5	42	8	4	2	13	1	9	8	8
Heavy rail	4,625	6,794	8,321	6,807	7,789	7,856	7,807	7,158	4,802	4,396	2,204	2,527	4,121	4,053	4,695	2,504
Light rail	451	609	479	496	530	724	706	1,055	877	915	856	847	919	1,108	1,202	810
Other[b]	542	157	381	164	214	107	291	45	50	15	128	53	49	25	48	49
Vehicle theft[g]	2,182	2,261	2,276	2,225	1,876	2,112	1,909	2,117	1,800	1,584	1,361	1,051	1,756	1,442	1,008	547
Motor bus	263	306	198	208	198	169	213	222	149	169	382	229	206	172	125	141
Commuter rail	253	125	262	470	272	367	308	152	67	63	54	126	84	78	38	20
Demand responsive	0	1	3	9	28	6	6	5	3	1	0	8	0	5	0	3
Heavy rail	1,536	1,694	1,630	1,234	1,203	1,285	1,143	1,426	1,267	966	490	388	1,140	902	583	140
Light rail	128	135	179	273	156	279	226	310	306	385	434	298	322	277	254	240
Other[b]	2	0	4	31	19	6	13	2	8	0	1	2	4	8	8	3
Burglary[h]	1,759	1,650	1,757	491	415	563	625	467	429	601	393	681	2,947	1,338	1,278	1,289
Motor bus	156	104	94	75	86	142	120	95	79	160	142	100	2,125	76	63	27
Commuter rail	178	177	260	217	170	191	188	78	83	96	112	154	94	71	45	25
Demand responsive	2	0	4	3	1	6	2	2	2	1	1	1	1	0	1	0
Heavy rail	1,367	1,278	1,343	110	91	82	119	95	53	40	25	54	525	1,005	1,045	266
Light rail	43	78	48	70	42	131	180	197	212	303	105	367	195	182	123	970
Other[b]	13	13	8	16	25	11	16	0	0	1	8	5	7	4	1	1
Arson[i]	63	96	75	60	53	50	44	23	23	42	27	26	26	0	1	0
Motor bus	29	67	33	21	15	24	12	8	9	23	11	13	8	0	1	0
Commuter rail	14	1	21	10	12	6	9	8	3	2	2	1	3	0	0	0
Demand responsive	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Heavy rail	14	22	16	27	20	16	15	4	10	7	2	5	8	0	0	0
Light rail	6	6	5	2	6	4	8	0	1	10	12	6	5	0	0	0
Other[b]	0	0	0	0	0	0	0	3	0	0	0	1	1	0	0	0

Reported Offenses, Arrests																
Other assaults[j]	2,991	3,088	2,697	2,787	2,641	2,799	2,441	1,589	1,752	1,546	1,530	2,141	2,266	2,748	2,702	2,139
Motor bus	1,896	1,571	1,439	1,400	1,217	1,159	1,024	715	800	710	703	1,023	954	1,209	1,152	1,065
Commuter rail	144	106	140	122	164	142	156	72	37	136	181	196	245	217	221	229
Demand responsive	4	0	16	3	4	3	6	12	2	3	3	29	47	38	28	6
Heavy rail	645	932	881	898	888	1,085	999	662	750	572	462	630	708	860	852	502
Light rail	181	330	195	282	269	354	204	101	153	107	164	214	248	344	376	317
Other[b]	121	149	26	82	99	56	52	27	10	18	17	49	64	80	73	20
Vandalism[k]	17,228	8,627	9,539	6,571	6,895	7,312	2,971	1,130	953	994	1,298	1,748	1,751	1,493	1,184	843
Motor bus	13,343	6,167	5,262	3,656	4,178	4,579	1,410	523	456	429	568	589	673	701	560	416
Commuter rail	1,071	309	659	778	507	264	293	145	9	122	276	507	371	252	82	112
Demand responsive	12	17	8	10	16	7	9	7	2	0	5	5	3	6	0	3
Heavy rail	1,157	1,339	1,128	1,067	1,222	1,200	984	190	220	201	209	213	327	257	279	101
Light rail	1,505	609	2,084	947	892	1,215	246	256	246	235	233	408	346	250	238	179
Other[b]	140	186	398	113	80	47	29	9	20	7	7	26	31	27	25	32
Sex offenses[l]	664	803	1,047	962	1,009	844	798	N	N	N	N	N	N	N	N	N
Motor bus	242	260	363	258	321	220	178	N	N	N	N	N	N	N	N	N
Commuter rail	100	41	82	91	85	84	80	N	N	N	N	N	N	N	N	N
Demand responsive	5	0	6	2	5	1	3	N	N	N	N	N	N	N	N	N
Heavy rail	249	430	517	541	515	477	474	N	N	N	N	N	N	N	N	N
Light rail	59	71	79	68	80	58	60	N	N	N	N	N	N	N	N	N
Other[b]	9	1	0	2	3	4	3	N	N	N	N	N	N	N	N	N
Drug abuse violations[m]	2,578	3,944	4,355	3,792	4,131	4,083	4,339	N	N	N	N	N	N	N	N	N
Motor bus	1,037	2,122	1,970	1,414	1,705	1,443	1,179	N	N	N	N	N	N	N	N	N
Commuter rail	303	393	477	495	303	196	389	N	N	N	N	N	N	N	N	N
Demand responsive	1	0	15	21	8	1	2	N	N	N	N	N	N	N	N	N
Heavy rail	1,078	1,130	1,530	1,550	1,606	1,915	2,015	N	N	N	N	N	N	N	N	N
Light rail	151	298	336	271	501	520	739	N	N	N	N	N	N	N	N	N
Other[b]	8	1	27	41	8	8	15	N	N	N	N	N	N	N	N	N
Driving under the influence[n]	466	129	205	176	204	194	284	N	N	N	N	N	N	N	N	N
Motor bus	91	82	101	101	132	67	156	N	N	N	N	N	N	N	N	N
Commuter rail	26	21	22	21	12	44	26	N	N	N	N	N	N	N	N	N
Demand responsive	0	0	1	4	0	0	1	N	N	N	N	N	N	N	N	N
Heavy rail	52	8	22	21	42	39	57	N	N	N	N	N	N	N	N	N
Light rail	292	16	31	21	15	33	22	N	N	N	N	N	N	N	N	N
Other[b]	5	2	28	8	3	11	22	N	N	N	N	N	N	N	N	N
Drunkenness[o]	10,479	6,921	8,632	12,643	11,487	6,087	8,033	N	N	N	N	N	N	N	N	N
Motor bus	6,457	3,936	5,346	3,046	3,609	3,337	4,693	N	N	N	N	N	N	N	N	N
Commuter rail	71	23	226	156	112	170	108	N	N	N	N	N	N	N	N	N
Demand responsive	2	2	46	34	2	1	4	N	N	N	N	N	N	N	N	N
Heavy rail	1,511	1,617	1,601	7,340	5,831	1,240	1,308	N	N	N	N	N	N	N	N	N
Light rail	2,255	1,305	1,258	1,844	1,913	1,316	1,598	N	N	N	N	N	N	N	N	N
Other[b]	183	38	155	223	20	23	322	N	N	N	N	N	N	N	N	N
Disorderly conduct[p]	22,206	26,178	25,325	15,897	15,971	27,314	32,569	N	N	N	N	N	N	N	N	N
Motor bus	4,681	5,025	6,978	4,521	5,471	3,745	3,253	N	N	N	N	N	N	N	N	N
Commuter rail	810	1,085	1,399	1,525	797	706	607	N	N	N	N	N	N	N	N	N
Demand responsive	5	8	47	5	5	6	2	N	N	N	N	N	N	N	N	N
Heavy rail	15,258	19,183	15,309	8,227	7,856	21,087	27,626	N	N	N	N	N	N	N	N	N
Light rail	1,164	800	1,177	1,408	1,767	1,737	1,046	N	N	N	N	N	N	N	N	N
Other[b]	288	77	415	211	75	33	35	N	N	N	N	N	N	N	N	N
Trespassing[q]	3,362	3,497	7,444	6,049	3,670	4,303	4,597	2,278	4,126	3,162	3,220	4,503	4,919	6,402	6,296	4,863
Motor bus	928	604	1,225	1,283	1,065	1,329	1,040	937	1,262	1,115	1,138	1,392	1,290	1,951	2,312	1,941
Commuter rail	845	674	4,150	2,850	1,080	709	1,034	475	270	664	730	1,033	1,150	1,271	601	606
Demand responsive	0	0	2	2	0	0	0	13	2	1	12	36	6	30	46	55
Heavy rail	1,155	1,208	1,398	1,254	1,044	1,267	1,228	483	616	663	634	853	1,058	1,305	1,184	663
Light rail	400	653	463	443	436	985	1,278	349	1,951	699	677	1,151	1,376	1,823	2,106	1,562
Other[b]	34	358	206	217	45	13	17	21	25	20	29	38	39	22	47	36
Fare evasion[r]	33,903	47,873	53,406	58,856	55,194	53,863	47,258	74,385	69,950	103,156	129,590	126,092	135,602	197,819	249,004	167,746
Motor bus	3,172	2,372	1,819	1,694	2,388	591	847	3,089	7,427	10,270	21,787	4,372	5,181	8,869	8,832	10,950
Commuter rail	140	334	310	204	167	179	566	3,849	3,873	73	194	11,768	346	2,759	1,323	309
Demand responsive	1	1	2	5	1	3	5	201	1	43	2	448	5	1	1	5
Heavy rail	8,247	39,957	46,106	40,350	35,033	28,933	24,852	20,469	16,459	25,775	15,901	12,611	21,666	20,754	32,082	24,684
Light rail	22,212	1,185	912	12,798	17,320	24,124	20,945	46,766	42,187	66,991	91,701	96,868	108,388	165,428	206,750	131,791
Other[b]	131	4,024	4,257	3,805	285	33	43	11	3	4	5	25	16	8	16	7
Curfew and loitering laws[s]	1,878	872	1,960	1,161	3,022	3,630	3,391	N	N	N	N	N	N	N	N	N
Motor bus	1,201	241	1,112	291	495	469	403	N	N	N	N	N	N	N	N	N
Commuter rail	19	27	223	72	172	329	330	N	N	N	N	N	N	N	N	N
Demand responsive	0	1	5	0	0	0	0	N	N	N	N	N	N	N	N	N
Heavy rail	462	493	530	680	1,789	2,324	2,396	N	N	N	N	N	N	N	N	N
Light rail	161	95	80	106	509	498	251	N	N	N	N	N	N	N	N	N
Other[b]	35	15	10	12	57	10	11	N	N	N	N	N	N	N	N	N

KEY: N = data do not exist.

[a] The killing of one or more human beings by another. This includes murder, non-negligent manslaughter, and manslaughter by negligence.

[b] Other transit mode includes automated guideway, cable car, ferryboat, trolleybus, vanpool, monorail, inclined plane, and starting in 2001, the Alaska Railroad.

[c] The carnal knowledge of a female forcibly and against her will. This includes assault to rape or attempt to rape. Beginning in 2006 a higher threshold was required for an incident to be recorded, this led to a significant decrease compared to previous years.

[d] The taking or attempting to take anything of value from the care, custody, or control of a person or persons by force or threat of force or violence and/or by putting the victim in fear. The use or threat of force includes firearms, knives or cutting instruments, other dangerous weapons (clubs, acid, explosives), and strong-arm techniques (hands, fists, feet).

[e] An unlawful attack by one person upon another for the purpose of inflicting severe or aggravated bodily injury. This type of assault usually is accompanied by the use of a weapon or by means likely to produce death or great bodily harm.

[f] The unlawful taking, carrying, leading, or riding away of property from the possession or constructive possession of another. This includes pocket-picking, purse-snatching, shoplifting, thefts from motor vehicles, thefts of motor vehicle parts and accessories, theft of bicycles, theft from buildings, theft from coin-operated devices or machines, and all other theft not specifically classified.

[g] The theft or attempted theft of a motor vehicle. A motor vehicle is a self-propelled vehicle that runs on the surface of land and not on rails. Examples of motor vehicles are automobiles, trucks, buses, motor cycles, and motor scooters.

[h] The unlawful entry of a structure to commit a felony or a theft. This includes offenses known locally as burglary (any degree), unlawful entry with intent to commit a larceny or felony, breaking and entering with intent to commit a larceny, housebreaking, safe-cracking, and all attempts at these offenses.

[i] To unlawfully and intentionally damage, or attempt to damage, any real or personal property by fire or incendiary device.

[j] An unlawful attack or attempt by one person upon another where no weapon was used or which did not result in serious or aggravated injury to the victim. This includes simple assault, minor assault, assault and battery, injury by culpable negligence, intimidation, coercion, hazing, and all attempts to commit these offenses.

[k] The willful or malicious destruction, injury, disfigurement, or defacement of any public or private property, real or personal, without consent of the owner or person having custody or control by cutting, tearing, breaking, marking, painting, drawing, covering with filth, or any other such means as may be specified by local law.

[l] Any sexual acts except forcible rape, prostitution, and commercialized vice. This includes offenses against chastity, common decency, morals, and the like, such as: adultery and fornication, buggery, incest, indecent exposure, indecent liberties, seduction, sodomy or crime against nature, statutory rape (no force), and all attempts to commit any of the above.

[m] Arrests requested based on the narcotics used. This includes all arrests for violations of state and local laws, specifically those relating to the unlawful possession, sale, use, growing, manufacturing, and making of narcotic drugs.

[n] The driving or operating of any vehicle or common carrier while drunk or under the influence of liquor or narcotics.

[o] Arrests for all offenses of drunkenness, which is the consumption of alcoholic beverages to the extent that one's mental faculties and physical coordination are substantially impaired. This includes drunkenness, drunk and disorderly, common or habitual drunkard, and intoxication.

[p] All charges of committing a breach of the peace. This includes, affray; unlawful assembly; disturbing the peace; disturbing meetings; disorderly conduct in state institutions, at court, at fairs, on trains or public conveyances, etc.; blasphemy, profanity, and obscene language; desecrating the flag; refusing to assist an officer; and all attempts to commit any of the above.

[q] To unlawfully enter land, a dwelling, or other real property.

[r] The unlawful use of transit facilities by riding without paying the applicable fare.

[s] All arrests for violations of local curfew or loitering ordinances where such laws exist.

NOTES

Data are from transit agencies in urbanized areas over 200,000 population and include patrons, employees, and others.

The figures for violent and property crime follow the *FBI Uniform Crime Reporting Handbook* (Washington, DC: 1984) and are based on records of calls for service, complaints, and/or investigations. These figures are for reported offenses and do not reflect the findings of a court, coroner, jury, or decision of a prosecutor.

Security data was first reported to the Federal Transit Administration in 1995 and was not compiled for earlier years.

Beginning in 2002, data are no longer collected for the following offenses: *Sex offenses, Drug abuse violations, Driving under the influence, Drunkenness, Disorderly conduct, and Curfew and loitering laws*.

Analysts for the FTA believe the change in reporting requirements in 2002 may have resulted in unreliable data in that year. The reliability of reporting is believed to be much better in 2003 and is expected to improve in the future.

An *Aggravated Assault*, *Robbery* or *Theft* has the potential to be either a reportable incident or a Safety and Security Monthly Summary incident, only the incidents meeting the thresholds are reported on the Reportable Incident form (S&S-40) e.g., injuries requiring immediate medical attention away from the scene for one or more persons. Prior to 2008, these Part I offenses were reported on occurrence, thus there were higher report totals for previous years.

Prior to 2010, an unconfirmed injury had the potential of resulting into reports of *Aggravated assault*. In the 2010 manual clarification was made in the definition, arrests/citations with no reportable injuries now results in *Other assaults* category. The distinction was clarified in the 2010 Safety and Security reporting manual.

SOURCES

1995-2001: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database,* available at http://www.ntdprogram.gov/ntdprogram as of May 6, 2003, tables 25-27 and similar tables in earlier editions.

2002-05: Ibid., personal communications June 14, 2007.

2006-10: Federal Transit Administration, Office of Safety and Security, personal communication, Oct. 1, 2009, and May 11, 2011.

Section E
Railroad

Table 2-39: Railroad and Grade-Crossing Fatalities by Victim Class

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Passengers on trains	4	3	3	8	3	58	5	0	12	6	4	14	4	3	7	3	3	16	2	5	24	3	3
Railroad only	4	3	3	8	3	58	5	0	12	6	2	3	4	3	7	2	3	16	2	5	24	3	3
Grade crossing	0	0	0	0	0	0	0	0	0	0	2	11	0	0	0	1	0	0	0	0	0	0	0
Employees on duty	97	46	40	35	34	47	31	34	33	37	27	31	24	22	20	19	25	25	16	17	(R) 26	16	20
Railroad only	97	44	35	34	32	44	30	32	32	37	23	29	22	21	19	18	23	23	12	16	(R) 23	16	20
Grade crossing	0	2	5	1	2	3	1	2	1	0	4	2	2	1	1	1	2	2	4	1	3	0	0
Employees not on duty	4	2	0	1	1	4	0	2	0	0	2	0	1	0	1	1	0	0	0	0	0	0	0
Railroad only	3	2	0	1	1	4	0	2	0	0	2	0	1	0	1	1	0	0	0	0	0	0	0
Grade crossing	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contractor employees	7	4	3	3	11	6	3	7	9	11	5	12	3	4	10	5	4	5	7	5	5	4	3
Railroad only	7	4	3	3	10	6	3	7	9	11	5	11	3	4	9	4	4	5	7	5	5	4	3
Grade crossing	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0
Nontrespassers[a]	739	507	551	484	475	489	505	443	365	363	326	305	335	269	267	205	242	250	237	(R) 200	(R) 159	(R) 123	137
Railroad only	16	10	15	16	12	18	44	32	27	15	9	8	19	11	18	8	18	23	2	16	5	(R) 8	8
Grade crossing	723	497	536	468	463	471	461	411	338	348	317	297	316	258	249	197	224	227	235	(R) 184	(R) 154	(R) 115	129
Trespassers	566	474	700	663	646	675	682	660	620	646	644	570	570	673	646	635	621	588	641	(R) 624	(R) 590	(R) 549	577
Railroad only	457	391	543	524	533	523	529	494	471	533	536	479	463	511	540	501	475	458	511	470	(R) 457	(R) 417	445
Grade crossing	109	83	157	139	113	152	153	166	149	113	108	91	107	162	106	134	146	130	130	(R) 154	(R) 133	(R) 132	132
Volunteer employees	N	N	N	N	N	N	N	N	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Railroad only	N	N	N	N	N	N	N	N	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grade crossing	N	N	N	N	N	N	N	N	N	0	0	0	0	0	0	0	0	0	0	0	0	0	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	884	903	(R) 851	(R) 804	(R) 695	740
Railroad only	584	454	599	586	591	653	611	567	551	602	577	530	512	550	594	534	523	525	534	512	(R) 514	(R) 448	479
Grade crossing[b]	833	582	698	608	579	626	615	579	488	461	431	402	425	421	357	334	372	359	369	(R) 339	(R) 290	247	261
Motor vehicles[b]	748	521	614	535	506	554	542	508	415	419	369	345	361	345	310	281	290	284	305	(R) 265	(R) 221	(R) 180	169
Nonmotor vehicles[b]	85	61	84	73	73	72	72	72	72	42	62	57	64	76	47	53	82	75	64	74	69	(R) 67	93

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

[a] Beginning in 1997, *Nontrespassers* off railroad property are also included.
[b] The components of *Grade crossing* data were revised at a different point in time from the total *Grade crossing* data and may not sum to the total of *Grade crossing* data.

NOTES

Railroad only includes fatalities from train accidents, train incidents, and nontrain incidents (excludes highway-rail grade crossings). This table includes information for both freight and passenger railroad operations. Details may not add to totals due to rounding.

SOURCES

All, except grade crossing total, motor vehicles, nonmotor vehicles:
1980-94: U.S. Department of Transportation, Federal Railroad Administration, *Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual Issues), and the Accident/Incident Bulletin (Washington DC: Annual Issues).
1995-2004: Ibid., personal communication, May 14, 2008, and table 4.08, available at http://safetydata.fra.dot.gov/OfficeofSafety as of Sept. 16, 2009.
2005: Ibid., *Railroad Safety Statistics Preliminary Annual Report* (Washington, DC: March 2011 Issue), table 1-3, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of June 9, 2011.
2006-10: Ibid., *Railroad Safety Statistics Preliminary Annual Report* (Washington, DC: May 2011 Issue), table 1-3, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of June 9, 2011.
Grade crossing total, motor vehicles, nonmotor vehicles:
1980-94: U.S. Department of Transportation, Federal Railroad Administration, *Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual Issues), and the Accident/Incident Bulletin (Washington DC: Annual Issues).
1995-2004: Ibid., personal communication, May 14, 2008, and table 4.08, available at http://safetydata.fra.dot.gov/OfficeofSafety as of Sept. 16, 2009.
2005-10: Ibid., *Highway-Rail Incidents by Type Major User from Form FRA F 6180.57* , table 5.11, Hwy/Rail Incidents Summary Tables, available at http://safetydata.fra.dot.gov/OfficeofSafety/Default.aspx as of June 9, 2011.

Table 2-40: Railroad and Grade-Crossing Injured Persons by Victim Class

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	2010
Passengers on trains	593	657	473	382	411	559	497	573	513	601	535	481	658	746	877	727	703	957	935	1,517	1,322	1,169	1,278
Railroad only	569	646	462	360	329	515	413	543	489	558	516	438	648	726	851	653	675	924	840	1,445	1,221	1,109	1,192
Grade crossing	24	11	11	22	82	44	84	30	24	43	19	43	10	20	26	74	28	33	95	72	101	60	86
Employees on duty	56,331	29,822	20,970	19,626	17,755	15,363	13,080	10,777	9,199	8,595	8,398	8,622	8,423	7,815	6,644	6,258	6,022	5,822	5,275	5,449	4,991	4,465	4,330
Railroad only	56,186	29,667	20,801	19,479	17,598	15,220	12,955	10,654	9,120	8,484	8,276	8,482	8,323	7,718	6,534	6,182	5,906	5,711	5,179	5,344	4,916	4,394	4,248
Grade crossing	145	155	169	147	157	143	125	123	79	111	122	140	100	97	110	76	116	111	96	105	75	71	82
Employees not on duty	671	419	326	362	310	348	306	252	228	263	219	216	286	209	213	226	200	172	169	177	160	148	135
Railroad only	669	418	324	362	309	347	305	248	226	260	216	215	283	208	213	226	196	169	167	176	159	148	135
Grade crossing	2	1	2	0	1	1	1	4	2	3	3	1	3	1	0	0	4	3	2	1	1	0	0
Contractor employees	74	110	242	219	226	262	252	269	208	334	380	384	368	383	375	372	360	415	407	444	438	357	437
Railroad only	74	109	240	216	224	261	251	268	208	333	379	384	367	380	374	370	359	413	407	414	435	354	435
Grade crossing	0	1	2	3	2	1	1	1	0	1	1	0	1	3	1	2	1	2	0	30	3	3	2
Nontrespassers[a]	3,849	2,562	2,339	2,110	1,909	1,856	1,913	1,869	1,660	1,540	1,236	1,342	1,294	1,201	2,380	1,058	1,247	1,496	1,296	1,357	1,397	1,206	1,291
Railroad only	384	285	349	423	408	432	475	372	431	370	243	335	381	388	1,732	393	553	859	645	787	856	836	872
Grade crossing	3,465	2,277	1,990	1,687	1,501	1,424	1,438	1,497	1,229	1,170	993	1,007	913	813	648	665	694	637	651	570	541	370	419
Trespassers	728	734	793	769	772	733	764	700	750	728	677	650	606	627	609	616	657	687	707	687	701	580	636
Railroad only	474	492	560	534	540	509	452	461	474	516	513	445	414	404	395	398	406	420	481	407	433	345	390
Grade crossing	254	242	233	235	232	224	312	239	276	212	164	205	192	223	214	218	251	267	226	280	268	235	246
Volunteer employees	N	N	N	N	N	N	N	N	N	6	14	5	8	4	5	7	5	1	6	8	7	6	4
Railroad only	N	N	N	N	N	N	N	N	N	6	13	5	8	4	5	7	5	1	6	8	7	6	4
Grade crossing	N	N	N	N	N	N	N	N	N	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Railroad only and grade crossing, total	62,246	34,304	25,143	23,468	21,383	19,121	16,812	14,440	12,558	12,067	11,459	11,700	11,643	10,985	11,103	9,264	9,194	9,550	8,795	9,639	9,016	7,931	8,111
Railroad only	58,356	31,617	22,736	21,374	19,408	17,284	14,851	12,546	10,948	10,527	10,156	10,304	10,424	9,828	10,104	8,229	8,100	8,497	7,725	8,581	8,027	7,192	7,276
Grade crossing[b]	3,890	2,687	2,407	2,094	1,975	1,837	1,961	1,894	1,610	1,540	1,302	1,396	1,219	1,157	999	1,035	1,094	1,053	1,070	1,058	989	739	835
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	1,008	1,037	1,021	924	695	770
Non-motor vehicles[b]	151	126	75	65	84	77	76	69	65	46	46	58	50	47	60	35	36	47	35	41	68	45	66

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

[a] Beginning in 1997, *Nontrespassers* off railroad property are also included.
[b] The components of *Grade crossing* injuries were revised at a different point in time from the total *Grade crossing* injuries and may not sum to the total of *Grade crossing* injuries.

NOTES

Railroad only includes fatalities from train accidents, train incidents, and nontrain incidents (excludes *Highway-rail grade crossings*). This table includes information for both freight and passenger railroad operations.

SOURCES

Railroad only and grade crossing:

1980-94: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety Analysis, *Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual Issues), and *Accident/Incident Bulletin* (Washington, DC: Annual Issues).
1995-2003: Ibid., personal communication as of Apr. 10, 2008 and table 4.08 available at http://safetydata.fra.dot.gov/OfficeofSafety/ as of Sept. 16, 2009.
2004: Ibid., *Railroad Safety Statistics 2008 Annual Report (Washington, DC),* table 1-3, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Publications.aspx as of June 9, 2011.
2005: Ibid., *Railroad Safety Statistics Preliminary Annual Report* (Washington, DC: March 2011 Issue), table 1-3, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of June 9, 2011.
2006-10: Ibid., *Railroad Safety Statistics Preliminary Annual Report* (Washington, DC: May 2011 Issue), table 1-3, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of June 9, 2011.

Motor vehicle and non-motor vehicle:

U.S. Department of Transportation, Federal Railroad Administration, Office of Safety Analysis, *Hwy/Rail Incidents Summary Tables* , table 5.11, available at http://safetydata.fra.dot.gov/OfficeofSafety/ as of June 10, 2011.

Table 2-41: Train Fatalities, Injuries, and Accidents by Type of Accident[a]

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	(R) 2008	(R) 2009	2010
Fatalities, total	29	8	10	19	6	67	12	14	25	18	4	9	10	6	15	4	13	33	6	9	27	4	8
Derailments	8	2	2	10	2	53	2	2	6	2	1	1	2	1	7	1	2	2	3	1	0	1	2
Collisions	20	6	8	5	1	14	8	7	16	10	1	7	1	4	4	0	8	6	0	4	26	0	1
Other	1	0	0	4	3	0	2	5	3	6	2	1	7	1	4	3	3	25	3	4	1	3	5
Injuries, total	665	476	451	326	171	308	262	294	281	185	129	129	275	310	1,884	232	347	790	222	310	322	120	101
Derailments[b]	286	197	272	174	71	179	120	90	98	111	61	41	121	113	1,691	121	104	236	97	71	39	37	47
Collisions	341	223	139	103	59	87	118	151	146	55	32	62	89	145	151	56	160	101	85	188	108	36	28
Other	38	56	40	49	41	42	24	53	37	19	36	26	65	52	42	55	83	453	40	51	175	47	26
Accidents, total	8,205	3,275	2,879	2,658	2,359	2,611	2,504	2,459	2,443	2,397	2,575	2,768	2,983	3,023	2,738	3,019	3,385	3,266	(R) 2,995	(R) 2,692	2,478	1,900	1,859
Derailments	6,442	2,495	2,146	1,936	1,734	1,930	1,825	1,742	1,816	1,741	1,757	1,961	2,112	2,234	1,989	2,133	2,435	(R) 2,305	(R) 2,194	(R) 1,934	1,788	1,360	1,307
Collisions	1,201	366	315	261	207	205	240	235	205	202	168	205	238	220	192	198	237	274	(R) 201	(R) 210	191	133	138
Other	562	414	418	461	418	476	439	482	422	454	650	602	633	569	557	688	713	(R) 687	(R) 600	(R) 548	499	407	414

KEY: R = revised.

[a] Excludes highway-rail grade crossing accidents.
[b] In 2002, 1,441 injures were due to a single derailment in North Dakota involving hazardous materials.

NOTE
This table includes information for both freight and passenger railroad operations. It is train accidents only.

SOURCE
U.S. Department of Transportation, Federal Railroad Administration, Office of Safety Analysis, *Train Accidents by Type and Major Cause from Form FRA F 6180.54* , table 3.09, Accident Summary Tables, available at http://safetydata.fra.dot.gov/OfficeofSafety/ as of June 10, 2011.

Table 2-42: Railroad Passenger Safety Data

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	(P) 2010
Passenger fatalities[a]	3	8	3	58	5	0	12	6	4	14	4	3	7	3	3	16	2	5	24	3	3
Injured persons	473	382	411	559	497	573	513	601	535	481	658	746	877	727	703	957	935	(R) 1,517	(R) 1,322	(R) 1,169	1,278
Train-miles, passenger trains (millions)	72	74	74	75	75	76	77	78	78	82	84	88	90	89	89	90	92	95	98	103	104
Fatalities per 100 million passenger train-miles	4.2	10.8	4.1	77.3	6.7	0.0	15.6	7.7	5.1	17.0	4.7	3.4	7.8	3.4	3.4	17.8	2.2	5.2	24.5	2.9	2.9
Injuries per 100 million passenger train-miles	656.9	516.2	555.4	745.3	662.7	753.9	666.2	770.2	682.5	583.6	780.7	850.1	979.1	813.3	787.0	1,064.5	1,016.8	(R) 1,591.0	(R) 1,348.3	(R) 1,135.6	1,226.5

KEY: R = revised.

Three major train accidents accounted for the increase in the number of deaths in 1993, 2005 and 2008. Two major train accidents accounted for the increase in the number of injuries in 2007. In 1993 a barge struck a rail bridge in Alabama causing an Amtrak train to derail into the waterway below leading to 42 passenger deaths. In 2005, a Southern California Regional Rail Authority train struck a jeep at a non-grade crossing location, derailed and struck a UPRR locomotive, which caused the train to strike another Southern California Regional Rail Authority train. The total passenger fatalities from both trains were 10. In 2008, a Southern California Regional Rail Authority train ran a red signal and collided head-on with a Union Pacific RR Co. freight, which lead to 24 passenger deaths.

NOTES

from a vehicle-mile, which is the movement of 1 car (vehicle) the distance of 1 mile. A 10-car (vehicle) train traveling 1 mile would be measured as 1 *Train-mile* and 10 vehicle-miles. Caution should be used when comparing *Train-miles* to vehicle miles.

Passenger fatalities and *Injured persons* include passengers on trains only.

SOURCES

Fatalities and injuries:

Statistics Annual Report (Washington, DC: Annual Issues), table 1-2, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Publications.aspx as of Sept. 8, 2010.

Statistics 2008 Annual Report (Washington, DC), table 1-2, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Publications.aspx as of June 10, 2011.

1999-2010: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety, *Railroad Safety Statistics 2009 Preliminary Annual Report* (Washington, DC: Reporting month of February 2011), table 1-2, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of June 10, 2011.

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).

2007 Annual Report (Washington, DC), table 2-4, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Publications.aspx as of Sept. 8, 2010.

Statistics Annual Report (Washington, DC: Annual Issues), table 2-4, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Publications.aspx as of June 10, 2011.

2009: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety, *Railroad Safety Statistics 2009 Preliminary Annual Report* (Washington, DC: Reporting month of December 2010), table 2-4, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of June 10, 2011.

2010: U.S. Department of Transportation, Federal Railroad Administration, Office of Safety, *Railroad Safety Statistics 2009 Preliminary Annual Report* (Washington, DC: Reporting month of February 2011), table 2-4, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of June 10, 2011.

Table 2-43: Railroad System Safety and Property Damage Data (Excludes highway-rail grade-crossing accidents)

	1970	1975	1980	1985	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	(R) 2007	(R) 2008	(R) 2009	2010
Fatalities	785	575	584	454	599	567	551	602	577	530	512	550	594	531	520	525	534	512	514	448	477
Injured persons[a]	17,934	50,138	58,696	31,617	22,736	12,546	10,948	10,227	10,156	10,304	10,424	9,828	10,104	8,229	8,100	8,497	(R) 7,725	8,581	8,030	7,201	7,314
Accidents[b]	8,095	8,041	8,205	3,275	2,879	2,459	2,443	2,397	2,575	2,768	2,983	3,023	2,738	3,019	3,385	(R) 3,266	(R) 2,995	2,692	2,478	1,900	1,859
Train-miles (millions)[c,d]	839	755	718	571	609	670	671	677	683	712	723	712	729	743	770	789	809	789	770	664	703
Rate per 100 million train-miles																					
Fatalities	94	76	81	80	98	85	82	89	84	74	71	77	82	71	68	67	66	65	67	68	68
Injuries	N	6,641	8,179	5,538	3,735	1,873	1,632	1,511	1,487	1,446	1,442	1,381	1,387	1,107	1,052	1,077	(R) 955	1,087	1,043	1,085	1,040
Accidents	965	1,065	1,143	574	473	367	364	354	377	389	413	425	376	406	440	414	370	341	322	286	264
Property damage (current $ millions)	121.6	177.4	267.4	179.3	198.7	189.2	212.3	210.7	233.9	245.1	263.2	314.5	266.5	298.3	325.9	(R) 339.9	322.5	314.7	299.1	227.2	250.8

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

[a] 1970 injuries are not comparable to later years due to a change in reporting system

[b] Train accidents only; excludes highway-rail grade-crossing accidents

[c] *Train-miles* in this table differ from *Train-miles* in the vehicle-miles table in Chapter 1. *Train-miles* reported in Chapter 1 include only Class I rail (see glossary for definition), while this table includes Class I rail, Group II rail, and other rail. In 2005, Group II rail accounted for 78 million *Train-miles*, and other rail for 29 million *Train-miles*. Moreover, the vehicle-miles table in Chapter 1 includes only *Train-miles* between terminals and/or stations, thus excluding yard and switching miles. In 2009, Class I yard/switching *Train-miles* totaled 63 million *Train-miles*. Note that commuter rail safety data are reported in the rail mode and the transit mode. Commuter rail *Train-miles* are included in Class I rail and Group II rail in this table.

[d] A *Train-mile* is the movement of a train (which can consist of many cars) the distance of 1 mile. A *Train-mile* differs from a vehicle-mile, which is the movement of 1 car (vehicle) the distance of 1 mile. A 10-car (vehicle) train traveling 1 mile would be measured as 1 *Train-mile* and 10 vehicle-miles. Caution should be used when comparing *Train-miles* to vehicle-miles.

NOTE

This table includes information for both freight and passenger railroad operations.

SOURCES

Fatalities, injuries, accidents, and property damage:

1970-90: U.S. Department of Transportation, Federal Railroad Administration, Office of Policy and Program Development, *Accident/Incident Bulletin* (Washington, DC: Annual Issues), tables 14 and 15.

1995-99: Ibid., *Railroad Safety Statistics Annual Report 2000* (Washington, DC: July 2001), tables 1-1 and 3-1, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Publications.aspx as of Sept. 7, 2010.

2000: Ibid., tables 1.06 and 3.09, available at http://safetydata.fra.dot.gov/OfficeofSafety/ as of Sept. 7, 2010.

2001-10: Ibid., tables 1.06 and 3.09, available at http://safetydata.fra.dot.gov/OfficeofSafety/ as of June 10, 2011.

Train-miles:

1970-90: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, DC: Annual Issues), form 406.

1995-99: U.S. Department of Transportation, Federal Railroad Administration, available at http://safetydata.fra.dot.gov/OfficeofSafety/Forms/Default.asp as of Aug. 22, 2002.

1999-2000: Ibid., table 1.06, available at http://safetydata.fra.dot.gov/OfficeofSafety/ as of Sept. 7, 2010.

2001-10: Ibid., table 1.06, available at http://safetydata.fra.dot.gov/OfficeofSafety/ as of June 10, 2011.

Table 2-44: Fatalities and Injuries of On-Duty Railroad Employees

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	(R) 2009	2010
Employee fatalities, total	40	35	34	47	31	34	33	37	27	31	24	22	20	19	25	25	16	17	25	16	20
Grade-crossing accidents and incidents	5	1	2	3	1	2	1	0	4	2	2	1	1	1	2	2	4	1	3	0	0
Train accidents and incidents only (grade-crossing excluded)	35	34	32	44	30	32	32	37	23	29	22	21	19	18	23	23	12	16	22	16	20
Employee injuries, total	20,970	19,626	17,755	15,363	13,080	10,777	9,199	8,295	8,398	8,622	8,423	7,815	6,644	6,248	6,022	5,822	(R) 5,274	(R) 5,452	(R) 4,994	4,479	4,360
Grade-crossing accidents and incidents	169	147	157	143	126	123	79	111	122	140	100	97	110	76	116	111	96	(R) 105	(R) 75	72	81
Train accidents and incidents only (grade-crossing excluded)	20,801	19,479	17,598	15,220	12,954	10,654	9,120	8,184	8,276	8,482	8,323	7,718	6,534	6,172	5,906	5,711	(R) 5,178	(R) 5,347	(R) 4,919	4,407	4,279
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	478.5	485.8	483.2	478.0	429.6	437.3
Fatality rates per million employee hours																					
All accidents / incidents	0.07	0.07	0.07	0.09	0.06	0.07	0.07	0.07	0.05	0.06	0.05	0.05	0.04	0.04	0.05	0.05	0.03	0.04	0.05	0.04	0.05
Grade-crossing accidents and incidents	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Train accidents and incidents only (grade-crossing excluded)	0.06	0.06	0.06	0.08	0.06	0.06	0.06	0.07	0.04	0.06	0.04	0.04	0.04	0.04	0.05	0.05	0.02	0.03	0.05	0.04	0.05
Injury rates per million employee hours																					
All accidents / incidents	37.9	37.0	34.3	29.6	25.2	21.1	18.2	16.5	16.3	16.9	17.2	16.4	14.6	13.8	13.1	12.2	(R) 10.9	11.3	(R) 10.4	10.4	10.0
Grade-crossing accidents and incidents	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Train accidents and incidents only (grade-crossing excluded)	37.6	36.7	34.0	29.3	25.0	20.9	18.1	16.2	16.1	16.6	17.0	16.2	14.4	13.7	12.9	11.9	(R) 10.7	(R) 11.1	(R) 10.3	10.3	9.8
Train-miles (millions)[a,b]	609	577	594	614	655	670	671	677	683	712	723	712	729	744	770	789	809	789	770	664	703
Fatality rates per million train-miles																					
All accidents / incidents	0.07	0.06	0.06	0.08	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.03	0.02	0.03
Grade-crossing accidents and incidents	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Train accidents and incidents only (grade-crossing excluded)	0.06	0.06	0.05	0.07	0.05	0.05	0.05	0.05	0.03	0.04	0.03	0.03	0.03	0.02	0.03	0.03	0.01	0.02	0.03	0.02	0.03
Injury rates per million train-miles																					
All accidents/incidents	34.4	34.0	29.9	25.0	20.0	16.1	13.7	12.3	12.3	12.1	11.7	11.0	9.1	8.4	7.8	7.4	6.5	6.9	(R) 6.5	6.7	6.2
Grade-crossing accidents and incidents	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Train accidents and incidents only (grade-crossing excluded)	34.2	33.8	29.6	24.8	19.8	15.9	13.6	12.1	12.1	11.9	11.5	10.8	9.0	8.3	7.7	7.2	6.4	6.8	(R) 6.4	6.6	6.1

KEY: R = revised.

[a] *Train-miles* in this table differ from *Train-miles* in the vehicle-miles table in Chapter 1. *Train-miles* reported in Chapter 1 include only Class I rail (see glossary for definition), while this table includes Class I rail, Group II rail, and other rail. In 2005, Group II rail accounted for 78 million train-miles, and other rail for 29 million train-miles. Moreover, the vehicle-miles table in Chapter 1 includes only *Train-miles* between terminals and/or stations, thus excluding yard and switching miles. In 2005, Class I yard/switching train miles totaled 67 million train-miles. Note that commuter rail safety data are reported in the rail mode and in the transit mode. Commuter rail train-miles are included in Class I rail and Group II rail in this table.

[b] A *Train-mile* is the movement of a train (which can consist of many cars) the distance of 1 mile. A *Train-mile* differs from a vehicle-mile, which is the movement of 1 car (vehicle) the distance of 1 mile. A 10-car (vehicle) train traveling 1 mile would be measured as 1 train-mile and 10 vehicle-miles. Caution should be used when comparing train-miles to vehicle-miles.

NOTE

This table includes information for both freight and passenger railroad operations.

SOURCES

1990-95: U.S. Department of Transportation, Federal Railroad Administration, *Highway-Rail Crossing Accident/Incident and Inventory Bulletin* (Washington, DC: Annual Issues).

1996-2003: Ibid., *Railroad Safety Statistics Annual Report* (Washington, DC: Annual Issues), tables 1-3, 2-4, and 3-1, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Publications.aspx as of Apr. 9, 2010.

2004-10: Ibid., *Railroad Safety Statistics Preliminary Annual Report*, (Washington, DC: Monthly Issues), tables 1-3 and 2-4, available at http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Prelim.aspx as of Sept. 16, 2011.

Section F
Water

Table 2-45: Waterborne Transportation Safety and Property Damage Data Related to Vessel Casualties

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	(R) 2009	2010
Fatalities[a]	178	243	206	131	85	30	97	105	77	53	55	48	69	58	53	53	68	67	94	92	87	76	75	49	41
Injuries	105	97	180	172	175	110	170	171	182	154	254	120	130	152	150	210	175	213	244	169	373	190	154	193	159
Accidents[b]	2,582	3,310	4,624	3,439	3,613	2,222	5,583	6,126	6,743	5,349	5,260	5,504	5,767	5,526	5,403	4,958	6,139	5,254	5,125	5,190	5,785	6,014	5,786	4,987	5,427
Vessels[c]	4,063	5,685	7,694	5,694	5,494	3,514	7,190	7,913	9,030	7,802	7,695	7,802	7,824	7,265	7,103	6,439	7,437	6,054	6,257	6,599	7,149	7,801	7,615	6,139	6,788
Property damage (current $ millions)	U	U	U	U	U	U	201.7	181.5	264.4	159.0	200.8	158.2	234.9	177.1	180.5	100.9	335.1	126.7	151.7	719.5	129.7	85.4	126.4	60.5	106.7

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

[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 CFR Part 4.05-1.

[c] More than one *Vessel* may be involved in a marine *Accident*. Statistics from 1992 to 2010 include *Vessels* involved in pollution incidents, which the United States Coast Guard considers to be a *Vessel* casualty.

NOTES

All deaths and *Injuries* cited result from *Vessel* casualties, such as groundings, collisions, fires, or explosions. The data are for all commercial *Vessels* under U.S. jurisdiction, including U.S. flag *Vessels* anywhere in the world and foreign flag *Vessels* within the jurisdiction of the United States (within 12 miles, or having an interaction with a U.S. entity, such as a platform within 200 miles, or a collision with a U.S. ship). Commercial fishing *Vessels* are included.

For 1992-97, data are obtained from the Marine Safety Management Information System. Between 1998 and 2001, the U.S. Coast Guard phased in a new computer system to track safety data, the Marine Information for Safety and Law Enforcement System. During this period, data are derived by combining entries in the Marine Safety Management Information System with entries in the Marine Information for Safety and Law Enforcement System. Data for 2002 and after are from the Marine Information for Safety and Law Enforcement System. Data prior to 1992 come from other sources and may not be directly comparable to the data from later years.

SOURCES

1970-2002: U.S. Department of Transportation, U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communication, November 2008.

2003-10: U.S. Department of Homeland Security, U.S. Coast Guard, Office of Investigations and Analysis (CG-545), personal communication, April 2011.

Table 2-46: Waterborne Transportation Safety Data not Related to Vessel Casualties

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	(R) 2009	2010
Fatalities[a]	420	330	281	130	101	56	89	79	89	92	86	84	95	74	69	49	41	50	62	60	65	59	61	58	43
Injuries	U	U	U	U	U	U	936	919	1,081	1,170	951	779	520	429	509	412	475	472	495	580	678	562	483	463	489
Vessels[b]	U	321	274	128	98	51	1,427	1,378	1,592	1,726	1,283	968	526	445	514	440	594	562	537	614	725	605	522	503	513

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

[a] *Fatalities* include people who were declared missing.
[b] Figures represent the number of *Vessels* involved in nonvessel casualties. These *Vessels* were not part of the accident, but the accident may have occurred on the *Vessel* (e.g., crewmembers swept overboard by a wave).

NOTES

Figures reflect the number of deaths and *Injuries* to people on commercial *Vessels* not resulting from a casualty to the *Vessel*. These *Injuries* and *Fatalities* result from such incidents as slips, falls, or electrocutions. Deaths and *Injuries* from disease, homicides, suicides, fights, and diving accidents have been excluded. The data reflect deaths and *Injuries* to people on both U.S. and foreign flag *Vessels* within the jurisdiction of the United States (within 12 miles of U.S. coast) and on U.S. flag vessels anywhere in the world.

1992-97 data come from the Marine Safety Management Information System. Between 1998 and 2001 the U.S. Coast Guard phased in a new computer system to track safety data, the Marine Information for Safety and Law Enforcement System. During that period data come from combining entries in the Marine Safety Management Information System with entries in the Marine Information for Safety and Law Enforcement System. Data for 2002 to 2010 come from the Marine Information for Safety and Law Enforcement System. Data prior to 1992 come from other sources and may not be directly comparable to the data from later years.

SOURCES

1970-2002: U.S. Department of Transportation, U.S. Coast Guard, Data Administration Division (G-MRI-1), personal communications, June 29, 2004, June 8, 2005, and June 22, 2007.
2003-10: U.S. Department of Homeland Security, U.S. Coast Guard, Office of Investigations and Analysis CG-545, personal communication, Apr. 28, 2011.

Table 2-47: Recreational Boating Safety, Alcohol Involvement, and Property Damage Data

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Fatalities[a]	**739**	**1,360**	**1,418**	**1,466**	**1,360**	**1,116**	**865**	**924**	**816**	**800**	**784**	**829**	**709**	**821**	**815**	**734**	**701**	**681**	**750**	**703**	**676**	**697**	**710**	**685**	**709**	**736**	**672**	**758**
Injuries	**929**	**927**	**780**	**2,136**	**2,650**	**2,757**	**3,822**	**3,967**	**3,683**	**3,559**	**4,084**	**4,141**	**4,442**	**4,555**	**4,612**	**4,315**	**4,355**	**4,274**	**4,062**	**3,888**	**3,363**	**3,451**	**3,474**	**3,673**	**3,331**	**3,358**	**3,153**	**3,081**
Accidents	**2,738**	**3,752**	**3,803**	**6,308**	**5,513**	**6,237**	**6,411**	**6,573**	**6,048**	**6,335**	**6,906**	**8,019**	**8,026**	**8,047**	**8,061**	**7,931**	**7,740**	**6,419**	**5,705**	**5,438**	**4,904**	**4,969**	**4,967**	**5,191**	**4,789**	**4,730**	**4,604**	**4,588**
Vessels involved	**3,562**	**4,778**	**4,762**	**8,002**	**6,954**	**8,305**	**8,591**	**8,821**	**8,206**	**8,688**	**9,722**	**11,534**	**11,306**	**11,396**	**11,368**	**11,190**	**10,984**	**8,974**	**7,907**	**7,363**	**6,725**	**6,628**	**6,753**	**6,932**	**6,347**	**6,190**	**6,062**	**5,939**
Numbered boats (thousands)[b]	**2,500**	**4,138**	**5,128**	**7,303**	**8,578**	**9,589**	**10,996**	**11,068**	**11,132**	**11,283**	**11,430**	**11,735**	**11,878**	**12,313**	**12,566**	**12,738**	**12,782**	**12,876**	**12,854**	**12,795**	**12,781**	**12,942**	**12,746**	**12,876**	**12,693**	**12,722**	**12,439**	**12,174**
Rates per 100,000 numbered boats																												
Fatalities	29.6	32.9	27.7	20.1	15.9	11.6	7.9	8.3	7.3	7.1	6.9	7.1	6.0	6.7	6.5	5.8	5.5	5.3	5.8	5.5	5.3	5.4	5.6	5.3	5.6	5.8	5.4	6.2
Injuries	37.2	22.4	15.2	29.2	30.9	28.8	34.8	35.8	33.1	31.5	35.7	35.3	37.4	37.0	36.7	33.9	34.1	33.2	31.6	30.4	26.3	26.7	27.3	28.5	26.2	26.4	25.3	25.3
Accidents	109.5	90.7	74.2	86.4	64.3	65.0	58.3	59.4	54.3	56.1	60.4	68.3	67.6	65.4	64.1	62.3	60.6	49.9	44.4	42.5	38.4	38.4	39.0	40.3	37.7	37.2	37.0	37.7
Accident reports citing alcohol involvement[c]	**N**	**N**	**N**	**N**	**N**	**279**	**568**	**513**	**504**	**381**	**389**	**472**	**601**	**698**	**704**	**633**	**696**	**375**	**357**	**362**	**331**	**402**	**403**	**421**	**387**	**397**	**395**	**361**
Property damage (current $ millions)[d]	**3.2**	**4.7**	**8.2**	**10.4**	**16.4**	**20.0**	**23.8**	**24.8**	**34.8**	**20.2**	**25.9**	**21.5**	**23.2**	**29.0**	**31.0**	**28.9**	**34.7**	**31.3**	**39.2**	**40.4**	**35.0**	**38.7**	**43.7**	**53.1**	**54.3**	**35.9**	**35.6**	**52.2**

KEY: N = data do not exist.

[a] The numbers for recreational boating safety fatalities in 2000 are raw numbers. Coast Guard reports a 6% addition as instructed by the DOT Inspector General because it found a discrepancy in a review of the Search and Rescue Management Information System (SARMIS) and BARD data. (See the discussion found in the DOT FY2003 Performance Plan/2001 Performance Report on pg. 135 under data details of recreational boating fatalities, available at http://www.dot.gov/performance/ as of Feb 10, 2010).

[b] *Numbered boats* in 1960 is an estimate.

[c] Starting in 2001 only cases where alcohol is determined to be a direct or indirect cause of an accident are reported. Previous years include cases where alcohol was present but played no role in the accident.

[d] 1992 data includes $11 million damage due to a boat fire.

NOTES

Only a small fraction of property damages and nonfatal accidents are reported to the U.S. Coast Guard.

On July 2, 2001, the Federal threshold of property damage for reports of accidents involving recreational vessels changed from $500 to $2,000.

SOURCE

Vessels involved for 1960 and 1965, and property damage for 1994 and 1995:

U.S. Department of Transportation, U.S. Coast Guard (CG), Office of Boating Safety, personal communication, May 15, 2002.

All other data:

U.S. Department of Homeland Security, U.S. Coast Guard, Office of Boating Safety, *Boating Statistics* (Washington, DC: Annual Issues), tables 8, 9, 16, 28, 29, 36 and similiar tables in earlier editions, available at http://www.uscgboating.org/statistics/accident_statistics.aspx as of Jul. 13, 2012.

Table 2-48: Personal Watercraft Safety Data

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Fatalities	5	20	20	28	26	34	35	56	68	57	84	78	66	68	50	71	57	56	65	68	67	45	42	38	44
Injured persons	156	254	402	532	708	730	915	1,338	1,617	1,837	1,812	1,743	1,614	1,580	1,424	1,362	1,228	952	1,007	919	982	920	878	776	764
Accidents[a]	376	650	844	1,162	1,513	1,650	2,236	3,002	3,986	4,099	4,070	3,607	3,374	3,268	2,562	2,225	1,994	1,664	1,692	1,631	1,655	1,459	1,332	1,221	1,158
Sales	29,000	48,000	64,000	72,000	68,000	79,000	107,000	142,000	200,000	191,000	176,000	130,000	106,000	92,000	80,900	79,300	80,600	79,500	80,200	82,200	79,900	62,600	44,500	41,600	42,900
Number in use	92,756	126,881	178,510	241,376	305,915	372,283	454,545	600,000	760,000	900,000	1,000,000	1,180,000	1,200,000	1,230,000	1,220,000	1,220,000	1,170,000	1,250,000	1,230,000	1,190,000	1,190,000	1,240,000	1,330,000	(R) 1,270,000	1,240,000

KEY: R = revised.

[a] Total vessels involved.

NOTES

Personal watercraft are less than 13 feet in length and are designed to be operated by a person or persons sitting, standing, or kneeling on the craft rather than within the confines of the hull.

Watercraft *Number in use* and *Sales* for 2011 are estimates.

SOURCES

Fatalities, injuries, and accidents:

U.S. Department of Homeland Security, United States Coast Guard, Office of Boating Safety, *Boating Statistics* (Washington, DC: Annual Issues), table 19 and similar tables in earlier editions, available at http://www.uscgboating.org/statistics/accident_statistics.aspx as of Jul. 12, 2012.

Sales:

1987-90: Personal Watercraft Industry Association, available at http://www.pwia.org/faq/ as of June 19, 2000.

1991-2011: National Marine Manufacturers Association, *Recreational Boating Statistical Abstract* (Annual Issues), table 3.1 and similar tables in earlier editions, available at http://www.nmma.org/statistics/publications/statisticalabstract.aspx as of Jul. 12, 2012.

Use:

1987-96: National Marine Manufacturers Association, data compiled by the United States Coast Guard, personal communications.

1997-98: Ibid., available at http://www.nmma.org/facts/boatingstats/statistic98.html as of June 19, 2000.

1999-2011: National Marine Manufacturers Association, *Recreational Boating Statistical Abstract* (Annual Issues), table 1.3 and similar tables in earlier editions, available at http://www.nmma.org/statistics/publications/statisticalabstract.aspx as of Jul. 12, 2012.

Table 2-49: U.S. Coast Guard Search and Rescue Statistics, Fiscal Year

	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Cases	60,775	53,097	52,782	53,294	53,026	53,899	49,704	43,553	41,096	37,218	39,844	40,214	39,457	36,763	31,622	32,540	29,799	28,320	27,092	24,209	23,530	22,226	20,515	19,788
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	51,391	59,998	52,744	45,900	47,511	44,925	47,464	46,348	43,933	43,864
Sorties[a]	88,449	84,033	84,872	88,388	88,147	108,758	110,267	98,423	91,722	83,307	89,635	57,697	59,015	54,609	33,426	33,107	29,860	29,826	25,411	25,507	24,654	23,159	21,568	21,601
Search and Rescue resource hours[b]	U	108,282	109,351	108,639	107,441	102,749	93,984	85,150	80,507	80,116	84,635	80,533	85,008	75,841	65,182	65,876	77,888	60,248	55,312	62,713	59,245	61,616	56,233	59,583
Lives saved[c]	6,497	4,407	5,465	17,543	5,826	23,211	4,453	5,047	3,897	3,194	3,743	3,400	4,010	3,661	5,196	5,565	5,650	5,298	5,216	4,898	4,861	4,346	3,793	4,027
Lives lost, total	1,335	1,085	1,116	939	1,215	931	772	978	744	606	533	1,018	710	635	673	783	846	787	795	825	816	818	734	713
Lives lost before notification[d,e]	259	622	748	540	800	593	468	611	454	418	353	779	413	399	412	502	523	479	492	534	555	552	480	429
Lives lost after notification[f]	1,076	463	368	399	415	338	304	367	290	188	180	239	297	236	261	281	323	308	303	291	261	266	254	284
Lives unaccounted for[g]	U	U	U	U	U	U	U	U	U	U	U	304	515	344	496	691	603	664	733	435	579	411	392	440
Persons otherwise assisted	138,791	117,327	113,704	121,826	119,069	116,912	101,357	85,869	75,357	66,138	70,255	54,866	59,910	46,503	38,579	42,008	41,551	44,757	35,797	31,841	34,425	33,411	32,429	27,042
Value of property lost ($ million)[h,i]	424.3	368.5	213.6	314.5	316.2	435.5	222.6	273.8	414.8	84.3	262.3	415.2	441.0	76.0	19.6	53.5	97.0	32.8	121.7	1,141.5	114.4	194.3	92.7	53.8
Value of property assisted ($ million)	2,376.8	2,044.9	2,282.4	1,951.4	2,491.8	2,891.2	4,467.2	3,494.2	1,762.1	1,288.2	1,235.0	778.8	1,501.0	1,589.0	478.8	778.4	1,661.8	778.4	995.6	1,249.0	915.9	779.8	1,461.9	604.8
Property loss prevented ($ million)	905.4	1,673.4	1,799.3	1,550.1	2,144.7	2,628.4	3,882.8	3,087.3	1,353.5	996.8	1,019.0	84.3	73.0	68.0	106.7	238.7	146.4	111.0	113.1	148.0	94.9	87.0	83.1	123.4
Value of property unaccounted for ($ million)[j]	U	U	U	U	U	U	U	U	U	U	U	2.1	4.4	3.2	4.8	2.9	2.1	3.6	5.9	2.4	10.2	5.1	9.8	5.9

KEY: U = data are unavailable.

[a] *Responses* are the number of U.S. Coast Guard units involved. *Sorties* are the number of trips made by boat, aircraft, or cutter.

[b] *Search and Rescue resource hours* represent the time that Coast Guard assets (i.e., aircraft, boats, and cutters) perform search and rescue operations.

[c] The Search and Rescue Management Information System's reporting policy has been revised and now requires complete reporting on all *lives saved*. This policy also includes reporting on *Lives saved* in connection with Coast Guard Law Enforcement Activity (i.e., Alien Migrant Interdiction Operations (AMIO)). AMIO *Lives saved* in fiscal year 1992 was determined to be approximately 12,000. AMIO *Lives saved* in fiscal year 1994 was determined to be 15,179.

[d] Those persons whose lives were lost before the U.S. Coast Guard was notified of an incident.
[e] The Egypt Air (217 fatalities) and Alaska Air (88 fatalities) crashes account for the increase in 2000.
[f] Those persons whose lives were lost in an incident to which the U.S. Coast Guard was responding, but who were alive at the time the U.S. Coast Guard was
[g] Added category; completes the accounting for all lives associated with USCG Search and Rescue (SAR) responses.
[h] Includes several out of the normal high cost incidents.
[i] The B-52 crash in Guam accounts for the increase ($1,040 million) in 2008.
[j] Added category; completes the accounting for all property associated with USCG SAR responses.

SOURCES

All data except Search and Rescue resource hours, lives uncounted for and value of property unaccounted for:

1985-1993: U.S. Department of Transportation, U.S. Coast Guard, *Search and Rescue Management Information Systems (SARMIS II) Database*, available at www.uscg.mil/hq/g-o/g-opr/92-01summary.htm as of Aug. 8, 2002.

1994-2002: U.S. Department of Transportation, U.S. Coast Guard, *ON SCENE The Journal of U.S. Coast Guard Search Rescue*, available at www.uscg.mil/hq/g-o/g-opr/On%20Scene/onscene.htm as of July 28, 2004.

2003-12: U.S. Department of Homeland Security, U.S. Coast Guard, Office of Search and Rescue, personal communications, Apr. 1, 2008, July 2, 2010, July 25, 2011, and Feb. 25, 2013.

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.

2003-12: U.S. Department of Homeland Security, U.S. Coast Guard, Office of Search and Rescue, personal communications, Apr. 1, 2008, July 2, 2010, July 25, 2011, and Feb. 25, 2013.

Lives uncounted for and value of property unaccounted for:

2000-12: U.S. Department of Homeland Security, U.S. Coast Guard, Office of Search and Rescue, personal communications, July 25, 2011, and Feb. 25, 2013.

Section G
Pipeline

Table 2-50: Hazardous Liquid and Natural Gas Pipeline Safety and Property Damage Data

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	(R) 2008	(R) 2009	(R) 2010	(R) 2011	2012
Fatalities																											
Total hazardous liquid	4	7	4	5	3	0	5	0	1	3	5	0	2	4	1	0	1	0	5	2	0	4	2	4	1	1	3
Total gas	26	8	15	28	6	14	10	17	21	18	48	10	19	18	37	7	11	12	18	12	21	11	6	9	21	13	9
Gas transmission	U	U	1	6	0	0	3	1	0	2	1	1	1	2	15	2	1	1	0	0	3	2	0	0	10	0	0
Gas distribution	U	U	14	22	6	14	7	16	21	16	47	9	18	16	22	5	10	11	18	12	18	9	6	9	11	13	9
Injured persons																											
Total hazardous liquid[a]	21	17	15	18	7	9	38	10	1858	11	13	5	6	20	4	10	0	5	16	2	2	10	2	4	4	2	4
Total gas	233	214	177	108	69	89	80	(R) 100	113	(R) 50	114	72	75	88	(R) 75	51	48	66	43	44	33	(R) 40	55	60	105	58	52
Gas transmission	U	U	13	12	17	12	15	(R) 16	22	(R) 7	5	5	11	8	(R) 16	5	4	8	2	5	3	7	5	11	61	1	7
Gas distribution	U	U	164	96	52	77	65	84	91	43	109	67	64	80	59	46	44	58	41	39	30	(R) 33	50	49	44	57	45
Incidents																											
Total hazardous liquid	351	254	246	183	180	216	212	229	245	188	194	171	153	167	146	130	(R) 460	(R) 435	(R) 377	(R) 369	(R) 355	(R) 332	375	341	349	347	364
Total gas	1,077	1,338	1,524	334	199	233	(R) 167	(R) 214	(R) 215	(R) 151	(R) 186	(R) 170	(R) 225	(R) 167	(R) 230	199	175	234	(R) 276	330	271	(R) 262	269	262	235	244	199
Gas transmission	U	U	389	129	89	71	(R) 64	(R) 93	(R) 74	(R) 54	(R) 76	(R) 68	(R) 88	(R) 49	(R) 76	75	73	93	103	160	129	111	123	105	113	122	114
Gas distribution	U	U	1,135	205	110	162	103	121	141	97	110	102	137	118	154	124	102	141	(R) 173	170	142	(R) 151	146	157	122	122	85
Property damage (Millions of current dollar)																											
Total hazardous liquid	1.2	2.2	5.7	5.1	15.7	37.8	39.1	28.9	62.2	32.5	85.1	55.2	63.3	86.4	150.6	25.3	51.6	67.4	166.1	(R) 306.5	75.1	60.8	148.3	74.1	1032.3	245.6	108.6
Total gas	3.3	5.0	10.0	22.9	19.0	19.7	30.1	38.4	97.1	20.7	29.3	24.2	60.7	43.4	40.4	27.8	49.2	69.8	(R) 73.2	797.4	64.7	(R) 87.95	295.0	87.9	429.8	119.0	79.0
Gas transmission	U	U	8.8	13.4	11.3	11.9	23.3	23.0	43.9	9.7	13.1	11.7	41.6	17.5	17.0	13.7	25.4	48.8	(R) 35.6	298.1	40.8	62.0	256.0	55.9	409.3	96.6	55.3
Gas distribution	U	U	1.2	9.5	7.7	7.8	6.8	15.3	53.3	11.0	16.3	12.5	19.1	25.9	23.4	14.1	23.8	21.0	(R) 37.6	499.3	23.9	25.9	38.9	32.0	20.5	22.4	23.7

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

[a] 1994 total *Injured persons* from *hazardous liquid* Includes 1,851 injuries requiring medical treatment reported for accidents caused by severe flooding near Houston, TX, in October 1994.

NOTES

Beginning with 1985 data, pipeline incidents are credited to the year in which they occurred, not the year in which the report was received. Gas numbers represent the sum of transmission and gathering and distribution operators.

Property damage includes, but is not limited to, damage to the operator's facilities and to the property of others; gas lost; restoration of service and relighting; facility repair and replacement; leak locating; right-of-way cleanup; and environmental cleanup and damage.

Numbers may not add to totals due to rounding.

Beginning in 2002, only accidents with gross loss greater than or equal to 50 barrels; those involving any fatality or injury; fire/explosion not intentionally set; highly volatile liquid releases with gross loss of 5 or more barrels; or those involving total costs greater than or equal to $50,000 are reported. Due to this change in reporting criteria, accident data for 2002 and later are not comparable with the previous years.

In 2002, one of the more significant of several incident reporting criterion changes occurred. One of PHMSA's reporting criteri for hazardous liquid pipeline incidents (the one based on volume released) was lowered from 50 barrels to 5 gallons, resulting in a significant increase in the number of hazardous liquid incidents reported.

SOURCES

1970-85: U.S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety, personal communication.

1990-2011: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, available at http://primis.phmsa.dot.gov/comm/reports/safety/Allpsi.html?nocache=300 as of Feb. 20, 2013.

Chapter 3

Transportation and the Economy

Section A
Transportation and the Total Economy

Table 3-1: U.S. Gross Domestic Product (GDP) Attributed to For-Hire Transportation Services (Billions of current dollars)

	1980	1985	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	2010
TOTAL U.S. GDP	2,788.1	4,217.5	5,800.5	7,414.7	7,838.5	8,332.4	8,793.5	9,353.5	9,951.5	10,286.2	10,642.3	(R) 11,142.2	(R) 11,853.3	(R) 12,623.0	13,377.2	14,028.7	14,291.5	13,939.0	14,526.5
For-hire transportation services GDP, total	102.6	137.1	172.8	231.7	241.3	261.8	275.6	287.1	301.4	302.6	302.4	319.8	347.0	(R) 369.5	394.0	404.9	415.0	391.7	402.5
Air transportation	13.1	19.3	31.3	46.2	46.9	53.6	52.4	54.3	53.1	45.2	46.8	53.2	56.1	55.7	59.7	60.2	59.9	60.4	63.3
Rail transportation	20.2	21.0	18.6	21.1	20.9	19.7	21.2	21.8	22.8	22.6	21.7	23.1	24.3	27.0	30.6	31.7	35.1	30.7	32.1
Water transportation	3.5	4.0	5.1	6.3	6.6	7.0	6.8	6.8	8.1	8.2	7.4	(R) 8.2	(R) 8.3	(R) 8.9	11.7	12.8	14.3	14.4	14.7
Truck transportation	28.4	39.4	49.7	69.3	73.1	80.3	86.9	93.4	97.0	97.8	97.2	(R) 102.3	(R) 110.7	(R) 119.6	125.3	127.2	122.3	110.8	116.0
Transit and ground passenger transportation	5.8	7.3	9.0	11.8	12.8	14.8	16.0	17.2	17.8	18.4	19.2	(R) 19.4	20.9	21.2	22.5	24.0	25.3	25.7	26.1
Pipeline transportation	5.1	7.3	6.0	6.7	7.1	7.2	7.8	8.9	9.1	14.7	10.3	10.2	11.5	10.4	11.3	12.5	16.1	14.6	15.3
Other transportation and support activities	20.2	29.3	39.9	51.6	54.3	57.2	61.1	61.4	67.5	70.3	73.4	76.0	83.9	(R) 92.0	96.3	96.9	100.8	93.9	93.2
Warehousing and storage	6.4	9.5	13.0	18.8	19.6	21.9	23.4	23.4	25.8	25.3	26.3	(R) 27.4	(R) 31.3	(R) 34.8	36.6	39.6	41.3	41.2	41.9
Percent of U.S. GDP																			
For-hire transportation services	3.68	3.25	2.98	3.12	3.08	3.14	3.13	3.07	3.03	2.94	2.84	2.87	2.93	2.93	2.95	2.89	2.90	2.81	2.77
Air transportation	0.47	0.46	0.54	0.62	0.60	0.64	0.60	0.58	0.53	0.44	0.44	0.48	0.47	0.44	0.45	0.43	0.42	0.43	0.44
Rail transportation	0.72	0.50	0.32	0.28	0.27	0.24	0.24	0.23	0.23	0.22	0.20	0.21	0.21	0.21	0.23	0.23	0.25	0.22	0.22
Water transportation	0.13	0.09	0.09	0.08	0.08	0.08	0.08	0.07	0.08	0.08	0.07	0.07	0.07	0.07	0.09	0.09	0.10	0.10	0.10
Truck transportation	1.02	0.93	0.86	0.93	0.93	0.96	0.99	1.00	0.97	0.95	0.91	0.92	(R) 0.93	(R) 0.95	0.94	0.91	0.86	0.79	0.80
Transit and ground passenger transportation	0.21	0.17	0.16	0.16	0.16	0.18	0.18	0.18	0.18	0.18	0.18	0.17	0.18	0.17	0.17	0.17	0.18	0.18	0.18
Pipeline transportation	0.18	0.17	0.10	0.09	0.09	0.09	0.09	0.10	0.09	0.14	0.10	0.09	0.10	0.08	0.08	0.09	0.11	0.10	0.11
Other transportation and support activities	0.72	0.69	0.69	0.70	0.69	0.69	0.69	0.66	0.68	0.68	0.69	0.68	0.71	0.73	0.72	0.69	0.71	0.67	0.64
Warehousing and storage	0.23	0.23	0.22	0.25	0.25	0.26	0.27	0.25	0.26	0.25	0.25	0.25	0.26	0.28	0.27	0.28	0.29	0.30	0.29
Percent of for-hire transportation services GDP																			
Air transportation	12.77	14.08	18.11	19.94	19.44	20.47	19.01	18.91	17.62	14.94	15.48	16.64	16.17	(R) 15.07	15.15	14.87	14.43	15.42	15.73
Rail transportation	19.69	15.32	10.76	9.11	8.66	7.52	7.69	7.59	7.56	7.47	7.18	7.22	7.00	7.31	7.77	7.83	8.46	7.84	7.98
Water transportation	3.41	2.92	2.95	2.72	2.74	2.67	2.47	2.37	2.69	2.71	2.45	(R) 2.56	(R) 2.39	(R) 2.41	2.97	3.16	3.45	3.68	3.65
Truck transportation	27.68	28.74	28.76	29.91	30.29	30.67	31.53	32.53	32.18	32.32	32.14	(R) 31.99	(R) 31.90	(R) 32.37	31.80	31.42	29.47	28.29	28.82
Transit and ground passenger transportation	5.65	5.32	5.21	5.09	5.30	5.65	5.81	5.99	5.91	6.08	6.35	(R) 6.07	6.02	5.74	5.71	5.93	6.10	6.56	6.48
Pipeline transportation	4.97	5.32	3.47	2.89	2.94	2.75	2.83	3.10	3.02	4.86	3.41	3.19	3.31	2.81	2.87	3.09	3.88	3.73	3.80
Other transportation and support activities	19.69	21.37	23.09	22.27	22.50	21.85	22.17	21.39	22.40	23.23	24.27	23.76	24.18	(R) 24.90	24.44	23.93	24.29	23.97	23.16
Warehousing and storage	6.24	6.93	7.52	8.11	8.12	8.37	8.49	8.15	8.56	8.36	8.70	(R) 8.57	(R) 9.02	(R) 9.42	9.29	9.78	9.95	10.52	10.41

KEY: R = revised.

NOTE
Numbers may not add to totals due to rounding.

SOURCE
U.S. Department of Commerce, Bureau of Economic Analysis, *Industry Economic Accounts* , *Interactive tables* , available at http://www.bea.gov/industry/index.htm as of Dec. 13, 2011.

Table 3-2: U.S. Gross Domestic Product (GDP) Attributed to For-Hire Transportation Services (Billions of chained 2005 dollars)

	(R) 1987	1988	(R) 1989	1990	1991	(R) 1992	(R) 1993	1994	(R) 1995	(R) 1996	(R) 1997	1998	(R) 1999	(R) 2000	(R) 2001	2002	(R) 2003	(R) 2004	2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	2010
TOTAL U.S. GDP	7,307.0	(R) 7,607.4	7,879.2	(R) 8,027.1	(R) 8,008.3	8,280.0	8,516.2	(R) 8,863.1	9,086.0	9,425.8	9,845.9	(R) 10,274.7	10,770.7	11,216.4	11,337.5	(R) 11,543.1	11,836.4	12,246.9	(R) 12,623.0	12,958.5	13,206.4	13,161.9	12,703.1	13,088.0
For-hire transportation services GDP, total	181.0	(R) 186.3	193.6	(R) 203.8	(R) 213.1	226.6	236.6	(R) 255.6	263.2	277.6	291.9	(R) 288.4	298.6	318.5	307.0	(R) 302.8	318.3	347.0	(R) 369.5	384.5	388.8	392.3	345.3	357.3
Air transportation	19.0	21.1	22.6	(R) 26.0	24.8	28.2	29.3	(R) 34.0	35.9	39.8	43.0	(R) 38.2	40.3	43.3	37.7	(R) 41.7	48.6	54.8	55.7	57.7	57.6	55.9	50.2	51.1
Rail transportation	20.6	(R) 21.2	19.8	(R) 20.8	(R) 23.5	24.0	24.0	(R) 24.9	25.3	25.6	24.1	(R) 24.6	25.8	27.4	26.2	(R) 24.3	25.8	27.0	27.0	27.1	26.6	27.1	23.2	23.6
Water transportation	4.4	(R) 4.6	5.1	(R) 6.2	(R) 6.8	7.4	7.8	(R) 8.4	8.2	8.9	9.6	(R) 7.5	6.1	7.6	6.5	(R) 5.1	5.0	6.0	(R) 8.9	13.8	16.8	20.5	22.0	21.2
Truck transportation	56.5	(R) 57.1	59.6	(R) 59.7	(R) 64.1	69.2	73.7	(R) 81.5	84.3	89.8	95.0	(R) 96.0	102.6	106.3	101.3	(R) 98.6	102.7	110.5	(R) 119.6	125.3	128.1	122.9	102.2	112.9
Transit and ground passenger transportation	13.1	12.5	13.7	14.6	13.7	13.4	14.3	15.3	15.7	16.0	18.3	18.9	20.5	21.0	20.9	21.1	20.3	21.5	21.2	21.8	22.8	23.8	22.8	22.7
Pipeline transportation	6.1	5.3	6.2	7.2	7.0	7.0	6.5	5.9	6.9	6.9	6.4	6.0	7.7	8.9	13.5	9.1	9.5	10.8	10.4	9.8	10.4	13.5	11.3	10.8
Other transportation and support activities	51.3	52.5	54.3	55.5	59.7	61.4	64.3	66.0	65.0	67.0	68.9	71.6	69.8	75.7	74.6	75.9	78.1	85.1	(R) 92.0	93.6	90.5	92.7	79.4	79.5
Warehousing and storage	14.2	15.2	15.4	15.5	16.4	18.0	19.1	20.8	22.1	23.1	25.6	(R) 27.1	26.3	28.5	27.3	28.0	28.9	31.5	(R) 34.8	36.0	37.6	37.9	37.3	39.0
Percent of U.S. GDP																								
For-hire transportation services	2.48	2.45	2.46	2.54	2.66	2.74	2.78	2.88	2.90	2.95	2.96	2.81	2.77	2.84	2.71	2.62	2.69	2.83	2.93	2.97	2.94	2.98	2.72	2.73
Air transportation	0.26	0.28	0.29	0.32	0.31	0.34	0.34	0.38	0.40	0.42	0.44	0.37	0.37	0.39	0.33	0.36	0.41	0.45	0.44	0.45	0.44	0.42	0.40	0.39
Rail transportation	0.28	0.28	0.25	0.26	0.29	0.29	0.28	0.28	0.28	0.27	0.24	0.24	0.24	0.24	0.23	0.21	0.22	0.22	0.21	0.21	0.20	0.21	0.18	0.18
Water transportation	0.06	0.06	0.06	0.08	(R) 0.08	0.09	0.09	0.09	0.09	0.09	0.10	0.07	0.06	0.07	0.06	0.04	0.04	0.05	0.07	0.11	0.13	0.16	0.17	0.16
Truck transportation	0.77	0.75	0.76	0.74	0.80	0.84	0.87	0.92	0.93	0.95	0.96	0.93	0.95	0.95	0.89	0.85	0.87	0.90	(R) 0.95	0.97	0.97	0.93	0.80	0.86
Transit and ground passenger transportation	0.18	0.16	0.17	0.18	0.17	0.16	0.17	0.17	0.17	0.17	0.19	0.18	0.19	0.19	0.18	0.18	0.17	0.18	0.17	0.17	0.17	0.18	0.18	0.17
Pipeline transportation	0.08	0.07	0.08	0.09	0.09	0.08	0.08	0.07	0.08	0.07	0.07	0.06	0.07	0.08	0.12	0.08	0.08	0.09	0.08	0.08	0.08	0.10	0.09	0.08
Other transportation and support activities	0.70	0.69	0.69	0.69	0.75	0.74	0.76	0.74	0.72	0.71	0.70	0.70	0.65	0.67	0.66	0.66	0.66	0.69	0.73	0.72	0.69	0.70	0.63	0.61
Warehousing and storage	0.19	0.20	0.20	0.19	0.20	0.22	0.22	0.23	0.24	0.25	0.26	0.26	0.24	0.25	0.24	0.24	0.24	0.26	0.28	0.28	0.28	0.29	0.29	0.30
Percent of for-hire transportation services GDP																								
Air transportation	10.50	(R) 11.33	11.67	(R) 12.76	(R) 11.64	12.44	12.38	(R) 13.30	13.64	14.34	14.73	(R) 13.25	13.50	13.59	12.28	(R) 13.77	15.27	15.79	(R) 15.07	15.01	14.81	14.25	14.54	14.30
Rail transportation	11.38	(R) 11.38	10.23	(R) 10.21	(R) 11.03	10.59	10.14	(R) 9.74	9.61	9.22	8.26	(R) 8.53	8.64	8.60	8.53	(R) 8.03	8.11	7.78	7.31	7.05	6.84	6.91	6.72	6.61
Water transportation	2.43	(R) 2.47	2.63	(R) 3.04	(R) 3.19	3.27	3.30	(R) 3.29	3.12	3.21	3.29	(R) 2.60	2.04	2.39	2.12	(R) 1.68	1.57	1.73	(R) 2.41	3.59	4.32	5.23	6.37	5.93
Truck transportation	31.22	(R) 30.65	30.79	(R) 29.29	(R) 30.08	30.54	31.15	(R) 31.89	32.03	32.35	32.55	(R) 33.29	34.36	33.38	33.00	(R) 32.56	32.27	31.84	(R) 32.37	32.59	32.95	31.33	29.60	31.60
Transit and ground passenger transportation	7.24	6.71	7.08	(R) 7.16	(R) 6.43	5.91	6.04	5.99	5.97	5.76	6.27	6.55	6.87	6.59	6.81	6.97	6.38	6.20	5.74	5.67	5.86	6.07	6.60	6.35
Pipeline transportation	3.37	2.84	3.20	3.53	3.28	3.09	2.75	2.31	2.62	2.49	2.19	2.08	2.58	2.79	4.40	3.01	2.98	3.11	2.81	2.55	2.67	3.44	3.27	3.02
Other transportation and support activities	28.34	(R) 28.18	28.05	(R) 27.23	(R) 28.02	27.10	27.18	(R) 25.82	24.70	24.14	23.60	(R) 24.83	23.38	23.77	24.30	(R) 25.07	24.54	24.52	(R) 24.90	24.34	23.28	23.63	22.99	22.25
Warehousing and storage	7.85	8.16	7.95	(R) 7.61	(R) 7.70	7.94	8.07	(R) 8.14	8.40	8.32	8.77	(R) 9.40	8.81	8.95	8.89	(R) 9.25	9.08	9.08	(R) 9.42	9.36	9.67	9.66	10.80	10.92

KEY: R = revised.

NOTES

Details may not add to totals due to the nature of the chained dollar calculations.

At the time of this publication the Bureau of Economic Analysis (BEA) had only published chained 2005 dollar estimates from 1987 onward. Current dollar estimates for earlier years can be found in table 3-1, and chained 2000 $ estimates for earlier years can be found in the 2010 edition of NTS, table 3-1b.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis,*Industry Economic Accounts* , *Interactive tables* , available at http://www.bea.gov/industry/index.htm as of Dec. 13, 2011.

Table 3-3: U.S. Gross Domestic Product (GDP) Attributed to Transportation-Related Final Demand (Current billions of dollars)

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	(R) 2009	(R) 2010	(R) 2011
Gross Domestic Product	**2,788.1**	**4,217.5**	**5,800.5**	**5,992.1**	**6,342.3**	**6,667.4**	**7,085.2**	**7,414.7**	**7,838.5**	**8,332.4**	**8,793.5**	**9,353.5**	**9,951.5**	**10,286.2**	**10,642.3**	**11,142.2**	**11,853.3**	**12,623.0**	**13,377.2**	**14,028.7**	**14,291.5**	**13,973.7**	**14,498.9**	**15,075.7**
Total transportation-related final demand[a]	**336.8**	**479.8**	**599.2**	**598.7**	**635.7**	**678.0**	**733.5**	**765.3**	**824.4**	**890.2**	**928.5**	**994.2**	**1,045.3**	**1,060.0**	**1,059.1**	**1,090.3**	**1,160.9**	**1,264.8**	**1,324.0**	**1,403.9**	**1,386.1**	**1,219.1**	**1,315.6**	**1,472.9**
Total transportation in GDP (percent)	**12.1**	**11.4**	**10.3**	**10.0**	**10.0**	**10.2**	**10.4**	**10.3**	**10.5**	**10.7**	**10.6**	**10.6**	**10.5**	**10.3**	**10.0**	**9.8**	**9.8**	**10.0**	**9.9**	**10.0**	**9.7**	**8.7**	**9.1**	**9.8**
Personal consumption of transportation, total	**226.5**	**357.4**	**442.9**	**418.3**	**451.3**	**485.3**	**528.2**	**554.0**	**599.0**	**641.8**	**669.2**	**730.5**	**798.4**	**814.1**	**818.3**	**857.0**	**909.2**	**978.0**	**1,007.0**	**1,049.9**	**1,029.7**	**879.2**	**960.4**	**1,079.4**
Motor vehicles and parts	84.4	170.1	205.1	185.7	204.8	224.7	249.8	255.7	273.5	293.1	320.2	350.7	363.2	383.3	401.3	401.0	403.9	408.2	394.8	399.9	339.3	316.0	342.7	373.6
Motor vehicle fuels, lubricants, and fluids	86.7	97.2	111.4	108.9	112.9	114.5	116.5	120.4	130.5	134.4	121.8	136.5	172.9	168.1	160.3	192.8	231.6	283.8	314.7	343.0	384.5	278.7	330.1	403.8
Transportation services	55.4	90.1	126.4	123.7	133.6	146.1	161.9	177.9	195.0	214.3	227.2	243.3	262.3	262.7	256.7	263.2	273.7	286.0	297.5	307.0	305.9	284.5	287.6	302.0
Gross private domestic investment, total	**51.6**	**73.7**	**73.4**	**74.6**	**78.3**	**93.3**	**111.9**	**120.5**	**128.6**	**141.6**	**154.3**	**180.9**	**177.6**	**161.2**	**148.4**	**139.5**	**167.9**	**188.8**	**206.9**	**199.2**	**156.8**	**85.0**	**133.1**	**174.5**
Transportation structures	3.2	4.7	3.4	3.1	3.6	3.9	4.2	4.4	5.4	6.1	7.2	6.5	6.8	7.0	6.8	6.6	6.8	7.1	8.7	9.0	9.9	9.1	9.9	9.8
Transportation equipment	48.4	69.0	70.0	71.5	74.7	89.4	107.7	116.1	123.2	135.5	147.1	174.4	170.8	154.2	141.6	132.9	161.1	181.7	198.2	190.2	146.9	75.9	123.2	164.7
Exports (+), total	**45.7**	**57.5**	**105.7**	**115.0**	**122.7**	**122.9**	**129.8**	**132.5**	**141.7**	**162.7**	**171.7**	**174.9**	**179.0**	**174.3**	**175.5**	**174.6**	**191.2**	**216.6**	**240.0**	**260.2**	**270.5**	**218.7**	**255.8**	**293.0**
Civilian aircraft, engines, and parts	14.1	13.5	32.2	36.6	37.7	32.8	31.5	26.1	30.8	41.4	53.5	52.9	48.1	52.6	50.4	46.7	46.1	55.9	64.5	73.0	74.0	74.8	72.0	80.2
Automotive vehicles, engines, and parts	17.4	24.9	36.2	39.9	46.9	51.6	57.5	61.4	64.4	73.4	72.5	75.3	80.4	75.4	78.9	80.6	89.2	98.4	107.3	121.3	121.5	81.7	112.0	133.1
Passenger fares	2.6	4.4	15.3	15.9	16.6	16.5	17.0	18.9	20.4	20.9	20.1	19.8	20.7	17.9	17.0	15.9	18.9	21.0	22.0	25.6	31.0	26.1	31.0	36.6
Other transportation	11.6	14.7	22.0	22.6	21.5	22.0	23.8	26.1	26.1	27.0	25.6	26.9	29.8	28.4	29.2	31.4	37.0	41.3	46.2	40.3	44.0	36.1	40.8	43.1
Imports (-), total	**46.8**	**92.2**	**134.2**	**132.2**	**138.5**	**149.3**	**168.5**	**176.1**	**184.6**	**203.1**	**220.8**	**258.2**	**288.0**	**282.5**	**287.6**	**299.9**	**331.4**	**353.2**	**377.8**	**373.0**	**357.2**	**257.6**	**335.4**	**376.5**
Civilian aircraft, engines, and parts	3.1	5.3	10.5	11.7	12.6	11.3	11.3	10.7	12.7	16.6	21.8	23.8	26.4	31.4	25.5	24.1	24.3	25.8	28.4	34.4	35.5	30.7	31.2	35.5
Automotive vehicles, engines, and parts	28.3	64.9	88.2	85.5	91.5	102.1	118.1	123.7	128.7	139.4	148.6	179.0	195.9	189.8	203.7	210.1	228.2	239.4	256.6	256.7	233.2	159.2	225.6	255.2
Passenger fares	3.6	6.4	10.5	10.0	10.6	11.4	13.1	14.7	15.8	18.1	20.0	21.3	24.3	22.6	20.0	21.0	24.7	26.1	27.5	28.4	31.8	25.1	27.3	31.1
Other transportation	11.8	15.6	25.0	25.0	23.8	24.5	26.0	27.0	27.4	29.0	30.4	34.1	41.4	38.7	38.4	44.7	54.2	61.9	65.3	53.5	56.7	42.6	51.3	54.7
Net exports of transportation-related goods and services[b]	**-1.1**	**-34.7**	**-28.5**	**-17.2**	**-15.8**	**-26.4**	**-38.7**	**-43.6**	**-42.9**	**-40.4**	**-49.1**	**-83.3**	**-109.0**	**-108.2**	**-112.1**	**-125.3**	**-140.2**	**-136.6**	**-137.8**	**-112.8**	**-86.7**	**-38.9**	**-79.6**	**-83.5**
Government transportation-related purchases, total	**59.8**	**83.4**	**111.4**	**123.0**	**121.9**	**125.8**	**132.1**	**134.4**	**139.7**	**147.2**	**154.1**	**166.1**	**178.3**	**192.9**	**204.5**	**219.1**	**224.0**	**234.6**	**247.9**	**267.6**	**286.3**	**293.8**	**301.7**	**302.5**
Federal purchases[c]	7.0	10.0	12.9	14.5	15.3	16.3	17.5	16.5	17.3	17.7	18.7	18.8	19.3	21.0	26.0	29.6	28.9	30.1	32.0	32.0	34.7	35.7	38.6	40.6
State and local purchases[c]	48.6	67.2	89.7	92.8	95.2	100.2	106.2	109.5	113.8	121.3	126.9	138.3	150.0	161.9	168.3	172.9	178.4	188.6	201.0	215.9	230.9	235.6	238.4	238.6
Defense-related purchases[d]	4.2	6.2	8.8	15.7	11.4	9.3	8.4	8.4	8.6	8.2	8.5	9.0	9.0	10.0	10.2	16.6	16.7	15.9	14.9	19.7	20.7	22.5	24.7	23.3

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

[a] Sum of total *Personal consumption of transportation* , total *Gross private domestic investment* , *Net exports of transportation-related goods and services* , and total *Government transportation-related purchases* .
[b] *Exports* minus *Imports* .
[c] *Federal purchases* and *State and local purchases* are the sum of consumption expenditures and gross investment.
[d] *Defense-related purchases* are the sum of transportation of material and travel.

NOTE

On July 31, 2009, the Bureau of Economic Analysis (BEA) released the results of the comprehensive, or benchmark, revision of the national income and product accounts (NIPAs) which resulted in many changes relative to previously published results.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables*, tables 1.1.5, 2.3.5, 2.4.5, 3.11.5, 3.15.5, 4.2.5, 5.4.5, and 5.5.5, available at http://www.bea.gov/National/nipaweb/SelectTable.asp?Selected=N as of Sept. 14, 2012.

Table 3-4: U.S. Gross Domestic Product (GDP) Attributed to Transportation-Related Final Demand (Billions of chained 2005 dollars)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	(R) 2008	(R) 2009
Gross Domestic Product	**(R) 9,086.0**	**(R) 9,425.8**	**(R) 9,845.9**	**(R) 10,274.7**	**(R) 10,770.7**	**(R) 11,216.4**	**(R) 11,337.5**	**(R) 11,543.1**	**(R) 11,836.4**	**(R) 12,246.9**	**(R) 12,623.0**	**(R) 12,958.5**	**(R) 13,206.4**	**13,161.9**	**12,703.1**
Total transportation-related final demand[a]	**(R) 993.8**	**1,038.2**	**1,102.1**	**(R) 1,165.0**	**1,217.5**	**(R) 1,211.9**	**1,223.9**	**(R) 1,226.3**	**(R) 1,229.1**	**(R) 1,250.5**	**(R) 1,264.8**	**(R) 1,252.9**	**(R) 1,270.8**	**1,176.3**	**1,102.2**
Total transportation in GDP (percent)	**10.9**	**11.0**	**11.2**	**11.3**	**11.3**	**10.8**	**10.8**	**10.6**	**10.4**	**10.2**	**10.0**	**9.7**	**9.6**	**8.9**	**8.7**
Personal consumption of transportation, total	**(R) 703.3**	**738.2**	**781.0**	**(R) 831.3**	**882.1**	**(R) 903.7**	**921.5**	**(R) 937.4**	**(R) 958.0**	**(R) 976.3**	**(R) 978.0**	**(R) 958.8**	**(R) 966.1**	**884.1**	**833.7**
Motor vehicles and parts	255.6	268.0	286.1	(R) 316.0	345.1	356.1	374.3	394.0	(R) 404.8	(R) 410.4	(R) 408.2	(R) 394.4	(R) 401.4	346.8	322.5
Motor vehicle fuels, lubricants, and fluids	233.8	238.8	246.1	256.1	263.5	261.3	263.6	267.5	276.3	282.1	283.8	278.9	276.8	265.3	263.1
Transportation services	(R) 213.9	231.4	248.8	259.2	273.5	(R) 286.3	283.6	(R) 275.9	(R) 276.9	(R) 283.8	(R) 286.0	(R) 285.5	(R) 287.9	272.0	248.1
Gross private domestic investment, total	**137.4**	**143.8**	**155.9**	**170.8**	**198.0**	**194.1**	**177.4**	**161.6**	**147.4**	**169.3**	**188.8**	**204.9**	**194.3**	**151.8**	**78.9**
Transportation structures	5.9	7.0	7.7	8.8	7.7	7.9	7.8	7.4	7.0	7.0	7.1	8.4	8.5	9.1	8.2
Transportation equipment	131.5	136.8	148.2	162.0	190.3	186.2	169.6	154.2	140.4	162.3	181.7	196.5	185.8	142.7	70.7
Exports (+), total	**163.1**	**171.7**	**196.4**	**209.3**	**208.1**	**204.5**	**195.8**	**194.5**	**187.4**	**199.2**	**216.6**	**233.8**	**246.8**	**246.1**	**198.3**
Civilian aircraft, engines, and parts	37.0	42.0	54.5	69.7	67.3	58.4	60.4	56.4	50.5	48.1	55.9	62.0	67.1	64.9	62.5
Automotive vehicles, engines, and parts	65.8	68.2	77.2	76.2	78.6	83.2	77.8	81.0	82.2	90.2	98.4	106.0	118.4	117.2	78.4
Passenger fares	27.1	29.2	31.4	30.7	28.1	28.6	24.5	22.7	18.9	20.3	21.0	21.9	23.4	25.8	24.8
Other transportation	33.2	32.3	33.3	32.7	34.1	34.3	33.1	34.4	35.8	40.6	41.3	43.9	37.9	38.2	32.6
Imports (-), total	**206.7**	**213.9**	**234.0**	**254.6**	**288.4**	**313.8**	**305.2**	**309.4**	**315.1**	**339.4**	**353.2**	**374.7**	**365.3**	**333.7**	**242.1**
Civilian aircraft, engines, and parts	14.4	16.4	20.7	26.7	28.6	30.7	35.2	28.0	25.8	25.2	25.8	27.3	31.5	30.6	25.1
Automotive vehicles, engines, and parts	131.2	135.7	146.6	156.1	186.7	202.9	196.7	210.5	216.0	230.6	239.4	255.6	253.1	224.3	151.9
Passenger fares	20.8	22.1	23.9	26.0	27.1	29.1	24.9	20.9	21.5	25.7	26.1	26.1	25.1	24.5	20.9
Other transportation	40.3	39.7	42.8	45.8	46.0	51.1	48.4	50.0	51.8	57.9	61.9	65.7	55.6	54.3	44.2
Net exports of transportation-related goods and services[b]	**-43.6**	**-42.2**	**-37.6**	**-45.3**	**-80.3**	**-109.3**	**-109.4**	**-114.9**	**-127.7**	**-140.2**	**-136.6**	**-140.9**	**-118.5**	**-87.6**	**-43.8**
Government transportation-related purchases, total	**196.7**	**198.4**	**202.8**	**208.2**	**217.7**	**223.4**	**234.4**	**242.2**	**251.4**	**245.1**	**234.6**	**230.1**	**228.9**	**228.0**	**233.4**
Federal purchases[c]	22.2	22.8	22.8	23.8	23.3	23.1	24.5	29.5	32.4	30.1	30.1	30.8	29.6	31.3	32.0
State and local purchases[c]	162.7	163.7	169.3	173.5	182.8	189.1	198.3	201.2	201.3	197.6	188.6	184.9	180.5	179.0	180.5
Defense-related purchases[d]	11.8	11.9	10.7	10.9	11.6	11.2	11.6	11.5	17.7	17.4	15.9	14.4	18.8	17.7	20.9

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

[a] Sum of *total Personal consumption of transportation* , *total Gross private domestic investment* , *Net exports of transportation-related goods and services* and *total Government transportation-related purchases* .
[b] *Exports* minus *Imports* .
[c] *Federal purchases* and *State and local purchases* are the sum of consumption expenditures and gross investment.
[d] *Defense-related purchases* are the sum of transportation of material and travel.

NOTE

The Bureau Economic Analysis has changed the reference year for chained dollar estimates from 2000 to 2005 as part of the comprehensive revision of the national income and product accounts in 2009.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables* , tables 1.1.6, 2.3.6, 2.4.6, 3.11.6, 3.15.6, 4.2.6, 5.4.6, and 5.5.6, available at http://www.bea.gov/National/nipaweb/SelectTable.asp?Selected=N as of Mar. 6, 2012.

Table 3-5: U.S. Gross Domestic Demand (GDD) Attributed to Transportation-Related Final Demand (Current $ billions)

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	(R) 2009	(R) 2010	2011
Gross Domestic Demand	**2,801.2**	**4,332.7**	**5,878.1**	**6,019.1**	**6,375.1**	**6,731.7**	**7,177.9**	**7,505.3**	**7,934.8**	**8,433.7**	**8,955.3**	**9,615.6**	**10,333.5**	**10,657.2**	**11,069.5**	**11,646.3**	**12,471.9**	**13,345.7**	**14,146.5**	**14,741.7**	**15,001.3**	**14,362.4**	**15,010.6**	**15,643.7**
Total domestic transportation-related final demand	**337.9**	**514.5**	**627.7**	**615.9**	**651.5**	**704.4**	**772.2**	**808.9**	**867.3**	**930.6**	**977.6**	**1,077.5**	**1,154.3**	**1,168.2**	**1,171.2**	**1,215.6**	**1,301.1**	**1,401.4**	**1,461.8**	**1,516.7**	**1,472.8**	**1,258.0**	**1,395.2**	**1,556.4**
Total transportation in GDD (percent)	12.1	11.9	10.7	10.2	10.2	10.5	10.8	10.8	10.9	11.0	10.9	11.2	11.2	11.0	10.6	10.4	10.4	10.5	10.3	10.3	9.8	8.8	9.3	9.9
Personal consumption of transportation, total	**226.5**	**357.4**	**442.9**	**418.3**	**451.3**	**485.3**	**528.2**	**554.0**	**599.0**	**641.8**	**669.2**	**730.5**	**798.4**	**814.1**	**818.3**	**857.0**	**909.2**	**978.0**	**1,007.0**	**1,049.9**	**1,029.7**	**879.2**	**960.4**	**1,079.4**
Motor vehicles and parts	84.4	170.1	205.1	185.7	204.8	224.7	249.8	255.7	273.5	293.1	320.2	350.7	363.2	383.3	401.3	401.0	403.9	408.2	394.8	399.9	339.3	316.0	342.7	373.6
Gasoline and oil	86.7	97.2	111.4	108.9	112.9	114.5	116.5	120.4	130.5	134.4	121.8	136.5	172.9	168.1	160.3	192.8	231.6	283.8	314.7	343.0	384.5	278.7	330.1	403.8
Transportation services	55.4	90.1	126.4	123.7	133.6	146.1	161.9	177.9	195.0	214.3	227.2	243.3	262.3	262.7	256.7	263.2	273.7	286.0	297.5	307.0	305.9	284.5	287.6	302.0
Gross private domestic investment, total	**51.6**	**73.7**	**73.4**	**74.6**	**78.3**	**93.3**	**111.9**	**120.5**	**128.6**	**141.6**	**154.3**	**180.9**	**177.6**	**161.2**	**148.4**	**139.5**	**167.9**	**188.8**	**206.9**	**199.2**	**156.8**	**85.0**	**133.1**	**174.5**
Transportation structures	3.2	4.7	3.4	3.1	3.6	3.9	4.2	4.4	5.4	6.1	7.2	6.5	6.8	7.0	6.8	6.6	6.8	7.1	8.7	9.0	9.9	9.1	9.9	9.8
Transportation equipment	48.4	69.0	70.0	71.5	74.7	89.4	107.7	116.1	123.2	135.5	147.1	174.4	170.8	154.2	141.6	132.9	161.1	181.7	198.2	190.2	146.9	75.9	123.2	164.7
Government transportation-related purchases, total	**59.8**	**83.4**	**111.4**	**123.0**	**121.9**	**125.8**	**132.1**	**134.4**	**139.7**	**147.2**	**154.1**	**166.1**	**178.3**	**192.9**	**204.5**	**219.1**	**224.0**	**234.6**	**247.9**	**267.6**	**286.3**	**293.8**	**301.7**	**302.5**
Federal purchases[a]	7.0	10.0	12.9	14.5	15.3	16.3	17.5	16.5	17.3	17.7	18.7	18.8	19.3	21.0	26.0	29.6	28.9	30.1	32	32	34.7	35.7	38.6	40.6
State and local purchases[a]	48.6	67.2	89.7	92.8	95.2	100.2	106.2	109.5	113.8	121.3	126.9	138.3	150.0	161.9	168.3	172.9	178.4	188.6	201	215.9	230.9	235.6	238.4	238.6
Defense-related purchases[b]	4.2	6.2	8.8	15.7	11.4	9.3	8.4	8.4	8.6	8.2	8.5	9.0	9.0	10.0	10.2	16.6	16.7	15.9	14.9	19.7	20.7	22.5	24.7	23.3

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.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables* , tables 1.4.5, 2.3.5, 2.4.5, 3.11.5, 3.15.5, 5.3.5 and 5.4.5, available at http://www.bea.gov/ as of Sept. 13, 2012.

Table 3-6: U.S. Gross Domestic Demand (GDD) Attributed to Transportation-Related Final Demand (Chained 2005 $ billions)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	(R) 2009	(R) 2010	2011
Gross Domestic Demand	**(R) 9,086.0**	**(R) 9,425.8**	**(R) 9,845.9**	**(R) 10,274.7**	**(R) 10,770.7**	**(R) 11,216.4**	**(R) 11,337.5**	**(R) 11,543.1**	**(R) 11,836.4**	**(R) 12,246.9**	**(R) 12,623.0**	**(R) 12,958.5**	**(R) 13,206.4**	**(R) 13,161.9**	**12,757.9**	**13,063.0**	**13,299.1**
Total domestic transportation-related final demand	**1,037.4**	**1,080.4**	**1,139.7**	**1,210.3**	**1,297.8**	**1,321.2**	**1,333.3**	**1,341.2**	**1,356.8**	**1,390.7**	**1,401.4**	**1,393.8**	**1,389.3**	**(R) 1,263.9**	**1,145.4**	**1,202.5**	**1,245.3**
Total transportation in GDD (percent)	(R) 11.4	(R) 11.5	(R) 11.6	(R) 11.8	(R) 12.0	(R) 11.8	(R) 11.8	(R) 11.6	(R) 11.5	(R) 11.4	(R) 11.1	(R) 10.8	(R) 10.5	(R) 9.6	9.0	9.2	9.4
Personal consumption of transportation, total	**703.3**	**738.2**	**781.0**	**831.3**	**882.1**	**903.7**	**921.5**	**937.4**	**958.0**	**976.3**	**978.0**	**958.8**	**966.1**	**884.1**	**832.7**	**837.6**	**853.6**
Motor vehicles and parts	255.6	268.0	286.1	316.0	345.1	356.1	374.3	394.0	404.8	410.4	408.2	394.4	401.4	346.8	322.6	329.5	347.4
Motor vehicle fuels, lubricants, and fluids	233.8	238.8	246.1	256.1	263.5	261.3	263.6	267.5	276.3	282.1	283.8	278.9	276.8	265.3	264.1	264.6	257.3
Transportation services	213.9	231.4	248.8	259.2	273.5	286.3	283.6	275.9	276.9	283.8	286.0	285.5	287.9	272.0	246.0	243.5	248.9
Gross private domestic investment, total	**137.4**	**143.8**	**155.9**	**170.8**	**198.0**	**194.1**	**177.4**	**161.6**	**147.4**	**169.3**	**188.8**	**204.9**	**194.3**	**151.8**	**77.3**	**128.5**	**165.4**
Transportation structures	5.9	7.0	7.7	8.8	7.7	7.9	7.8	7.4	7.0	7.0	7.1	8.4	8.5	9.1	8.2	8.9	8.7
Transportation equipment	131.5	136.8	148.2	162.0	190.3	186.2	169.6	154.2	140.4	162.3	181.7	196.5	185.8	142.7	69.1	119.6	156.7
Government transportation-related purchases, total	**196.7**	**198.4**	**202.8**	**208.2**	**217.7**	**223.4**	**234.4**	**242.2**	**251.4**	**245.1**	**234.6**	**230.1**	**228.9**	**(R) 228.0**	**235.4**	**236.4**	**226.3**
Federal purchases[a]	22.2	22.8	22.8	23.8	23.3	23.1	24.5	29.5	32.4	30.1	30.1	30.8	29.6	31.3	31.8	33.5	34.3
State and local purchases[a]	162.7	163.7	169.3	173.5	182.8	189.1	198.3	201.2	201.3	197.6	188.6	184.9	180.5	179.0	182.7	181.3	173.0
Defense-related purchases[b]	11.8	11.9	10.7	10.9	11.6	11.2	11.6	11.5	17.7	17.4	15.9	14.4	18.8	(R) 17.7	20.9	21.6	19.0

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.

NOTE

At the time of this publication, the Bureau of Economic Analysis (BEA) had only published chained 2005 dollar estimates from 1995 onward. Current dollar estimates for earlier years can be found in table 3-5.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables* , tables 1.4.6, 2.3.6, 2.4.6, 3.11.6, 3.15.6, 5.3.6 and 5.4.6, available at http://www.bea.gov/ as of Sept. 14, 2012.

Table 3-7: Contributions to Gross Domestic Product (GDP): Selected Industries (Current billions of dollars)

	1998	1999	2000	2001	2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008
GDP by industry, total	**8,794**	**9,354**	**9,952**	**10,286**	**10,642**	**11,142**	**11,853**	**12,623**	**13,377**	**14,029**	**14,292**
Agriculture, forestry, fishing, and hunting	100	93	96	99	94	116	143	127	123	145	159
Mining	81	82	109	119	110	135	159	192	230	255	319
Utilities	165	173	174	178	181	192	208	206	236	249	258
Construction	384	428	467	491	494	516	554	613	651	654	614
Manufacturing, durable goods	781	802	839	759	768	766	822	878	921	940	904
Manufacturing, nondurable goods	546	566	577	585	588	608	661	691	727	758	724
Wholesale trade	557	579	618	613	615	638	684	726	770	817	824
Retail trade	627	653	686	704	731	770	795	838	876	888	849
Transportation and warehousing	276	287	301	303	302	320	347	370	394	405	415
Information	386	439	418	451	500	507	559	587	591	636	637
Finance, insurance, real estate, rental, and leasing	1,697	1,834	1,998	2,155	2,222	2,317	2,400	2,599	2,765	2,857	2,917
Professional and business services	927	1,010	1,117	1,171	1,198	1,260	1,348	1,460	1,567	1,698	1,783
Educational services, health care, and social assistance	601	639	678	729	790	847	906	954	1,015	1,077	1,154
Arts, entertainment, recreation, accommodation, and food services	321	355	382	391	411	428	459	485	512	549	537
Other services, except government	246	259	278	264	285	289	301	313	332	344	343
Government, total	1,099	1,154	1,215	1,275	1,353	1,435	1,508	1,586	1,668	1,760	1,854
Government, federal	352	362	378	385	417	447	478	502	527	552	581
Government, state and local	747	792	837	890	936	988	1,029	1,084	1,141	1,208	1,274
Percent of GDP											
Agriculture, forestry, fishing, and hunting	1.14	0.99	0.96	0.96	0.89	1.04	1.20	1.01	0.92	1.03	1.12
Mining	0.92	0.88	1.09	1.16	1.03	1.21	1.34	1.52	1.72	1.81	2.23
Utilities	1.88	1.85	1.75	1.73	1.70	1.72	1.75	1.63	1.76	1.77	1.80
Construction	4.36	4.58	4.70	4.77	4.64	4.63	4.68	4.85	4.87	4.66	4.30
Manufacturing, durable goods	8.88	8.58	8.43	7.38	7.21	6.88	6.93	6.96	6.89	6.70	6.33
Manufacturing, nondurable goods	6.20	6.05	5.79	5.69	5.52	5.46	5.57	5.47	5.44	5.40	5.07
Wholesale trade	6.34	6.19	6.21	5.96	5.78	5.73	5.77	5.75	5.75	5.82	5.77
Retail trade	7.13	6.99	6.90	6.84	6.87	6.91	6.71	6.64	6.55	6.33	5.94
Transportation and warehousing	3.13	3.07	3.03	2.94	2.84	2.87	2.93	2.93	2.95	2.89	2.90
Information	4.39	4.69	4.20	4.39	4.70	4.55	4.71	4.65	4.41	4.53	4.46
Finance, insurance, real estate, rental, and leasing	19.30	19.61	20.07	20.95	20.88	20.79	20.25	20.59	20.67	20.37	20.41
Professional and business services	10.54	10.80	11.22	11.38	11.26	11.31	11.37	11.57	11.72	12.10	12.48
Educational services, health care, and social assistance	6.84	6.83	6.81	7.09	7.42	7.60	7.64	7.55	7.59	7.68	8.07
Arts, entertainment, recreation, accommodation, and food services	3.65	3.80	3.83	3.80	3.86	3.84	3.87	3.85	3.83	3.91	3.76
Other services, except government	2.79	2.77	2.79	2.57	2.68	2.59	2.54	2.48	2.48	2.45	2.40
Government, total	12.50	12.34	12.21	12.40	12.71	12.88	12.72	12.56	12.47	12.54	12.98
Government, federal	4.00	3.86	3.80	3.74	3.91	4.01	4.04	3.98	3.94	3.94	4.06
Government, state and local	8.50	8.47	8.41	8.66	8.80	8.87	8.68	8.59	8.53	8.61	8.91

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 Feb. 27, 2012.

Table 3-8: Contributions to Gross Domestic Product (GDP): Selected Industries (Billions of chained 2005 dollars)

	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009
GDP by industry, total	10,275	10,771	11,216	11,338	11,543	11,836	12,247	12,623	12,959	13,206	13,162	12,703
Agriculture, forestry, fishing, and hunting	89	93	104	100	104	115	123	127	128	118	129	143
Mining	286	265	233	263	266	232	229	192	209	214	206	249
Utilities	196	216	223	193	201	208	216	206	207	214	224	198
Construction	602	635	655	640	618	620	620	613	594	561	524	456
Manufacturing, durable goods	620	667	742	697	722	747	817	878	937	972	957	815
Manufacturing, nondurable goods	637	650	649	633	639	657	701	691	698	721	643	626
Wholesale trade	538	566	606	636	642	681	718	726	747	788	779	674
Retail trade	705	725	753	777	802	821	821	838	856	858	809	790
Transportation and warehousing	288	299	319	307	303	318	347	370	385	389	392	345
Information	364	414	398	427	475	484	544	587	595	641	652	629
Finance, insurance, real estate, rental, and leasing	1,992	2,123	2,263	2,400	2,395	2,431	2,456	2,599	2,704	2,732	2,712	2,743
Professional and business services	1,158	1,209	1,269	1,300	1,310	1,347	1,394	1,460	1,507	1,550	1,610	1,499
Educational services, health care, and social assistance	788	808	827	847	882	910	938	954	985	1,001	1,047	1,058
Arts, entertainment, recreation, accommodation, and food services	401	425	442	435	443	455	475	485	498	513	487	450
Other services, except government	339	342	347	311	321	314	315	313	318	318	305	289
Government, total	1,464	1,481	1,509	1,522	1,551	1,566	1,577	1,586	1,593	1,605	1,634	1,648
Government, federal	479	476	482	475	486	494	501	502	500	501	515	534
Government, state and local	985	1,006	1,027	1,046	1,065	1,072	1,076	1,084	1,093	1,104	1,119	1,115
Percent of GDP												
Agriculture, forestry, fishing, and hunting	0.86	0.86	0.92	0.88	0.90	0.97	1.00	1.01	0.99	0.90	0.98	1.12
Mining	2.79	2.46	2.07	2.32	2.31	1.96	1.87	1.52	1.61	1.62	1.57	1.96
Utilities	1.90	2.00	1.99	1.70	1.74	1.76	1.76	1.63	1.60	1.62	1.70	1.56
Construction	5.86	5.89	5.84	5.65	5.35	5.23	5.06	4.85	4.58	4.25	3.98	3.59
Manufacturing, durable goods	6.03	6.19	6.61	6.14	6.26	6.31	6.67	6.96	7.23	7.36	7.27	6.41
Manufacturing, nondurable goods	6.20	6.04	5.79	5.58	5.53	5.55	5.72	5.47	5.39	5.46	4.88	4.92
Wholesale trade	5.24	5.26	5.40	5.61	5.56	5.76	5.86	5.75	5.77	5.97	5.92	5.30
Retail trade	6.86	6.73	6.72	6.85	6.95	6.93	6.70	6.64	6.60	6.50	6.15	6.22
Transportation and warehousing	2.81	2.77	2.84	2.71	2.62	2.69	2.83	2.93	2.97	2.94	2.98	2.72
Information	3.54	3.84	3.55	3.77	4.11	4.09	4.44	4.65	4.59	4.85	4.95	4.95
Finance, insurance, real estate, rental, and leasing	19.39	19.71	20.17	21.17	20.75	20.54	20.06	20.59	20.86	20.69	20.60	21.59
Professional and business services	11.27	11.23	11.32	11.47	11.35	11.38	11.38	11.57	11.63	11.74	12.24	11.80
Educational services, health care, and social assistance	7.67	7.51	7.37	7.47	7.64	7.69	7.66	7.55	7.60	7.58	7.96	8.33
Arts, entertainment, recreation, accommodation, and food services	3.90	3.95	3.94	3.84	3.84	3.84	3.87	3.85	3.84	3.88	3.70	3.54
Other services, except government	3.30	3.18	3.10	2.74	2.78	2.66	2.57	2.48	2.46	2.41	2.32	2.28
Government, total	14.24	13.75	13.45	13.42	13.44	13.23	12.88	12.56	12.29	12.15	12.41	12.98
Government, federal	4.66	4.42	4.30	4.19	4.21	4.18	4.09	3.98	3.86	3.80	3.91	4.20
Government, state and local	9.59	9.34	9.15	9.23	9.23	9.06	8.79	8.59	8.43	8.36	8.50	8.77

KEY: R = revised.

NOTES

Numbers may not add to totals due to rounding.

Chained (2005) dollar series are calculated as the product of the chain-type quantity index and the 2005 current-dollar value of the corresponding series, divided by 100.

The formula for the chain-type quantity indexes uses weights of more than one period. Therefore, the corresponding chained-dollar estimates are usually not additive.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis, *Industry Economic Accounts* , available at http://www.bea.gov/industry/gpotables/ as of Feb. 27, 2012.

Table 3-9: Gross Domestic Product (GDP) by Major Social Function (Current $ billions)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	(R) 2007	(R) 2008	2009
Total GDP	5,992	6,342	6,667	7,085	7,415	7,839	8,332	8,794	9,354	9,952	10,286	10,642	11,142	11,868	12,638	13,399	14,062	14,369	14,119
Housing	1,274	1,355	1,452	1,570	1,646	1,751	1,843	1,968	2,111	2,249	2,366	2,451	2,597	2,808	3,072	3,212	3,165	3,079	2,931
Percent of total	21.3	21.4	21.8	22.2	22.2	22.3	22.1	22.4	22.6	22.6	23.0	23.0	23.3	23.7	24.3	24.0	22.5	21.4	20.8
Healthcare	802	872	925	974	1,030	1,082	1,151	1,226	1,298	1,395	1,496	1,619	1,723	1,840	1,973	2,084	2,215	2,326	2,383
Percent of total	13.4	13.7	13.9	13.7	13.9	13.8	13.8	13.9	13.9	14.0	14.5	15.2	15.5	15.5	15.6	15.6	15.7	16.2	16.9
Food	784	814	830	878	887	944	968	996	1,055	1,117	1,148	1,161	1,207	1,279	1,339	1,412	1,498	1,573	1,562
Percent of total	13.1	12.8	12.4	12.4	12.0	12.0	11.6	11.3	11.3	11.2	11.2	10.9	10.8	10.8	10.6	10.5	10.7	10.9	11.1
Transportation	595	637	682	741	771	827	895	930	1,007	1,057	1,051	1,076	1,103	1,169	1,263	1,325	1,409	1,381	1,213
Percent of total	9.9	10.0	10.2	10.5	10.4	10.6	10.7	10.6	10.8	10.6	10.2	10.1	9.9	9.8	10.0	9.9	10.0	9.6	8.6
Education	393	412	432	457	490	519	554	586	628	679	724	749	792	829	875	931	996	1,054	1,059
Percent of total	6.6	6.5	6.5	6.5	6.6	6.6	6.6	6.7	6.7	6.8	7.0	7.0	7.1	7.0	6.9	7.0	7.1	7.3	7.5
Other	2,144	2,252	2,347	2,465	2,591	2,716	2,921	3,087	3,254	3,454	3,502	3,587	3,721	3,943	4,115	4,435	4,779	4,956	4,971
Percent of total	35.8	35.5	35.2	34.8	34.9	34.7	35.1	35.1	34.8	34.7	34.0	33.7	33.4	33.2	32.6	33.1	34.0	34.5	35.2

KEY: R = revised.

NOTES

Details may not add to totals due to independent rounding.
Other includes all other categories (e.g. entertainment, personal care products and services, and payments to pension plans).

SOURCE

U.S. Department of Transportation, Bureau of Transportation Statistics, calculated based on data from U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Account Tables* , available at http://www.bea.gov/national/nipaweb/Index.asp as of Oct. 19, 2010.

Table 3-10: National Transportation and Economic Trends

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	2009
Passenger-miles (billions)	(R) 1,324	(R) 1,626	(R) 2,161	(R) 2,533	(R) 2,867	(R) 3,312	(R) 3,933	(R) 3,964	(R) 4,078	(R) 4,155	(R) 4,252	(R) 4,298	(R) 4,430	(R) 4,567	(R) 4,692	(R) 4,822	(R) 5,100	(R) 5,107	(R) 5,205	5,278	5,458	5,517	5,577	5,625	5,521	4,826
Index (1980 = 100)	(R) 46	(R) 57	(R) 75	(R) 88	(R) 100	(R) 116	(R) 137	(R) 138	(R) 142	(R) 145	(R) 148	(R) 150	(R) 155	(R) 159	(R) 164	(R) 168	(R) 178	(R) 178	(R) 182	184	190	192	195	196	193	168
Ton-miles (billions)	U	U	U	U	3,404	3,314	3,622	3,636	3,746	3,767	3,945	4,104	4,174	4,179	4,228	4,300	4,329	4,357	4,409	4,415	4,541	4,570	4,631	4,609	U	U
Index (1980 = 100)	U	U	U	U	100	97	106	107	110	111	116	121	123	123	124	126	127	128	130	130	133	134	136	135	U	U
Population[a] (millions)	181	194	205	216	228	238	250	253	257	260	263	267	270	273	276	279	282	285	288	291	293	296	299	302	305	307
Index (1980 = 100)	79	85	90	95	100	105	110	111	113	114	116	117	118	120	121	123	124	125	(R) 127	128	129	130	131	133	134	135
Industrial Production Index[b] (1980=100)	(R) 46	(R) 63	(R) 74	(R) 81	100	(R) 97	(R) 110	(R) 109	(R) 112	(R) 115	(R) 121	(R) 127	(R) 133	(R) 142	(R) 151	(R) 157	(R) 164	(R) 158	(R) 158	160	164	169	173	178	171	152
Gross Domestic Product																										
Current $ (billions)	526	719	1,038	1,638	2,788	4,218	5,801	5,992	6,342	6,667	7,085	7,415	7,839	8,332	8,794	9,354	9,952	10,286	10,642	11,142	11,853	12,623	13,377	14,029	14,292	13,939
Index (1980 = 100)	19	26	37	59	100	151	208	215	227	239	254	266	281	299	315	335	357	369	382	400	425	453	480	503	513	500
Chained (2005) $ (billions)	(R) 2,829	(R) 3,607	(R) 4,266	(R) 4,875	(R) 5,834	(R) 6,843	(R) 8,027	(R) 8,008	(R) 8,280	(R) 8,516	(R) 8,863	(R) 9,086	(R) 9,426	(R) 9,846	(R) 10,275	(R) 10,771	(R) 11,216	(R) 11,338	(R) 11,543	11,836	12,247	12,623	12,959	13,206	13,162	12,703
Index (1980 = 100)	48	62	73	84	100	117	138	137	142	146	152	156	162	169	176	185	192	194	198	203	210	216	222	226	226	218

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

[a] Annual estimates as of July 1 of each year. Data include Armed Forces abroad.

[b] *Industrial Production Index* covers manufacturing, mining, and utilities. To make it comparable with other data *Industrial Production Index* is re-based to the year 1980.

NOTES

Passenger miles is the summation of all modes from table 1-40 less transit motor bus and demand responsive.

Ton-miles is the summation of all modes from table 1-50.

SOURCES

Passenger-miles:

U.S. Department of Transportation, Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics *National Transportation Statistics*, table 1-40, available at http://www.bts.gov/publications/national_transportation_statistics/ as of Aug. 22, 2011.

Ton-miles:

U.S. Department of Transportation, Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics (BTS) *National Transportation Statistics*, table 1-50, available at http://www.bts.gov/publications/national_transportation_statistics/ as of Aug. 22, 2011.

Population:

U.S. Department of Commerce, U.S. Census Bureau, *Statistical Abstract of the United States* (Washington, DC: Annual Issues), table 2, available at http://www.census.gov/ as of Aug. 4, 2011.

Industrial Production Index:

1960-75: Council of Economic Advisors, Economic Report of the President, *Industrial Production Indexes*, table B-52, available at http://www.gpoaccess.gov/eop/download.html as of Feb. 09, 2010.

1980-2009: The Federal Reserve System, *Industrial Production and Capacity Utilization*, Annual Revision Release (Washington DC: March Annual Issues), table 1A, available at http://www.federalreserve.gov/releases/g17/ as of Aug. 4, 2011.

Gross Domestic Product:

U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Account Tables*, tables 1.1.5 and 1.1.6, available at http://www.bea.gov/national/nipaweb/SelectTable.asp?Selected=N as of Aug. 4, 2011.

Section B
Transportation and Consumer Expenditures

Table 3-11: Sales Price of Transportation Fuel to End-Users (Current ¢ / gallon)

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Aviation fuel (excluding taxes)																						
Aviation gasoline[a]	108.4	120.1	112.0	104.7	102.7	99.0	95.7	100.5	111.6	112.8	97.5	105.9	130.6	132.3	128.8	149.3	181.9	223.1	268.2	284.9	327.3	244.2
Jet fuel kerosene[a]	86.8	79.6	76.6	65.2	61.0	58.0	53.4	54.0	65.1	61.3	45.2	54.3	89.9	77.5	72.1	87.2	120.7	173.5	199.8	216.5	305.2	170.4
Highway fuel (including taxes)																						
Gasoline, premium[b]	N	134.0	134.9	132.1	131.6	130.2	130.5	133.6	141.3	141.6	125.0	135.7	169.3	165.7	155.6	177.7	206.8	249.1	280.5	303.3	351.9	260.7
Gasoline, regular[b]	124.5	120.2	116.4	114.0	112.7	110.8	111.2	114.7	123.1	123.4	105.9	116.5	151.0	146.1	135.8	159.1	188.0	229.5	258.9	280.1	326.6	235.0
Gasoline, all types	122.1	119.6	121.7	119.6	119.0	117.3	117.4	120.5	128.8	129.1	111.5	122.1	156.3	153.1	144.1	163.8	192.3	233.8	263.5	284.9	331.7	240.1
Diesel no. 2 (excluding taxes)[a]	81.8	78.9	72.5	64.8	61.9	60.2	55.4	56.0	68.1	64.2	49.4	58.4	93.5	84.2	76.2	94.4	124.3	178.6	209.6	226.7	315.0	183.4
Railroad fuel																						
Diesel	82.6	77.8	69.2	67.2	63.3	63.1	59.9	60.0	67.7	67.8	57.0	55.5	87.5	85.5	73.3	89.3	107.0	151.4	192.1	218.2	312.1	177.1

KEY: N = data do not exist.

[a] Sales to end-users (those sales made directly to the ultimate consumer, including bulk customers in agriculture, industry, and utility).
[b] Average retail price.

NOTE
For a comparison with other consumer goods prices see table 3-12.

SOURCES
All data except railroad fuel:
U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review* (Washington, DC: December 2011), tables 9.4 and 9.7, available at http://www.eia.doe.gov/emeu/mer/prices.html as of Jan. 6, 2012.
Railroad fuel:
Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 61.

Table 3-12: Price Trends of Gasoline v. Other Consumer Goods and Services

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Retail price of motor gasoline, all types (constant 2007 dollars per gallon)																						
Total service station price	(R) 1.91	(R) 2.20	(R) 3.00	(R) 2.15	(R) 1.82	(R) 1.74	(R) 1.67	(R) 1.59	(R) 1.56	(R) 1.56	(R) 1.63	(R) 1.59	(R) 1.35	(R) 1.45	(R) 1.82	(R) 1.71	(R) 1.57	(R) 1.79	(R) 2.06	(R) 2.44	(R) 2.66	2.80
Service station price excluding taxes	(R) 1.31	(R) 1.73	(R) 2.65	(R) 1.73	(R) 1.40	(R) 1.24	(R) 1.17	(R) 1.08	(R) 1.01	(R) 1.01	(R) 1.09	(R) 1.07	(R) 0.83	(R) 0.93	(R) 1.31	(R) 1.22	(R) 1.08	(R) 1.31	(R) 1.58	(R) 1.95	(R) 2.19	2.31
Average motor fuel taxes[a]	(R) 0.59	(R) 0.48	(R) 0.35	(R) 0.42	(R) 0.43	(R) 0.50	(R) 0.50	(R) 0.51	(R) 0.55	(R) 0.55	(R) 0.54	(R) 0.53	(R) 0.52	(R) 0.52	(R) 0.51	(R) 0.49	(R) 0.48	(R) 0.48	(R) 0.48	(R) 0.49	(R) 0.47	0.49
Retail price of motor gasoline, all types (current dollars per gallon)																						
Total service station price	0.36	0.57	1.22	1.20	1.22	1.20	1.19	1.17	1.17	1.21	1.29	1.29	1.12	1.22	1.56	1.53	1.44	1.64	1.92	2.34	2.64	2.85
Service station price excluding taxes	0.25	0.45	1.08	0.98	0.95	0.87	0.85	0.82	0.78	0.80	0.88	0.88	0.71	0.81	1.14	1.11	1.02	1.21	1.48	1.88	2.18	2.36
Average motor fuel taxes[a]	0.11	0.12	0.14	0.22	0.27	0.33	0.34	0.35	0.39	0.40	0.41	0.41	0.41	0.42	0.42	0.42	0.42	0.43	0.44	0.46	0.46	0.49
Consumer price indices (1982-84 = 100)																						
All items	39	54	82	108	131	136	140	145	148	152	157	161	163	167	172	177	180	184	189	195	202	207
Food	39	60	87	106	132	136	138	141	144	148	153	157	161	164	168	173	176	180	186	191	195	203
Shelter	36	49	81	110	140	146	151	156	161	166	171	176	182	187	193	201	208	213	219	224	232	241
Apparel	59	73	91	105	124	129	132	134	133	132	132	133	133	131	130	127	124	121	120	120	120	119
Motor fuel	28	45	97	99	101	99	99	98	99	100	106	106	92	101	129	125	117	136	160	196	221	239
Medical care	34	48	75	114	163	177	190	201	211	221	228	235	242	251	261	273	286	297	310	323	336	351

KEY: R = revised.

[a] State and federal taxes are weighted averages computed by the American Petroleum Institute, based on gasoline sold in the 50 states. Local taxes are excluded, but additional state sales taxes levied on motor fuel are included.

SOURCES

Retail price: Average motor fuel taxes:

American Petroleum Institute, Policy Analysis and Statistics, personal communication, April 2009.

Retail price: Total service station price:

1970-75: U.S. Department of Energy, Energy Information Agency, *Annual Energy Review 2003* (Washington, DC: 2004), table 5.24, available at http://www.eia.doe.gov as of September 2004.

1980-2007: Ibid., *Monthly Energy Review* (Washington, DC: March 2007), table 9.4, available at http://www.eia.doe.gov as of February 2009.

Consumer price indices:

1970-2007: U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Price Index-Urban (Current Series)* , available at http://www.bls.gov/cpi/ as of June 18, 2009.

Table 3-13: Producer Price Indices for Selected Transportation and Warehousing Services (North American Industry Classification System [NAICS] basis) (Base date = 100)

	Base date	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	(R) 2011	(P) 2012
Air transportation (NAICS 481)	12/92	U	U	100.0	105.6	108.5	113.7	121.1	125.3	124.5	130.8	147.7	157.2	157.8	162.1	162.3	171.0	180.4	183.7	203.8	188.5	202.9	218.3	227.5
Scheduled air transportation (NAICS 4811)	12/89	110.2	121.2	114.2	125.4	129.1	135.9	145.5	150.8	149.3	157.3	180.1	193.0	193.3	198.5	198.6	209.3	220.5	224.5	248.9	229.1	247.7	267.9	280.0
Scheduled air transportation (NAICS 48111)	12/89	110.2	121.2	114.2	125.4	129.1	135.9	145.5	150.8	149.3	157.3	180.1	193.0	193.3	198.5	198.6	209.3	220.5	224.5	248.9	229.1	247.7	267.9	280.0
Scheduled passenger air transportation (NAICS 481111)	12/89	110.6	122.4	114.8	126.8	130.6	137.8	148.1	153.9	152.6	161.2	186.5	200.6	200.4	205.7	205.8	217.1	229.6	234.5	257.1	236.1	254.7	273.5	285.0
Scheduled freight air transportation (NAICS 481112)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.2	104.9	108.4	109.0	127.8	119.1	130.2	145.9	155.8
Nonscheduled air transportation (NAICS 4812)	12/96	U	U	U	U	U	U	100.0	97.8	99.2	102.2	107.3	112.7	114.7	117.8	119.9	126.7	136.8	148.5	165.8	160.4	165.4	168.1	169.5
Nonscheduled air transportation (NAICS 48121)	12/96	U	U	U	U	U	U	100.0	97.8	99.2	102.2	107.3	112.7	114.7	117.8	119.9	126.7	136.8	148.5	165.8	160.4	165.4	168.1	169.5
Rail transportation (NAICS 482)	12/96	U	U	U	U	U	U	100.0	100.5	101.7	101.3	102.6	104.5	106.6	108.8	113.4	125.2	135.9	140.9	157.3	148.5	156.2	169.8	177.4
Rail transportation (NAICS 4821)	12/96	U	U	U	U	U	U	100.0	100.5	101.7	101.3	102.6	104.5	106.6	108.8	113.4	125.2	135.9	140.9	157.3	148.5	156.2	169.8	177.4
Rail transportation (NAICS 48211)	12/96	U	U	U	U	U	U	100.0	100.5	101.7	101.3	102.6	104.5	106.6	108.8	113.4	125.2	135.9	140.9	157.3	148.5	156.2	169.8	177.4
Line -haul railroads (NAICS 482111)	12/84	107.5	109.3	109.9	110.9	111.8	111.7	111.5	112.1	113.4	113.0	114.5	116.6	118.9	121.4	126.5	139.6	151.6	157.2	175.5	165.6	174.3	189.4	197.9
Water transportation (NAICS 483)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.3	106.4	111.1	113.5	127.0	116.1	125.5	133.4	136.2
Deep sea, coastal, and great lakes water transportation (NAICS 4831)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Deep sea, coastal, and great lakes water transportation (NAICS 48311)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Deep sea freight transportation (NAICS 483111)	06/88	113.1	119.5	116.4	115.9	114.4	113.3	114.1	113.1	116.7	134.0	155.8	172.2	185.8	219.9	225.9	231.9	233.3	230.0	258.3	218.8	244.8	253.8	249.3
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	130.2	141.8	137.4	146.7	158.5	166.7
Inland water transportation (NAICS 4832)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	103.2	119.3	144.1	146.7	172.0	166.7	171.4	186.0	192.8
Inland water transportation (NAICS 48321)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	103.2	119.3	144.1	146.7	172.0	166.7	171.4	186.0	192.8
Inland water freight transportation (NAICS 483211)	12/90	100.0	99.2	97.7	95.8	98.5	114.6	109.9	105.9	106.8	111.2	117.9	123.4	120.6	124.7	131.0	151.4	182.9	186.1	218.3	211.4	217.4	235.9	244.6
Truck transportation (NAICS 484)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	103.1	109.0	113.2	115.4	123.0	117.3	119.4	126.4	130.8
General freight trucking (NAICS 4841)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	103.5	110.0	114.1	116.5	123.6	117.5	119.3	126.8	132.5
General freight trucking, local (NAICS 48411)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	105.2	111.5	115.3	119.6	130.2	126.0	127.2	130.5	132.8
General freight trucking, local (NAICS 484110)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	105.2	111.5	115.3	119.6	130.2	126.0	127.2	130.5	132.8
General freight trucking, long distance (NAICS 48412)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	103.2	109.7	113.8	115.9	122.2	115.5	117.5	126.1	132.4
General freight trucking, long distance, truckload (NAICS 484121)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.7	108.6	112.0	113.5	119.5	111.0	113.3	120.9	126.4
General freight trucking, long distance, less than truckload (NAICS 484122)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	104.2	111.8	117.7	121.0	127.9	125.5	126.8	137.6	145.9
Specialized freight trucking (NAICS 4842)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.3	107.0	111.4	113.1	122.1	117.4	119.9	125.7	127.4
Used household and office goods moving (NAICS 48421)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.6	106.0	107.8	108.8	112.2	112.8	114.7	122.9	124.3
Used household and office goods moving (NAICS 484210)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.6	106.0	107.8	108.8	112.2	112.8	114.7	122.9	124.3
Specialized freight (except used goods) trucking, local (NAICS 48422)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.7	107.1	112.3	114.2	126.7	123.9	126.5	131.3	133.3
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	114.2	126.7	123.9	126.5	131.3	133.3
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	114.8	123.6	113.2	115.8	121.4	122.9
Specialized freight (except used goods) trucking, long distance (NAICS 484230)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.7	107.5	112.8	114.8	123.6	113.2	115.8	121.4	122.9
Pipeline transportation (NAICS 486)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	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	122.0	125.4	137.1	141.0	183.4	184.7	195.5
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	122.0	125.4	137.1	141.0	183.4	184.7	195.5
Pipeline transportation of crude oil (NAICS 486110)	06/86	94.2	94.4	94.8	95.0	102.5	113.4	104.7	96.0	96.8	95.5	101.0	111.1	112.3	111.1	115.2	125.5	135.3	138.9	152.0	156.3	203.3	204.7	216.7
Other pipeline transportation (NAICS 4869)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.4	105.2	108.2	115.0	121.6	128.7	133.8	137.3	144.7
Pipeline transportation of refined petroleum products (NAICS 48691)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.4	105.2	108.2	115.0	121.6	128.7	133.8	137.3	144.7
Pipeline transportation of refined petroleum products (NAICS 486910)	06/86	100.8	101.1	101.2	101.3	103.4	104.6	104.3	105.3	104.8	104.9	105.3	108.5	111.0	112.7	116.0	120.3	123.8	131.7	139.2	147.3	153.1	157.1	165.5
Support activities for transportation (NAICS 488)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.1	104.1	106.5	108.5	111.7	108.6	110.7	114.0	115.6
Support activities for air transportation (NAICS 4881)	12/96	U	U	U	U	U	U	100.0	102.5	105.2	108.6	114.2	117.5	121.4	125.1	128.1	134.2	138.6	141.0	145.4	149.2	154.5	157.5	158.8
Airport operations (NAICS 48811)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.1	104.8	108.6	109.6	112.3	117.9	122.1	123.4	125.1
Air traffic control (NAICS 488111)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Other airport operations (NAICS 488119)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.1	104.8	108.6	109.7	112.4	117.9	122.1	123.4	125.1
Other support activities for air transportation (NAICS 48819)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.0	107.5	110.8	112.9	117.0	117.5	121.8	125.1	125.8
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	112.9	117.0	117.5	121.8	125.1	125.8
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	112.7	117.3	116.8	120.2	123.9	127.6
Port and harbor operations (NAICS 48831)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.4	105.9	108.8	114.8	117.7	120.5	127.7	134.7	139.9
Port and harbor operations (NAICS 488310)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.4	105.9	108.8	114.9	117.7	120.5	127.7	134.7	139.9
Marine cargo handling (NAICS 48832)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.5	102.2	105.1	109.0	110.7	113.3	116.8	118.2	121.7
Marine cargo handling (NAICS 488320)	12/91	U	100.0	101.2	102.6	102.9	102.1	101.6	103.7	104.9	106.7	109.1	111.4	110.9	111.5	113.2	115.1	118.4	122.8	124.7	127.6	131.6	133.2	137.1
Navigational services to shipping (NAICS 48833)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.5	105.7	113.9	120.6	133.8	122.9	122.9	129.3	132.5
Navigational services to shipping (NAICS 488330)	12/92	U	U	100.0	99.8	101.5	107.2	110.9	113.3	115.6	119.7	124.2	125.4	127.4	129.3	133.1	138.6	149.5	158.2	175.6	161.3	161.2	169.6	173.9
Freight transportation arrangement (NAICS 4885)	12/96	U	U	U	U	U	U	100.0	99.4	97.7	97.3	98.3	98.2	97.5	97.9	98.9	99.1	98.8	100.2	102.5	94.8	95.2	98.7	100.0
Freight transportation arrangement (NAICS 48851)	12/96	U	U	U	U	U	U	100.0	99.4	97.7	97.3	98.3	98.2	97.5	97.9	98.9	99.1	98.8	100.2	102.5	94.8	95.2	98.7	100.0
Freight transportation arrangement (NAICS 488510)	12/94	U	U	U	U	100.0	99.8	101.5	101.4	99.7	99.2	100.3	100.3	99.5	99.9	100.9	101.1	100.9	102.2	104.6	96.8	97.1	100.8	102.0
Postal service (NAICS 491)	06/89	100.0	117.9	119.8	119.8	119.8	132.2	132.3	132.3	132.3	135.3	135.2	143.4	150.2	155.0	155.0	155.0	164.7	171.9	178.9	185.0	187.7	190.6	195.7
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	171.9	178.9	185.0	187.7	190.6	195.7
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	131.5	142.0	141.5	153.4	168.8	179.7
Couriers (NAICS 4921)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	106.6	115.0	123.2	133.5	144.4	143.8	156.6	173.0	184.4
Local messengers and local delivery (NAICS 4922)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.1	102.7	104.4	108.1	112.2	114.3	112.7	112.9	116.2
Warehousing and storage (NAICS 493)	12/06	U	U	U	U	82.7	84.1	84.6	85.4	86.5	89.0	90.8	93.2	94.5	95.8	U	U	U	102.5	106.5	107.2	105.5	103.5	101.1
Warehousing and storage (NAICS 4931)	12/06	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	102.5	106.5	107.2	105.5	103.5	101.1
General warehousing and storage (NAICS 49311)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.3	101.5	103.8	107.3	111.9	112.2	109.7	106.6	103.1
General warehousing and storage (NAICS 493110)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.4	101.6	103.8	107.4	111.9	112.2	109.7	106.6	103.1
Refrigerated warehousing and storage (NAICS 49312)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.5	101.0	102.4	104.0	106.7	109.5	110.5	111.0	111.8
Refrigerated warehousing and storage (NAICS 493120)	12/91	U	100.0	101.0	101.8	102.7	104.2	104.6	105.1	105.4	106.4	108.1	109.8	109.8	109.8	110.5	111.0	112.5	114.3	117.3	120.4	121.4	122.0	122.9
Farm product warehousing and storage (NAICS 49313)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.2	101.5	103.8	104.0	108.7	108.1	107.4	108.9	110.0
Farm product warehousing and storage (NAICS 493130)	12/92	U	U	100.0	100.1	100.9	104.0	102.4	102.9	104.1	107.1	110.6	114.2	115.6	116.1	116.5	118.1	120.6	120.9	126.4	125.6	124.9	126.7	127.9

KEY: NA = not applicable; NAICS = North American Industry Classification System; P = preliminary; R = revised; U = data are unavailable.

SOURCE

U.S. Department of Labor, Bureau of Labor Statistics,*Producer Price Index Industry Data* , available at www.bls.gov/data/sa.htm as of Jan. 30, 2013.

Table 3-14: Producer Price Indices for Transportation Equipment, NAICS Basis (Base date = 100)

	Base date	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	(P) 2012
Transportation equipment manufacturing (NAICS 336)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.9	102.5	103.2	104.9	107.3	109.5	110.4	112.3	114.7
Motor vehicle manufacturing (NAICS 3361)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	99.4	98.7	96.1	96.6	98.0	100.9	101.2	102.0	104.7
Automobile and light duty motor vehicle manufacturing (NAICS 33611)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	99.2	98.2	95.1	95.3	96.6	99.4	99.4	(R) 100.1	102.6
Automobile and light duty motor vehicle manufacturing (NAICS 336110)	06/82	119.9	125.3	129.1	133.2	138.0	139.1	140.4	138.7	136.8	137.6	138.7	137.6	134.9	135.1	136.5	135.1	130.8	131.1	132.9	136.7	136.8	(R) 137.7	141.3
automobile manufacturing (NAICS 336111)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Light truck and utility vehicle manufacturing (NAICS 336112)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	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	U	U	U	128.1	(R) 131.1	134.4
Heavy duty truck manufacturing (NAICS 336120)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	102.2	106.4	110.4	115.5	118.9	124.4	128.1	131.2	134.4
Motor vehicle body and trailer manufacturing (NAICS 3362)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	104.0	109.7	113.7	117.2	121.5	122.4	122.7	125.2	128.6
Motor vehicle body and trailer manufacturing (NAICS 33621)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	109.7	113.8	117.2	121.6	122.6	122.9	125.4	128.8
Motor vehicle body manufacturing (NAICS 336211)	12/82	125.4	128.1	131.1	132.8	136.8	145.5	149.9	153.5	155.3	157.0	160.3	163.3	165.6	167.5	176.7	190.3	200.0	205.0	212.0	216.4	217.7	(R) 220.9	226.2
Truck trailer manufacturing (NAICS 336212)	12/79	125.6	128.1	131.2	134.2	138.6	148.6	147.8	147.7	152.2	153.6	156.6	156.1	155.6	157.0	166.2	176.2	184.5	190.2	199.1	200.9	205.6	(R) 215.5	221.6
Motor home manufacturing (NAICS 336213)	06/84	125.8	128.7	131.8	133.9	134.5	137.8	141.6	143.1	145.0	147.6	149.4	151.8	154.8	157.8	163.8	169.3	166.6	171.1	174.6	170.7	168.5	170.4	174.9
Travel trailer and camper manufacturing (NAICS 336214)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.6	104.7	109.7	113.9	119.4	121.6	121.3	123.3	127.0
Motor vehicle parts manufacturing (NAICS 3363)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.4	102.7	104.8	106.8	108.8	108.5	109.8	111.6	112.8
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	112.3	115.2	103.7	108.0	(R) 112.6	114.2
Carburetor, piston, piston ring, and valve manufacturing (NAICS 3363101)	12/82	117.9	119.5	121.2	122.8	123.8	125.8	127.7	128.2	127.9	127.6	129.3	130.6	131.6	132.8	138.1	140.6	148.1	153.7	159.4	159.5	162.4	(R) 163.9	164.0
Gasoline engine and engine parts manufacturing (excluding carburetors) (NAICS 3363102)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.5	102.7	112.6	114.3	117.5	103.3	108.4	(R) 113.9	115.7
Motor vehicle electrical and electronic equipment manufacturing (NAICS 33632)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	101.5	102.3	103.5	103.0	103.2	103.8	105.4	106.4
Vehicular lighting equipment manufacturing (NAICS 3363201)	12/83	107.9	110.0	111.1	110.5	111.3	111.6	111.3	110.2	111.0	110.9	108.4	107.7	108.1	107.7	108.6	109.7	109.8	111.5	114.1	116.4	117.7	119.3	121.3
Other motor vehicle electrical and electronic equipment manufacturing (NAICS 3363202)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	99.9	99.4	99.5	99.8	99.6	99.3	99.5	100.4	100.7
Motor vehicle steering and suspension components (except Spring) manufacturing (NAICS 33633)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.8	105.1	106.3	105.0	106.5	105.3	105.9	(R) 106.7	107.4
Motor vehicle steering and suspension components (except spring) manufacturing (NAICS 336330)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.7	104.9	106.1	104.8	106.3	105.1	105.7	(R) 106.5	107.2
Motor vehicle brake system manufacturing (NAICS 33634)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	100.3	101.2	101.6	103.4	104.5	104.2	107.1	108.8
Motor vehicle brake system manufacturing (NAICS 336340)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	99.6	100.3	101.2	101.6	103.4	104.5	104.2	107.1	108.8
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	U	102.5	104.5	107.2	109.5	114.0	115.2	(R) 116.0	118.4
Motor vehicle transmission and power train parts manufacturing (NAICS 336350)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.9	101.2	103.2	105.9	108.1	112.7	113.8	(R) 114.6	117.0
Motor vehicle seating and interior trim manufacturing (NAICS 33636)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	99.5	99.8	100.0	99.3	99.9	99.1	99.5	99.9
Motor vehicle seating and interior trim manufacturing (NAICS 336360)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	99.1	99.5	99.8	100.0	99.3	99.9	99.1	(R) 99.5	99.9
Motor vehicle metal stamping (NAICS 33637)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	109.9	110.4	113.4	117.0	119.9	118	(R) 117.6	117.5
Motor vehicle metal stamping (NAICS 336370)	12/82	112.6	111.7	111.5	111.4	111.9	111.7	112.5	112.8	111.9	110.4	110.6	110.1	110.3	113.0	118.5	120.4	120.9	124.2	128.1	131.3	129.2	(R) 128.8	128.7
Other motor vehicle parts manufacturing (NAICS 33639)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	101.6	102.1	103.8	107.2	108.1	110.7	(R) 112.9	113.8
Motor vehicle air-conditioning manufacturing (NAICS 3363901)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.4	99.7	99.6	101.3	100.5	100.3	101.0	101.1	101.2
All other motor vehicle parts manufacturing (NAICS 3363909)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	100.6	101.9	102.3	104.3	108.1	109.1	112.2	114.8	115.7
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	182.8	188.6	196.2	200.6	203.4	210.8	215.7
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	182.8	188.6	196.2	200.6	203.4	210.8	215.7
Aircraft manufacturing (NAICS 336411)	12/85	116.0	120.4	124.3	128.6	132.9	137.3	140.5	142.3	142.7	144.1	150.5	155.7	158.8	164.2	170.8	180.9	188.8	193.9	201.7	204.9	207.8	216.8	222.6
Aircraft engine and engine parts manufacturing (NAICS 336412)	12/85	112.6	117.9	123.6	125.7	129.0	130.9	133.4	134.8	135.8	136.8	139.7	144.0	145.7	152.9	160.4	163.5	169.7	177.2	184.1	193.8	199	204.6	210.0
Other aircraft parts and auxiliary equipment manufacturing (NAICS 336413)	06/85	116.3	120.3	124.9	128.0	130.7	131.7	136.3	139.0	140.8	142.2	143.3	146.6	148.1	147.6	148.0	151.8	153.9	159.8	166.2	169.6	169.3	171.0	171.7
Guided missile and space vehicle manufacturing (NAICS 336414)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Guided missile and space vehicle propulsion unit and propulsion unit parts manufacturing (NAICS 336415)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Other guided missile and space vehicle parts and auxiliary equipment manufacturing (NAICS 336419)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Railroad rolling stock manufacturing (NAICS 3365)	06/84	114.2	117.3	118.7	119.8	122.6	127.6	129.7	127.4	127.6	128.2	128.6	128.3	127.7	129.0	135.8	150.5	158.4	165.6	169.3	171.5	174.0	176.4	180.5
Railroad rolling stock manufacturing (NAICS 336510)	06/84	114.2	117.3	118.7	119.8	122.6	127.6	129.6	127.4	127.5	128.1	128.6	128.2	127.7	128.9	135.7	150.3	158.2	165.4	169.2	171.4	173.9	176.3	180.4
Ship and boat building (NAICS 3366)	12/84	120.1	122.7	125.7	129.9	133.0	135.0	138.2	142.0	144.1	145.6	149.0	152.6	156.8	163.0	169.6	175.0	181.4	188.3	193.8	199.2	203.0	(R) 206.7	209.5
Ship and boat building (NAICS 33661)	12/84	120.1	122.7	125.7	129.9	133.0	135.0	138.2	142.0	144.1	145.6	149.0	152.6	156.8	163.0	U	175.0	181.4	188.3	193.8	199.2	203.0	(R) 206.7	209.5
Ship building and repairing (NAICS 336611)	12/85	114.0	116.2	118.3	123.3	126.8	127.6	130.1	133.3	134.8	135.4	137.6	140.1	144.1	151.7	159.8	163.9	169.9	177.0	181.6	187.4	191.1	195.0	196.4
Boat building (NAICS 336612)	12/81	136.0	140.1	144.9	147.7	150.2	154.6	159.6	165.0	168.6	172.7	179.4	186.3	190.5	194.2	198.0	206.7	214.1	220.9	228.4	233.4	237.4	(R) 241.2	246.6
Other transportation equipment manufacturing (NAICS 3369)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.1	103.6	104.8	106.3	106.4	107.2	107.7	108.7	109.9
Other transportation equipment manufacturing (NAICS 33699)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	U	103.6	104.8	106.3	106.4	107.2	107.7	108.7	109.9
Motorcycle, bicycle, and parts manufacturing (NAICS 336991)	12/84	109.9	111.8	114.4	116.9	119.0	122.2	123.3	123.3	124.2	125.5	127.7	127.9	128.6	128.6	130.0	132.2	132.3	132.9	135.3	138.2	138.5	(R) 139.6	142.0
Military armored vehicle, tank, and tank component manufacturing (NAICS 336992)	NA	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
All other transportation equipment manufacturing (NAICS 336999)	12/03	U	U	U	U	U	U	U	U	U	U	U	U	U	100.0	101.1	104.2	106.1	108.3	107.3	107.2	107.8	109.0	109.8

KEY: NA = not applicable; NAICS = North American Industry Classification System; P = preliminary; R = revised; U = data are unavailable.

SOURCE

U.S. Department of Labor, Bureau of Labor Statistics, *Producer Price Index Industry Data* , available at http://www.bls.gov/data/#productivity as of Jan. 28, 2013.

Table 3-15: Personal Expenditures by Category (Current $ millions)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	(R) 2009	(R) 2010	(R) 2011	2012
Total expenditures	331,795	443,811	648,301	1,033,788	1,755,826	2,717,608	3,835,453	3,980,073	4,236,891	4,483,594	4,750,806	4,987,280	5,273,608	5,570,626	5,918,488	6,342,784	6,830,371	7,148,807	7,439,191	7,804,120	8,270,574	8,803,526	9,300,999	9,772,270	10,035,524	9,845,903	10,215,722	10,729,044	11,120,865
Transportation	40,765	56,529	76,503	124,390	226,486	357,415	442,931	418,274	451,285	485,332	528,231	554,064	598,935	641,818	669,157	730,472	798,408	814,097	818,351	857,024	909,136	977,950	1,006,969	1,049,915	1,029,701	879,208	960,475	1,079,404	1,137,904
expenditures	12.3	12.7	11.8	12.0	12.9	13.2	11.5	10.5	10.7	10.8	11.1	11.1	11.4	11.5	11.3	11.5	11.7	11.4	11.0	11.0	11.0	11.1	10.8	10.7	10.3	8.9	9.4	10.1	10.2
Food and beverage	83,041	101,623	145,130	225,387	360,888	477,253	653,911	676,347	690,778	712,079	740,777	760,464	789,277	819,336	849,515	895,149	947,583	980,935	1,007,790	1,051,696	1,112,042	1,178,399	1,244,390	1,311,705	1,364,646	1,349,561	1,391,651	1,481,135	1,542,716
Clothing and footwear	29,263	36,483	49,945	71,433	108,834	154,300	206,959	210,436	223,024	230,952	239,687	244,146	252,712	262,012	273,015	287,050	297,319	294,337	295,168	301,732	314,560	330,197	344,150	352,696	347,973	333,221	347,944	366,070	383,419
Communication	5,206	7,535	11,606	19,955	31,796	53,104	70,093	73,870	81,142	85,767	93,263	98,942	108,317	120,106	130,593	144,727	162,067	171,320	177,468	182,906	189,145	193,774	206,821	220,892	230,733	229,042	236,973	246,738	248,122
Final consumption expenditures of nonprofit institutions serving households	5,276	7,192	11,089	18,050	31,888	50,346	79,614	84,245	92,343	94,622	102,369	107,170	115,715	112,248	130,995	145,407	165,368	186,204	205,005	211,261	209,375	211,707	239,977	253,916	284,586	279,508	279,656	291,943	302,414
Health	20,363	31,977	56,849	102,717	195,473	345,323	583,724	638,374	700,443	741,681	779,896	826,007	868,312	919,880	979,652	1,033,334	1,109,594	1,209,403	1,317,080	1,405,726	1,507,478	1,605,141	1,694,544	1,798,389	1,884,926	1,966,741	2,044,121	2,154,979	2,239,749
Household operation[a]	26,179	34,706	46,617	67,805	110,737	155,993	200,559	199,109	209,398	221,891	238,616	251,692	263,723	277,270	296,846	319,652	342,492	351,096	363,539	374,666	397,011	418,712	436,491	442,549	432,927	402,692	410,151	429,586	451,059
Housing, utilities, and fuels	60,525	80,999	113,786	184,843	327,026	513,995	709,115	747,817	783,331	826,866	879,204	926,774	975,497	1,023,141	1,076,806	1,137,399	1,214,461	1,303,244	1,349,054	1,410,568	1,480,247	1,602,565	1,706,759	1,777,943	1,856,981	1,892,179	1,914,192	1,954,464	1,987,750
Financial services and insurance	13,551	19,394	31,071	54,014	95,599	180,539	253,218	281,979	311,759	341,016	349,027	364,689	393,631	431,297	469,649	514,234	569,962	562,791	576,166	602,466	651,686	698,429	732,625	790,290	806,980	741,766	796,272	807,054	828,644
Recreation	19,711	28,891	47,017	77,053	127,440	207,163	314,746	326,272	346,841	378,423	413,996	449,768	481,538	509,502	545,957	593,596	639,851	655,708	680,923	715,487	770,558	817,675	872,003	918,690	923,517	880,975	907,009	952,031	997,737
Education	3,360	5,465	9,914	15,886	25,443	41,172	65,958	70,561	76,442	81,086	86,364	92,304	99,627	107,120	115,244	123,931	134,291	143,615	149,527	159,889	169,844	181,884	194,636	208,616	222,236	233,796	249,889	265,918	279,938
Foreign travel, net	2,121	2,858	4,514	4,445	3,540	7,742	-7,673	-15,219	-19,951	-20,662	-17,497	-21,462	-24,511	-21,506	-13,739	-13,798	-13,328	-7,409	-5,148	-499	639	43	3,755	-3,191	-16,249	-11,643	-16,272	-23,835	-28,641
Other	22,433	30,157	44,263	67,808	110,675	173,267	262,297	268,009	290,055	304,538	316,871	332,720	350,833	368,398	394,794	431,633	462,303	483,468	504,265	531,194	558,851	587,048	617,874	649,863	666,565	668,857	693,661	723,560	750,046
Disposable Personal Income (DPI)	365,200	497,800	735,500	1,187,300	2,002,700	3,079,300	4,254,000	4,444,900	4,736,700	4,921,600	5,184,300	5,457,000	5,759,600	6,074,600	6,498,900	6,803,300	7,327,200	7,648,500	8,009,700	8,377,800	8,889,400	9,277,300	9,915,700	10,423,600	11,024,500	10,722,400	11,127,100	11,549,300	11,931,200
Transportation as a percent of DPI	11.2	11.4	10.4	10.5	11.3	11.6	10.4	9.4	9.5	9.9	10.2	10.2	10.4	10.6	10.3	10.7	10.9	10.6	10.2	10.2	10.2	10.5	10.2	10.1	9.3	8.2	8.6	9.3	9.5

KEY: R = revised.

[a] Includes furnishings, household equipment, and routine household maintenance.

NOTES

Numbers may not add to totals due to rounding.

The categories have been revised due to the Comprehensive Benchmark revision by the source in 2010, thus this table is not comparable to the 2009 and earlier editions.

SOURCES

DPI:

U.S. Department of Commerce, Bureau of Economic Analysis,*National Income and Product Accounts Tables* , table 2.1, available at http://www.bea.gov/national/nipaweb/SelectTable.asp?Selected=N#S2 as of Mar. 19, 2013.

All except DPI:

Ibid., *National Income and Product Accounts Tables* , table 2.3.5u, available at http://www.bea.gov/national/nipaweb/nipa_underlying/SelectTable.asp as of Mar. 19, 2013.

Table 3-16: Personal Consumption Expenditures on Transportation by Subcategory (Current millions of dollars)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	(R) 2009	(R) 2010	2011
TOTAL transportation	**40,800**	**56,500**	**76,500**	**124,400**	**226,500**	**357,400**	**442,900**	**418,300**	**451,300**	**485,300**	**528,200**	**554,100**	**598,900**	**641,800**	**669,200**	**730,500**	**798,400**	**814,100**	**818,400**	**857,000**	**909,100**	**978,000**	**1,007,000**	**1,049,900**	**1,029,700**	**879,200**	**960,500**	**1,079,400**
User-operated transportation, total	**39,510**	**55,325**	**74,483**	**121,054**	**218,784**	**349,065**	**433,278**	**409,458**	**444,552**	**479,512**	**523,379**	**548,274**	**592,165**	**631,797**	**658,024**	**719,714**	**780,631**	**802,062**	**811,282**	**850,517**	**903,498**	**974,480**	**998,766**	**1,044,162**	**1,019,543**	**869,903**	**948,045**	**1,063,296**
New cars and net purchases of used cars	16,571	25,191	26,754	36,775	57,243	110,679	118,988	103,658	112,410	120,391	133,268	132,634	135,930	139,384	146,306	155,938	160,260	157,556	155,296	144,639	144,787	153,122	154,218	148,960	133,657	115,966	118,367	131,424
New and used trucks and RVs	606	1,284	2,667	7,739	11,849	40,988	63,882	60,337	70,115	80,809	91,229	96,231	108,636	123,810	144,833	165,365	173,295	195,945	216,558	227,020	229,372	223,740	207,409	216,067	168,822	162,840	183,990	198,425
Motor vehicle parts and accessories	2,487	3,450	6,087	10,287	17,926	23,483	28,254	27,803	28,727	30,797	33,737	35,366	37,647	39,133	39,477	41,069	41,788	41,260	41,674	42,785	44,327	46,590	48,240	50,055	48,912	46,188	49,568	53,309
Repair and rental[a]	5,262	7,214	11,776	18,971	32,597	58,035	82,033	78,832	86,705	95,755	108,622	121,371	134,351	147,753	154,548	166,189	176,972	181,925	179,036	180,816	185,721	194,580	201,926	208,683	205,596	190,135	190,560	199,200
Gasoline and oil	12,004	14,751	21,921	39,703	86,689	97,205	111,440	108,852	112,864	114,518	116,492	120,410	130,494	134,428	121,791	136,456	172,929	168,083	160,273	192,793	231,555	283,798	314,665	342,973	384,516	278,711	330,122	403,787
Parking fees and tolls	567	816	1,205	1,652	2,529	4,004	5,171	5,546	6,427	6,864	7,281	7,766	8,405	9,482	10,687	11,463	12,318	12,859	12,747	13,393	14,221	15,036	15,334	15,657	16,322	16,341	16,960	18,018
Insurance premiums, less claims paid[b]	2,013	2,619	4,073	5,927	9,951	14,671	23,510	24,430	27,304	30,378	32,750	34,496	36,702	37,807	40,382	43,234	43,069	44,434	45,698	49,071	53,515	57,614	56,974	61,767	61,718	59,722	58,478	59,133
Purchased intercity transportation, total	**1,447**	**2,145**	**4,156**	**7,402**	**15,376**	**21,014**	**29,468**	**28,827**	**29,338**	**31,973**	**34,231**	**37,071**	**40,241**	**45,141**	**49,015**	**52,325**	**59,015**	**53,237**	**50,195**	**53,837**	**57,220**	**58,903**	**61,162**	**63,741**	**64,159**	**57,614**	**59,348**	**63,011**
Railroad	448	429	395	474	588	616	696	697	546	526	488	482	489	490	519	555	635	697	726	713	719	733	810	906	996	919	1,033	1,103
Intercity bus	154	206	311	455	873	754	615	674	682	724	776	836	895	1,022	1,118	1,202	1,360	1,410	1,412	1,394	1,353	1,306	1,303	1,206	1,302	1,091	938	997
Airline	678	1,279	3,075	5,890	12,768	18,088	25,891	25,069	25,581	27,742	29,226	31,072	33,269	37,216	40,269	43,042	49,166	42,873	39,515	43,348	46,163	47,654	49,368	51,596	51,603	45,811	46,970	49,823
Other[c]	167	231	375	583	1,147	1,556	2,266	2,387	2,529	2,981	3,741	4,681	5,588	6,413	7,109	7,526	7,854	8,257	8,542	8,382	8,985	9,210	9,681	10,033	10,258	9,793	10,407	11,088
Purchased local transportation, total	**1,904**	**1,958**	**2,906**	**4,019**	**4,864**	**7,093**	**9,701**	**10,468**	**11,153**	**11,507**	**11,761**	**11,738**	**11,958**	**11,931**	**12,910**	**13,309**	**13,947**	**14,703**	**14,752**	**15,161**	**16,545**	**17,444**	**19,072**	**18,941**	**19,834**	**20,394**	**20,762**	**21,791**
Mass transit system	1,295	1,346	1,726	2,051	2,998	4,521	7,124	7,843	8,567	8,794	8,962	8,749	8,796	8,673	9,411	10,040	10,876	11,336	11,298	11,952	12,769	13,415	14,624	14,558	15,493	16,033	16,218	17,300
Taxi	609	612	1,180	1,968	1,866	2,572	2,577	2,625	2,586	2,713	2,799	2,989	3,162	3,258	3,499	3,269	3,071	3,367	3,454	3,209	3,776	4,029	4,448	4,383	4,341	4,361	4,544	4,491

KEY: R = revised; RVs = recreational vehicles.

[a] Also includes greasing, washing, storage, and leasing.
[b] Consists of premiums plus premium supplements less normal losses and dividends paid to policyholders for motor vehicles insurance.
[c] Consists of baggage charges, coastal and inland waterway fares, travel agents' fees, airports bus fares, and limousine services.

NOTES
Numbers may not add to totals due to rounding.

SOURCE
U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables* , tables 2.5.5 and 2.4.5U , available at http://www.bea.gov/national/index.htm as of Sept. 25, 2012.

Table 3-17: Average Cost of Owning and Operating an Automobile[a] (Assuming 15,000 Vehicle-Miles per Year)

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Average total cost per mile (current ¢)	14.4	21.2	23.2	33.0	37.3	38.8	38.7	39.4	41.2	42.6	44.8	46.1	47.0	49.1	51.0	50.2	51.7	56.2	52.2	52.2	54.1	54.0	56.6	58.5
Gas[b]	4.8	5.9	5.6	5.4	6.6	5.9	5.9	5.6	5.8	5.6	6.6	6.2	5.6	6.9	7.9	5.9	7.2	6.5	9.5	8.9	11.7	10.1	11.4	12.3
Gas as a percent of total cost[b]	33.4	27.9	24.0	16.4	17.7	15.2	15.2	14.2	14.1	13.1	14.7	13.5	11.9	14.1	15.5	11.7	13.9	11.6	18.2	17.1	21.6	18.7	20.1	21.1
Maintenance[c]	1.0	1.1	1.2	2.1	2.2	2.2	2.4	2.5	2.6	2.8	2.8	3.1	3.3	3.6	3.9	4.1	4.1	5.4	4.9	4.9	4.6	4.6	4.5	4.4
Tires	0.7	0.6	0.7	0.9	0.9	0.9	0.9	1.0	1.2	1.2	1.4	1.4	1.7	1.7	1.8	1.8	1.8	0.7	0.7	0.7	0.7	0.8	0.8	1.0
Average total cost per 15,000 miles (current $)	2,154	3,176	3,484	4,954	5,601	5,824	5,804	5,916	6,185	6,389	6,723	6,908	7,050	7,363	7,654	7,533	7,754	8,431	7,834	7,823	8,121	8,095	8,487	8,776
Variable cost	968	1,143	1,113	1,260	1,455	1,350	1,380	1,365	1,440	1,440	1,620	1,605	1,590	1,829	2,040	1,770	1,965	1,890	2,265	2,175	2,545	2,313	2,511	2,662
Fixed cost[u]	1,186	2,033	2,371	3,694	4,146	4,474	4,424	4,551	4,745	4,949	5,103	5,303	5,460	5,534	5,614	5,764	5,789	6,541	5,569	5,648	5,576	5,783	5,976	6,114

[a] All figures reflect the average cost of operating a vehicle 15,000 miles per year in stop and go conditions.

[b] Prior to 2004, data include oil cost.

[c] Beginning in 2004, data include oil cost.

[d] *Fixed costs* (ownership costs) include insurance, license, registration, taxes, depreciation, and finance charges.

NOTES

Changes in methodology have been made in 1985 and 2004, and thus costs may not be comparable before and after those years.

In 2004, the American Automobile Association adopted a new method for calculating vehicle operating costs that represent the real-world personal use of a vehicle over a five-year and 75,000-mile ownership period. The total cost of owning and operating an automobile include fuel, *Maintenance* , *Tires* , insurance, license, registration and taxes, depreciation, and finance.

Prior to 1985, the cost figures are for a mid-sized, current model, American car equipped with a variety of standard and optional accessories. After 1985, the cost figures represent a composite of three current model American cars. The 2004 fuel costs are based on average late-2003 U.S. prices from AAA's Fuel Gauge Report: www.fuelgaugereport.com. Insurance figures are based on a full-coverage policy for a married 47-year-old male with a good driving record living in a small city and commuting three to ten miles daily to work. The policy includes $100,000/$300,000 level coverage with a $500 deductible for collision coverage and a $100 deductible for comprehensive coverage. Depreciation costs are based on the difference between new-vehicle purchase price and its estimated trade-in-value at the end of five years. American Automobile Association analysis covers vehicles equipped with standard and optional accessories including automatic transmission, air conditioning, power steering, power disc brakes, AM/FM stereo, driver- and passenger-side air bags, anti-lock brakes, cruise control, tilt steering wheel, tinted glass, emissions equipment, and rear-window defogger.

The sum of *Variable* and *Fixed costs* may not add to totals due to rounding.

SOURCE

American Automobile Association, *Your Driving Costs* (Heathrow, FL: Annual Issues), available at http://www.aaapublicaffairs.com/Main/ as of Apr. 13, 2011.

Table 3-18: Average Passenger Fares (Current dollars)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Air carrier, domestic, scheduled service	33.01	34.13	40.65	53.64	84.60	92.53	107.96	106.82	103.97	110.30	103.71	107.14	110.79	114.18	114.45	115.09	121.29	111.60	101.68	106.77	105.14	106.48	114.39	114.10	120.57	105.41	113.66	122.82
Class I bus, intercity[a]	2.46	2.73	3.81	5.46	10.57	11.98	20.22	21.86	21.15	21.32	19.77	20.10	22.85	20.83	23.14	26.16	29.46	30.27	30.11	U	U	U	U	U	U	U	U	U
Transit, all modes[b] (unlinked)	0.14	0.16	0.22	0.27	0.30	0.53	0.67	0.70	0.72	0.77	0.85	0.88	0.93	0.90	0.91	0.90	0.93	0.92	0.90	0.96	1.01	1.03	1.26	1.07	1.11	1.17	1.22	1.30
Commuter rail	0.64	0.71	0.84	1.04	1.41	2.85	2.90	3.01	3.09	3.09	3.19	3.13	3.25	3.30	3.29	3.30	3.33	3.43	3.49	3.79	3.90	4.08	4.22	4.32	4.58	4.68	4.84	5.26
Intercity rail / Amtrak[c]	4.22	3.92	3.19	12.96	17.72	26.15	39.59	41.19	40.78	40.11	39.10	39.92	43.31	45.26	44.75	46.85	49.61	51.58	55.15	50.68	50.04	51.47	56.45	58.94	60.52	58.75	60.67	U

KEY: U = data are unavailable.

[a] Regular route *Intercity* service.

[b] Prior to 1984, excludes *Commuter rail*, 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: 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).

1990-2011: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *TranStats Database, T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class*, available at http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=264&DB_Short_Name=Air%20Carrier%20Summary as of Feb. 29, 2012, and *Air Carrier Financial Reports*, Schedule P-11 and Schedule P-12, available at http://www.transtats.bts.gov/databases.asp?Mode_ID=1&Mode_Desc=Aviation&Subject_ID2=0 as of March 4, 2013.

Class I bus, intercity:

1960-93: Interstate Commerce Commission, *Transport Statistics in the United States, Motor Carriers* (Washington, DC: Annual Issues), part 2.

1994-2002: U.S. Department of Transportation, Bureau of Transportation Statistics, *Selected Earnings Data, Class I Motor Carriers of Passengers* (Washington, DC: Annual Issues) (operating revenue / revenue passengers).

Transit and commuter rail:

1960-2001: American Public Transportation Association, *Public Transportation Fact Book Appendix A: Historical Tables* (Washington, DC: Annual Issues), table 43, and similar tables in earlier editions (passenger fares / passenger trips).

2002-11: U.S. Department of Transportation, Federal Transit Administration, National Transit Database, *Data Tables* (Washington, D.C.: Annual Reports), table 26, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of March 4, 2013.

Intercity rail / Amtrak:

1960-70: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues).

1975-80: National Passenger Rail Corporation (Amtrak), State and Local Affairs Department and Public Affairs Department, personal communication.

1985-96: National Passenger Rail Corporation (Amtrak), *Amtrak Annual Report*, Statistical Appendix (Washington, DC: Annual Issues) (transportation revenues / Amtrak system passenger trips).

1997-2010: National Passenger Rail Corporation (Amtrak), *Amtrak Annual Report* (Washington, DC: Annual Issues) (ticket revenue per passenger mile multiplied by average trip length of passengers), p. 67, available at http://www.amtrak.com/servlet/ContentServer?c=Page&pagename=am%2FLayout&cid=1241245669222 as of March 4, 2013.

Table 3-19: Average Passenger Fares (Chained 2005 dollars)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	(R) 2009	(R) 2010	2011
Air carrier, domestic, scheduled service	125.93	125.30	125.65	122.75	111.62	101.89	106.97	108.04	103.81	103.54	102.54	104.44	113.28	110.08	108.75	109.22	109.90	109.79	111.22	114.09	112.30	106.48	106.56	104.95	100.57	94.32	94.89	95.07
Class I bus, intercity[a]	21.06	22.08	24.34	22.24	26.92	19.46	27.74	28.64	27.27	28.40	26.35	27.61	30.82	27.96	29.46	32.54	35.01	34.86	33.60	U	U	U	U	U	U	U	U	U
Transit, all modes[b] (unlinked)	1.27	1.26	1.15	1.22	0.94	1.05	1.07	1.09	1.06	1.10	1.20	1.21	1.17	1.11	1.14	1.14	1.16	1.12	1.07	1.06	1.05	1.03	1.22	1.01	1.02	1.02	1.02	1.04
Commuter rail[c]	4.58	5.00	5.02	4.82	3.95	5.09	3.79	3.83	3.88	3.82	3.90	3.64	3.54	3.60	3.51	3.39	3.32	3.26	3.20	3.51	3.95	4.08	3.87	4.05	4.10	4.20	4.10	4.45
Intercity rail / Amtrak[d]	30.19	27.62	19.07	60.02	49.67	46.69	51.79	52.45	51.20	49.59	47.86	46.39	47.22	49.40	47.68	48.14	49.42	49.00	50.53	46.91	50.64	51.47	51.84	55.23	54.17	52.69	51.37	U

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

[a] Regular route *Intercity* service.
[b] Prior to 1984, excludes commuter railroad, automated guideway, urban ferryboat, demand responsive, and most rural and smaller systems.
[c] This category is now deflated using the railway transportation instead of mass transit deflator and the *Intercity rail* deflator used in previous editions.
[d] *Amtrak* began operations in 1971.

NOTES

This table is deflated using data from the Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts tables*, table 2.4.4U. Lines 203, 199, 201 and 197 are used respectively to deflate their corresponding rows.

The Bureau of Economic Analysis has changed the reference year for chained dollar estimates from 2000 to 2005 as part of the comprehensive revision of the national income and product accounts in 2009. As a result all the data are revised and cannot be comparable with the previous editions.

SOURCES

Air carrier, domestic, scheduled service:

1960: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: February 1970), part III, table 2 (enplanements); part IV, table 2 (passenger revenue).
1965-70: Ibid. *Handbook of Airline Statistics, 1973* (Washington, DC: March 1974), part III, table 2 (enplanements); part IV, table 2 (passenger revenue).
1975-80: Ibid. *Air Carrier Financial Statistics* (Washington, DC: Annual December issues), p. 1, line 3; and *Air Carrier Traffic Statistics (* Washington, DC: Annual December Issues), p. 2, line 16 (passenger revenue / revenue passenger enplanements).
1985: 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).
1990-2010: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *TranStats Database, T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class,* available at http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=264&DB_Short_Name=Air%20Carrier%20Summary as of Feb. 29, 2012, and *Air Carrier Financial Reports*, Schedule P-11 and Schedule P-12, available at http://www.transtats.bts.gov/databases.asp?Mode_ID=1&Mode_Desc=Aviation&Subject_ID2=0 as of March 4, 2013.

Class I bus, intercity:

1960-93: Interstate Commerce Commission, *Transport Statistics in the United States, Motor Carriers* (Washington, DC: Annual Issues), part 2.
1994-2002: U.S. Department of Transportation, Bureau of Transportation Statistics, *Selected Earnings Data, Class I Motor Carriers of Passengers* (Washington, DC: Annual Issues) (operating revenue / revenue passengers).

Transit and commuter rail:

1960-2001: American Public Transportation Association, *Public Transportation Fact Book Appendix A: Historical Tables* (Washington, DC: Annual Issues), table 43, and similar tables in earlier editions (passenger fares / passenger trips).
2002-10: U.S. Department of Transportation, Federal Transit Administration, National Transit Database, *Data Tables* (Washington, D.C.: Annual Reports), table 26, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of March 4, 2013.

Intercity rail / Amtrak:

1960-70: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues).
1975-80: National Passenger Rail Corporation (Amtrak), State and Local Affairs Department and Public Affairs Department, personal communication.
1985-96: National Passenger Rail Corporation (Amtrak), *Amtrak Annual Report*, Statistical Appendix (Washington, DC: Annual Issues) (transportation revenues / Amtrak system passenger trips).

1997-2010: National Passenger Rail Corporation (Amtrak), *Amtrak Annual Report* (Washington, DC: Annual Issues) (ticket revenue per passenger mile multiplied by average trip length of passengers), p. 67, available at http://www.amtrak.com/servlet/ContentServer?c=Page&pagename=am%2FLayout&cid=1241245669222 as of March 4, 2013.

Section C
Transportation Revenues, Employment, and Productivity

Table 3-20: Average Passenger Revenue per Passenger-Mile (Current ¢)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Air carrier, domestic, scheduled service	6.1	6.1	6.0	7.7	11.5	12.2	13.4	13.2	12.9	(R) 13.8	(R) 13.2	13.5	13.8	14.0	14.1	14.0	14.6	13.2	12.0	12.7	12.2	12.3	13.1	13.1	13.8	12.1	13.0	13.9
Index (1990 = 100)	45	45	45	57	86	91	100	99	96	(R) 103	98	101	103	104	105	104	108	99	89	94	91	92	98	97	103	90	97	104
Commuter rail	U	U	U	U	U	U	13.4	13.0	13.3	14.3	13.5	13.1	13.7	14.7	14.4	14.9	14.6	15.1	15.2	16.2	16.6	18.2	18.0	17.8	19.6	19.5	20.7	21.5
Index (1990 = 100)	NA	NA	NA	NA	NA	NA	100	97	99	107	101	97	102	109	107	111	109	112	113	121	124	136	134	132	146	145	154	160
Intercity / Amtrak[a]	3.0	3.1	4.0	6.4	8.0	11.3	14.1	14.1	14.1	14.0	13.7	14.6	16.6	17.3	17.5	18.4	23.2	24.9	26.8	25.0	26.0	27.2	29.7	30.7	31.8	30.8	31.0	33.0
Index (1990 = 100)	21	22	28	45.4	56.9	80	100	100	100	99	97	103	118	123	124	130	165	176	190	177	184	192	210	217	225	218	220	234
Consumer Price Index (1990 = 100)	23	24	30	41	63	82	100	104	107	111	113	117	120	123	125	127	132	136	138	141	145	149	154	159	165	164	167	172

KEY: NA = not applicable; U = data are unavailable.

[a] *Amtrak* began operations in 1971.

NOTE

The Bureau of Transportation Statistics rebased the consumer price index from 1982-84=100 to 1990=100.

SOURCES

Air carrier, domestic, scheduled service:

1960: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: February 1970), part III, table 2 (passenger-miles); part IV, table 2 (passenger revenues).

1965-70: Ibid., *Handbook of Airline Statistics, 1973* (Washington, DC: March 1974), part III, table 2 (passenger-miles); part IV, table 2 (passenger revenues).

1975-80: Ibid., *Air Carrier Financial Statistics* (Washington, DC: Annual December Issues), p. 2, line 3.
Ibid., *Air Carrier Traffic Statistics* (Washington, DC: Annual December Issues), p. 4, line 9.

1985: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Statistics* (Washington, DC: Annual December issues), p. 4, line 3 and similar pages in previous editions; and *Air Carrier Traffic Statistics* (Washington, DC: Annual December issues), p. 3, line 9, and similar pages in previous editions (total passenger operating revenues / total revenue passenger-miles).

1990-2011: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *TranStats Database, T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class,* available at http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=264&DB_Short_Name=Air%20Carrier%20Summary as of Jan. 5, 2012 *and Air Carrier Financial Reports, Schedule P-1.1 and Schedule P-1.2,* available at http://www.transtats.bts.gov/databases.asp?Mode_ID=1&Mode_Desc=Aviation&Subject_ID2=0 as of March 5, 2013.

Commuter rail:

1990-2001: American Public Transportation Association, *2011 Public Transportation Fact Book* (Washington, DC: 2011), tables 2 and 42 (passenger fares / passenger miles).

2002-11: U.S. Department of Transportation, Federal Transit Administration, National Transit Database, *Data Tables* (Washington, D.C.: Annual reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of March 5, 2013.

Intercity / Amtrak:

1960-70: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues).

1975-80: National Passenger Rail Corporation (Amtrak), personal communication, June 22, 2011.

1985-2002: National Passenger Rail Corporation (Amtrak), *Amtrak Annual Report, Statistical Appendix* (Washington, DC: Annual Issues) (transportation revenues / passenger-miles).

2003-11: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in previous editions (passenger revenue/revenue passenger miles).

Consumer Price Index:

1960-2011: U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Price Index-Urban, U.S. All Items Indexes* , available at http://www.bls.gov/cpi/ as of March 5, 2013.

Table 3-21: 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	2007	2008	2009	2010
Air carrier, domestic[a]	**22.80**	**20.46**	**21.91**	**28.22**	**46.31**	**48.77**	**55.84**	**61.18**	**60.64**	**60.19**	**59.86**	**61.39**	**63.68**	**63.92**	**66.88**	**68.62**	**73.85**	**(R) 59.88**	**(R) 50.48**	**(R) 54.00**	**(R) 62.06**	**(R) 74.68**	**(R) 81.32**	**(R) 89.46**	**(R) 117.61**	**(R) 97.72**	**101.22**
Index (1990 = 100)	41	37	39	51	83	87	100	110	109	108	107	110	114	114	120	123	132	(R) 107	(R) 90	(R) 97	(R) 111	(R) 134	(R) 146	(R) 160	(R) 211	(R) 175	181
Truck[b]	**U**	**U**	**U**	**U**	**U**	**U**	**12.88**	**12.46**	**12.96**	**13.12**	**13.56**	**13.5**	**13.98**	**14.27**	**12.89**	**13.14**	**13.75**	**13.31**	**13.09**	**13.33**	**14.24**	**15.53**	**16.52**	**16.54**	**U**	**U**	**U**
Index (1990 = 100)	U	U	U	U	U	U	100	97	101	102	105	105	109	111	100	102	107	103	102	103	111	121	128	128	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**	**(R) 2.40**	**2.35**	**2.40**	**2.34**	**2.28**	**2.26**	**2.24**	**2.26**	**2.28**	**2.35**	**2.62**	**2.84**	**2.99**	**3.34**	**3.01**	**3.33**
Index (1990 = 100)	53	48	54	77	108	114	100	97	97	95	94	(R) 90	88	90	88	86	85	84	85	86	88	99	107	112	126	113	125
Barge	**N**	**U**	**U**	**U**	**U**	**U**	**1.42**	**1.41**	**1.39**	**1.36**	**1.4**	**1.63**	**1.56**	**1.5**	**1.52**	**1.58**	**1.67**	**1.75**	**1.71**	**1.77**	**1.83**	**U**	**U**	**U**	**U**	**U**	**U**
Index (1990 = 100)	N	U	U	U	U	U	100	99	98	96	99	97	110	97	107	98	97	95	120	125	129	U	U	U	U	U	U
Oil pipeline	**U**	**U**	**U**	**U**	**U**	**U**	**1.22**	**1.18**	**1.21**	**1.17**	**1.23**	**1.28**	**1.18**	**1.17**	**1.11**	**1.17**	**1.30**	**1.34**	**1.33**	**1.31**	**1.34**	**1.30**	**1.47**	**1.61**	**(R) 1.53**	**1.76**	**U**
Index (1990 = 100)	U	U	U	U	U	U	100	96	99	96	101	105	97	96	91	95	106	110	109	107	109	106	120	132	(R) 125	144	U
Producer Price Index (1990 = 100)[c]	**28**	**29**	**33**	**49**	**74**	**88**	**100**	**102**	**103**	**105**	**105**	**107**	**110**	**111**	**110**	**112**	**116**	**118**	**117**	**120**	**125**	**131**	**135**	**140**	**149**	**145**	**(P) 151**

KEY: P = data are preliminary; R = revised; U = data are unavailable.

[a] For 1990 and later, air carriers that did not report both financial data and all months of traffic data for a given period were excluded from the calculations. Cargo revenue includes both scheduled and charter property revenue and mail revenue.
[b] General freight common carriers, most of which are LTL (less-than-truckload) carriers.

[c] Total finished goods. Converted to 1990 base year index by the Bureau of Transportation Statistics and therefore not comparable to previous editions of this table.

NOTE
There is a break in the data from 1985 to 1990 for *Truck* , *Barge* , and *Oil pipeline* ; therefore, data prior to 1990 cannot be indexed using 1990 as the base year because the data are incomparable.

SOURCES
Air carrier, domestic, scheduled service:
1960: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: 1970), part III, tables 2 and 13.
1965-70: Ibid., *Handbook of Airline Statistics, 1973* (Washington, DC: 1974), part III, tables 2 and 13.
1975-80: Ibid., *Air Carrier Traffic Statistics* (Washington, DC: 1976, 1981), pp. 4 and 14 (December 1976) and pp. 2 and 3 (December 1981).
1985: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Statistics* (Washington, DC: Annual December Issues) (freight operating revenues).
Ibid., *Air Carrier Traffic Statistics* (Washington, DC: Annual December Issues) (freight revenue ton-miles).
1990-2010: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *TranStats Database* , *T-1, Schedule P-11* , and *Schedule P-12* data, available at http://www.transtats.bts.gov/ as of December 2011, special tabulation.
Truck:
1990-2003: Eno Transportation Foundation, Inc., *Transportation in America* (Washington, DC: 2007), p. 46.
2004-07: U.S. Department of Commerce, U.S. Census Bureau, *2009 Transportation Annual Survey* (Washington, DC: January 2011), table 2.1, available at http://www.census.gov/services/ as of Aug. 9, 2011, special tabulation.
Barge:
Eno Transportation Foundation, Inc., *Transportation in America* (Washington, DC: 2007), p. 46.
Oil pipeline:

PennWell Corporation, *Oil and Gas Journal: Transportation Special Report* (Houston, TX: September 2011 Issue), p. 94; and Association of Oil Pipe Lines, *Shifts in Petroleum Transportation* (Washington, DC: February 2012), table 1, available at http://www.aopl.org/publications/?fa=reports as of Mar. 12, 2012.
Class I rail:
Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 30 and similar pages in previous editions.
Producer Price Index:
Council of Economic Advisors, *2011 Economic Report of the President* (Washington, DC: 2011), table B-65, available at http://www.gpoaccess.gov/eop/ as of December 2011.

Table 3-22: Total Operating Revenues (Current $ millions)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
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	79,501	89,011	101,000	112,053	121,087	124,604	129,795	(R) 109,749	120,944
Trucking[a]	N	N	N	N	N	N	127,314	126,772	135,437	142,547	155,713	161,806	172,743	183,153	197,314	207,751	223,197	221,355	222,383	(R) 228,204	(R) 247,866	(R) 266,996	(R) 286,211	295,710	(R) 300,945	(R) 250,309	266,238
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	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	17,964	18,357	19,124	20,576	21,979	23,725	24,186	25,826	27,089	28,828	32,186	33,762	36,502	37,490	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	54,600	61,243	47,849	58,406
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	2,043	2,153	2,453	2,353	2,513
Water transportation (domestic)[d]	U	U	U	U	U	U	11,532	U	U	U	U	11,093	10,491	9,670	9,184	8,966	8,819	8,512	8,365	8,308	8,482	U	U	U	U	U	U
Oil pipeline[e]	U	U	U	U	U	U	13,443	U	U	U	U	11,482	11,289	10,951	10,166	10,713	11,077	11,271	11,303	11,178	11,841	7,917	8,517	8,996	9,244	9,987	11,219
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	102,061	97,197	97,236	109,600	87,457	84,362
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	15,364	15,846	18,186	13,127	12,188
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	51,022	48,942	46,064	56,092	44,937	44,624
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	2,698	2,940	2,900	2,606	2,295
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	31,689	30,193	32,386	32,422	26,787	25,255

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.

NOTE
Eno Transportation Foundation has revised their methodologies for calculating water transportation and oil pipeline data series starting in 1990.

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.
1985-2001: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Statistics* (Washington, DC: Annual December Issues).
2002-10: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, TranStats Database, *Air Carrier Financial Reports , Schedule P-1.1 and Schedule P-1.2* , available at http://www.transtats.bts.gov/databases.asp?Mode_ID=1&Mode_Desc=Aviation&Subject_ID2=0 as of Sept. 25, 2012
Trucking:
1990-97: U.S. Department of Commerce, U.S. Census Bureau, *Transportation Annual Survey, 1998* (Washington, DC: January 2000), table 1.
1998-2010: Ibid., *Service Annual Survey* (Washington, DC: Annual Issues), table 2.1, available at http://www.census.gov/services/ as of Sept. 25, 2012.
Intercity Class I bus:
1960-93: Interstate Commerce Commission, *Annual Report of the Interstate Commerce Commission* (Washington, DC: Annual Issues).
1994-96: U.S. Department of Transportation, Bureau of Transportation Statistics, *Selected Earnings Data, Class 1 Motor Carriers of Passengers* (Washington, DC: Annual Issues).
1997-2001: U.S. Department of Transportation, Bureau of Transportation Statistics, *Selected Earnings Data, Class 1 Motor Carriers of Passengers* (Washington, DC: Annual Issues), available at http://www.fmcsa.dot.gov/forms/reporting/prod.htm as of May 31, 2011.
2002: Ibid., personal communication, Oct. 6, 2004.
Transit:

1960-95: American Public Transportation Association, *Public Transportation Fact Book, 2007* (Washington, DC: 2007), table 50 and similar tables in earlier editions.
1996-2009: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database, Data Tables* (Washington, D.C.: Annual Reports), tables 1, 26 and similar tables in earlier editions, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of May 25, 2011.
Class I rail:
1960-2010: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 12 and similar tables in earlier editions.
Intercity/Amtrak:
1975-80: National Railroad Passenger Corporation (Amtrak), State and Local Affairs Department and Public Affairs Department, personal communication.
1985-2004: National Railroad Passenger Corporation (Amtrak), *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual Issues).
2005-10: Ibid., *Amtrak Annual Report* (Washington, DC: Annual Issues) available at http://www.amtrak.com/servlet/ContentServer?c=AM_Content_C&pagename=am%2FLayout&cid=1241245659597 as of Sept. 25, 2012.
Water transportation:
1990-2004: Eno Transportation Foundation, Inc., *Transportation in America* (Washington, DC: 2007), p. 32.
Oil pipeline:
1990-2004: Eno Transportation Foundation, Inc., *Transportation in America* (Washington, DC: 2007), p. 32.
2005-10: PennWell Corporation, *Oil and Gas Journal: Special Report - Pipeline Economics* (Houston, TX: September 2011), p 94.
Gas pipeline:
1960-2010: American Gas Association, *Gas Facts* (Washington, DC: Annual Issues), tables 11-1, 11-2, 11-3, and 11-4, and similar tables in earlier editions.

Table 3-23: Employment in For-Hire Transportation and Selected Transportation-Related Industries[a] (North American Industry Classification System (NAICS) basis) (Thousands)

NAICS Code		1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	(R) 2008	2009
	TOTAL U.S. labor force[b]	54,296	60,874	71,006	77,069	90,528	97,511	109,487	108,375	108,726	110,844	114,291	117,298	119,708	122,776	125,930	128,993	131,785	131,826	130,341	129,999	131,435	133,703	136,086	137,598	136,790	130,920
	Transportation related labor force	2,115	2,133	2,312	3,040	3,054	3,550	12,317	12,011	11,867	11,981	12,350	12,705	12,192	13,247	13,481	13,767	13,907	13,752	13,438	13,224	13,259	13,395	13,492	13,516	13,212	12,232
48-49	Transportation and warehousing[c]	U	U	U	2,620	2,961	3,012	3,476	3,463	3,462	3,554	3,701	3,838	3,935	4,027	4,168	4,300	4,410	4,372	4,224	4,185	4,249	4,361	4,470	4,541	4,508	4,235
481	Air transportation	U	U	U	U	U	U	529	525	520	517	511	511	526	542	563	586	614	615	564	528	515	501	487	492	491	460
4811	Scheduled air transportation	U	U	U	U	U	U	503	498	491	486	477	473	486	501	520	543	570	570	520	485	472	456	442	446	444	415
4812	Nonscheduled air transportation	U	U	U	U	U	U	27	27	29	31	34	38	40	41	43	44	45	45	44	43	43	44	45	46	47	45
482	Rail transportation	862	716	617	534	518	350	272	256	248	242	235	233	225	221	225	229	232	227	218	218	226	228	228	234	231	219
483	Water transportation	U	U	U	U	U	U	57	57	57	53	52	51	51	51	51	52	56	54	53	55	56	61	63	66	67	64
4831	Sea, coastal, and Great Lakes water transportation	U	U	U	U	U	U	35	36	35	33	33	32	32	32	32	33	36	34	32	34	35	37	39	40	U	U
484	Truck transportation	U	U	U	U	U	U	1,122	1,105	1,107	1,155	1,206	1,249	1,282	1,308	1,354	1,392	1,406	1,387	1,339	1,326	1,352	1,398	1,436	1,439	1,389	1,266
4841	General freight trucking	U	U	U	U	U	U	807	795	797	831	867	901	924	942	976	1,002	1,013	992	952	935	950	981	1,005	1,007	976	885
4842	Specialized freight trucking	U	U	U	U	U	U	315	310	311	324	339	348	359	367	379	390	393	395	388	390	402	417	431	432	413	381
485	Transit and ground passenger transportation	U	U	U	U	U	U	274	284	288	300	317	328	339	350	363	371	372	375	381	382	385	389	399	412	423	419
4851-4852	Urban transit, interurban and rural bus transportation	U	U	U	U	U	U	46	46	46	48	52	53	55	56	59	59	59	60	61	60	60	60	60	61	63	62
4851	Urban transit systems	U	U	U	U	U	U	21	23	25	27	29	31	33	35	36	36	35	36	38	38	39	40	40	40	U	U
4852	Interurban and rural bus transportation	38	39	41	38	36	33	25	23	22	21	22	23	23	21	23	23	23	24	23	22	21	20	20	19	U	U
4853	Taxi and limousine service	U	U	U	U	U	U	57	59	58	61	64	66	68	70	72	73	72	71	68	67	66	66	69	73	71	67
4854	School and employee bus transportation	U	U	U	66	81	93	114	118	121	125	130	136	137	142	146	151	152	153	161	165	167	169	172	177	182	184
4855	Charter bus industry	U	U	U	11	15	21	26	27	27	28	28	29	31	32	34	36	38	37	36	33	32	31	31	32	33	30
4859	Other transit and ground passenger transportation	U	U	U	U	U	U	31	34	36	39	43	45	48	51	52	53	51	54	56	58	59	63	67	70	74	76
486	Pipeline transportation	U	U	U	U	U	U	60	61	60	59	57	54	51	50	48	47	46	45	42	40	38	38	39	40	42	42
487	Scenic and sightseeing transportation	U	U	U	U	U	U	16	17	18	19	21	22	23	25	25	26	28	29	26	27	27	29	28	29	28	28
488	Support activities for transportation	U	U	U	U	U	U	364	377	370	382	405	430	446	473	497	518	537	539	525	520	535	552	571	584	592	549
4881	Support activities for air transportation	U	U	U	U	U	U	96	96	96	99	101	104	109	115	124	133	141	140	139	136	142	148	157	163	168	150
4883	Support activities for water transportation	U	U	U	U	U	U	91	96	89	86	89	92	90	92	94	96	97	95	95	94	92	94	99	100	99	93
4884	Support activities for road transportation	U	U	U	U	U	U	35	36	38	41	45	49	53	57	60	63	66	69	70	72	76	79	81	84	85	82
4885	Freight transportation arrangement	U	U	U	U	U	U	111	115	114	120	130	143	149	161	166	172	178	179	168	167	171	177	180	184	187	176
4889	Support activities for other transportation, including rail	U	U	U	U	U	U	32	33	34	37	40	43	45	48	53	54	56	57	52	52	55	55	53	54	53	48
492	Couriers and messengers	U	U	U	U	U	U	375	379	389	414	466	517	540	546	568	586	605	587	561	562	557	571	582	581	573	547
4921	Couriers and express delivery services	U	U	U	U	U	U	340	344	354	378	423	469	489	494	513	528	546	530	507	510	507	522	533	531	523	500
4922	Local messengers and local delivery	U	U	U	U	U	U	35	35	35	36	43	48	51	52	55	58	59	57	54	51	50	50	50	50	50	47
493	Warehousing and storage	U	U	U	U	U	U	407	403	406	413	431	444	452	462	474	494	514	514	517	528	558	595	638	665	672	642
	Transportation related manufacturing																										
324	Petroleum and coal products manufacturing	U	U	U	U	U	U	153	155	152	146	144	140	137	136	135	128	123	121	118	114	112	112	113	115	117	115
32621	Tire manufacturing[d]	U	U	U	U	U	U	90	86	87	87	85	87	86	84	87	87	87	82	76	72	70	67	60	59	59	52
32622	Rubber and plastic hoses and belting manufacturing	U	U	U	29	31	26	25	23	23	24	26	27	27	28	29	30	30	29	28	28	28	29	28	28	27	U
334511	Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	U	U	U	U	U	354	280	256	226	201	175	158	158	159	163	161	149	150	148	145	151	157	158	158	153	151
336	Transportation equipment manufacturing	U	U	U	U	U	U	2,135	2,029	1,978	1,915	1,937	1,979	1,975	2,028	2,078	2,089	2,057	1,939	1,830	1,775	1,767	1,772	1,769	1,712	1,608	1,353
3361	Motor vehicle manufacturing	U	U	U	U	U	U	271	258	260	264	282	295	285	287	284	291	291	279	265	265	256	248	237	220	192	143
3362	Motor vehicle body and trailer manufacturing	U	U	U	U	U	U	130	120	126	136	151	160	155	158	170	184	183	159	152	153	165	171	179	166	140	105
3363	Motor vehicle parts manufacturing	U	U	U	U	U	U	653	639	661	678	736	787	800	809	818	837	840	775	734	708	692	678	655	608	544	419
3364	Aerospace product and parts manufacturing	U	U	U	U	U	U	841	784	711	624	552	514	514	555	579	547	517	511	470	442	442	455	474	489	507	493
3365	Railroad rolling stock manufacturing	U	U	U	U	U	U	31	28	27	29	33	35	33	32	35	35	33	28	23	23	25	27	28	28	29	23
3366	Ship and boat building	130	148	158	179	203	172	174	165	158	148	147	148	147	146	154	154	154	148	147	147	149	154	157	160	156	132
3369	Other transportation equipment manufacturing	U	U	U	U	U	U	35	35	36	37	38	40	41	41	40	40	40	39	39	38	38	39	40	40	41	39
	Other transportation related industries																										
2373	Highway, street, and bridge construction	U	U	U	U	U	U	289	267	264	271	274	278	288	294	308	336	340	346	346	340	347	351	348	345	327	286
4231	Motor vehicle and motor vehicle parts and supplies merchant wholesalers	U	U	U	U	U	U	309	304	302	306	320	335	343	350	354	360	356	347	346	342	341	344	348	350	338	316
42386	Transportation equipment and supplies merchant wholesalers[e]	U	U	U	U	U	U	35	34	33	31	31	32	33	35	37	40	39	36	34	32	32	33	33	34	35	35
4247	Petroleum and petroleum products merchant wholesalers	U	U	U	U	U	U	155	147	137	129	128	126	124	123	122	123	119	114	111	106	101	100	100	101	100	97
441	Motor vehicle parts dealers	U	U	U	U	U	U	1,494	1,435	1,428	1,475	1,565	1,627	1,686	1,723	1,741	1,797	1,847	1,855	1,879	1,883	1,902	1,919	1,910	1,908	1,831	1,640
4411	Automobile dealers	U	U	U	769	783	904	983	938	935	970	1,032	1,072	1,113	1,135	1,142	1,180	1,217	1,225	1,253	1,254	1,257	1,261	1,247	1,242	1,177	1,022
4412	Other motor vehicle dealers	U	U	U	U	U	U	93	84	81	83	91	97	101	105	110	121	132	136	142	149	159	166	169	172	162	136
4413	Automotive parts, accessories, and tire stores	U	U	U	U	U	U	418	413	413	422	443	459	471	484	489	496	499	493	485	480	487	491	494	495	492	482
447	Gasoline stations	U	U	U	U	U	U	910	889	876	881	902	922	946	956	961	944	936	925	896	882	876	871	864	862	842	827
5321	Automotive equipment rental and leasing	U	U	U	U	U	142	163	152	151	156	163	171	180	184	189	199	208	208	195	193	197	199	199	196	193	169
5615	Travel arrangement and reservation services	U	U	U	U	U	U	250	240	245	256	271	281	294	302	304	297	299	285	252	235	226	224	226	227	223	196
6219	Other ambulatory health care services	U	U	U	U	U	U	99	107	114	125	135	143	154	164	171	173	173	180	187	195	200	206	217	228	238	246
8111	Automotive repair and maintenance	U	U	U	U	U	U	659	636	636	670	701	738	781	811	828	864	888	904	900	894	891	886	887	885	856	806
81293	Parking lots and garages	U	U	U	U	U	U	68	69	68	70	71	75	78	82	85	89	93	96	96	100	102	103	108	111	114	111
912001	Postal service	591	619	741	699	673	750	825	813	800	793	821	850	867	866	881	890	880	873	842	809	782	774	770	769	747	703
	Government employment, total[f]	532	650	795	831	846	852	903	905	884	892	900	899	U	895	842	862	873	890	932	894	888	888	885	890	895	893
	U.S. DOT[g]	U	U	104	112	112	100	104	108	110	109	103	101	99	98	69	65	64	66	99	59	57	56	54	54	56	58
	State and Local [h,i]	532	650	691	719	734	752	798	796	774	783	798	798	U	797	772	797	809	824	832	835	830	833	831	835	839	835

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

[a] Annual averages.
[b] Excludes farm employment.
[c] Does not include Postal service
[d] Includes tire manufacturing and tire retreading
[e] Does not include motor vehicle wholesalers
[f] Not all government agencies are included (e.g., the National Transportation Safety Board)
[g] The U.S. Department of Transportation was created in 1966. Data are on a fiscal year basis and include permanent civilians as well as temporary employees and military. The United States Coast Guard (USCG) and the Transportation Security Administration (TSA) were transferred to the Department of Homeland Security in 2003.

[h] Full-time equivalent employment. Data prior to 1986 are not directly comparable to data from later years due to a change in the way full-time equivalent was calculated. Full-time equivalent was not calculated for 1985. State and local data for 1960 include highway employment only. For years 1965 and later, state and local government employment covers highway, air, water and transit modes.
[i] Due to a change in the reference period, from October to March, the October 1996 Annual Survey of Government Employment and Payroll was not conducte

NOTES

Details may not add to totals due to independent rounding

State and local employment statistics for years 1965 and later are significantly different from the data reported in the previous edition of the report because current data include employment for air, water and transit modes in addition to highway.

Due to lack of data, employment for inland water transportation; pipeline transportation of crude oil; pipeline transportation of natural gas; other pipeline; scenic and sightseeing transportation for land, water and other; commercial air, rail, water transportation equipment rental and leasing; and regulation and administration of transportation programs are not reported.

SOURCES

All data, except as noted:

U.S. Department of Labor, Bureau of Labor Statistics Data, *National Employment Hours and Earnings*, available at http://www.bls.gov/data/ as of Nov. 1, 2010

Government employment:

USDOT:

1970-75: U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1976* (Washington, DC: 1976), table 409, and U.S. Department of Transportation, U.S. Coast Guard, G-WPM, Office of Military Personnel, personal communication.

1980-85: U.S. Department of Transportation, Office of the Secretary of Transportation *DOT Employment Facts, A Report to Management* (Washington, DC: Annual issues).

1990-2003: Ibid., *DOT Workforce Demographics* (Washington, DC : Annual issues).

2004-09: Ibid., *DOT Workforce Demographics, Demographics by Year*, available at http://dothr.ost.dot.gov/workforceinfo/demographics.htm as of Nov. 1, 2010

State and local:

1960-91: U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1993* (Washington, DC: 1993), table 500 and similar tables in earlier editions.

1992-2009: Ibid., *Government Employment and Payroll*, available at http://www.census.gov/pub/govs/ as of Nov. 1, 2010

Table 3-24: Employment in Transportation and Transportation-Related Occupations

SOC code	Occupation	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Vehicle operators, pipeline operators, and primary support														
53-2011	Airline pilots, copilots, and flight engineers	88,040	94,820	88,800	78,810	76,940	78,490	76,240	75,810	78,250	77,090	74,420	68,580	68,350
53-2012	Commercial pilots	18,780	18,040	18,380	19,570	19,940	21,370	24,860	27,120	29,180	31,250	29,180	29,900	31,630
53-2021	Air traffic controllers	22,620	23,350	22,990	23,410	22,610	22,260	21,590	23,240	24,180	24,260	24,420	23,970	23,580
53-2022	Airfield operations specialists	4,510	4,580	5,390	5,910	4,670	4,810	4,510	4,760	6,210	8,050	7,670	6,790	6,060
53-3011	Ambulance drivers and attendants, except emergency medical technicians	13,520	15,700	17,620	17,280	18,420	17,410	18,320	21,100	21,520	21,790	19,570	19,440	18,080
53-3021	Bus drivers, transit and intercity	160,210	175,470	190,530	197,090	187,900	183,710	183,450	191,120	189,050	184,160	177,510	179,700	176,190
53-3022	Bus drivers, school	463,860	457,050	469,100	468,790	471,130	475,430	465,880	456,570	461,590	460,100	459,480	467,610	477,400
53-3031	Driver/sales workers	385,210	373,660	378,220	368,730	397,630	406,910	400,530	396,680	382,360	372,720	363,050	371,670	387,950
53-3032	Truck drivers, heavy and tractor-trailer	1,558,400	1,577,070	1,548,480	1,520,880	1,520,740	1,553,370	1,624,740	1,673,950	1,693,590	1,672,580	1,550,930	1,466,740	1,508,620
53-3033	Truck drivers, light or delivery services	1,085,050	1,033,220	996,000	977,920	951,400	938,730	938,280	941,590	922,900	908,960	834,780	780,260	771,210
53-3041	Taxi drivers and chauffeurs	119,630	130,200	125,860	125,720	131,880	132,650	144,280	154,490	165,590	170,520	167,740	161,940	166,890
53-4011	Locomotive engineers	19,940	29,390	30,730	28,250	30,070	31,180	37,390	36,870	41,760	42,760	43,560	40,750	38,790
53-4012	Locomotive firers	890	1,040	730	710	630	620	540	560	580	970	960	1,130	1,670
53-4013	Rail yard engineers, dinkey operators, and hostlers	5,070	4,020	4,840	4,600	6,020	6,170	6,970	5,820	4,950	5,480	5,360	5,600	5,060
53-4021	Railroad brake, signal, and switch operators	14,500	16,830	17,070	15,030	15,310	16,410	20,700	22,810	23,120	24,610	24,270	22,760	23,830
53-4031	Railroad conductors and yardmasters	36,680	40,380	40,910	38,070	35,120	35,720	38,330	37,110	37,540	39,580	41,540	42,700	44,280
53-4041	Subway and street car operators	U	3,190	U	7,250	8,720	8,900	7,430	6,740	6,600	7,430	6,050	6,360	5,920
53-5011	Sailors and marine oilers	27,200	30,090	28,650	25,360	27,170	27,570	31,090	31,690	32,520	32,420	31,950	31,690	31,280
53-5021	Captains, mates, and pilots of water vessels	20,660	21,080	22,180	22,530	24,050	25,200	28,570	29,170	30,540	30,600	30,450	29,280	30,220
53-5022	Motorboat operators	4,000	3,540	3,410	3,600	3,130	2,830	2,700	2,450	3,250	3,380	3,070	2,480	2,550
53-5031	Ship engineers	6,800	7,370	7,470	8,020	10,230	10,330	13,240	14,190	13,710	11,190	10,850	9,470	10,010
53-6011	Bridge and lock tenders	6,970	4,790	4,500	3,900	3,490	3,500	3,620	3,700	4,750	4,490	4,290	3,250	3,420
53-7071	Gas compressor and gas pumping station operators	6,940	6,510	6,070	6,920	5,250	4,680	3,950	3,900	4,230	4,050	4,160	4,040	3,870
53-7072	Pump operators, except wellhead pumpers	13,480	13,730	12,920	12,360	10,540	9,810	9,970	10,030	10,400	9,280	10,310	9,440	12,150
Transportation equipment manufacturing and maintenance occupations														
17-2011	Aerospace engineers	71,790	71,550	74,380	74,210	71,750	73,650	81,100	86,720	85,510	67,800	70,570	78,450	79,400
17-2121	Marine engineers and naval architects	4,450	4,680	4,860	4,810	6,060	6,620	6,550	7,810	6,620	6,480	5,270	5,720	5,470
17-3021	Aerospace engineering and operations technicians	17,270	19,850	15,570	14,700	10,650	9,260	9,950	8,280	7,870	8,540	7,940	8,480	9,290
49-2091	Avionics technicians	15,560	15,360	16,340	21,710	21,020	22,310	22,490	15,360	16,300	18,360	17,960	18,320	17,070
49-2093	Electrical and electronics installers and repairers, transportation equipment	14,700	15,930	16,650	17,320	17,130	17,390	20,560	20,480	18,160	15,860	13,900	12,830	14,410
49-2096	Electronic equipment installers and repairers, motor vehicles	14,250	12,480	13,210	15,200	15,070	15,490	17,650	19,510	19,310	19,980	17,090	15,630	13,610
49-3011	Aircraft mechanics and service technicians	125,970	135,730	135,250	125,850	113,470	112,830	115,120	118,210	118,780	116,310	112,130	117,510	117,320
49-3021	Automotive body and related repairers	179,960	168,170	168,630	175,370	168,630	162,820	158,160	155,500	152,790	147,200	133,290	129,730	131,040
49-3022	Automotive glass installers and repairers	20,520	21,240	21,550	19,710	18,040	18,150	17,760	18,650	18,340	18,330	15,920	14,020	13,690
49-3023	Automotive service technicians and mechanics	587,320	692,570	701,150	687,380	689,630	668,540	654,800	642,360	650,780	649,460	606,990	587,510	589,750
49-3031	Bus and truck mechanics and diesel engine specialists	273,320	258,800	254,420	254,470	249,230	251,430	248,280	254,850	250,370	248,620	232,810	222,770	222,940
49-3043	Rail car repairers	7,230	10,620	11,860	13,520	16,790	18,140	24,270	23,810	23,190	20,780	20,910	19,280	19,480
49-3051	Motorboat mechanics	18,450	19,040	18,370	18,550	17,990	17,680	18,190	18,550	19,610	19,640	18,180	16,850	16,770
49-3052	Motorcycle mechanics	11,390	11,720	13,290	13,030	15,000	15,920	16,140	16,700	16,800	16,850	16,070	14,750	15,010
49-3091	Bicycle repairers	8,080	7,940	7,730	7,000	7,560	7,750	7,980	8,350	9,130	9,690	9,290	9,530	9,950
49-3092	Recreational vehicle service technicians	13,100	12,200	11,830	12,490	12,520	12,340	13,540	13,560	14,030	13,400	10,860	9,540	10,110
49-3093	Tire repairers and changers	99,880	88,530	86,200	81,560	85,030	87,110	100,860	103,120	100,510	98,520	92,440	94,120	94,740
51-2011	Aircraft structure, surfaces, rigging, and systems assemblers	18,070	32,680	33,620	25,690	19,830	18,710	22,820	27,680	34,410	43,330	39,870	36,320	36,570
51-9122	Painters, transportation equipment	45,920	43,270	44,090	45,670	47,390	49,810	52,650	52,170	51,260	50,310	46,810	43,300	44,730
51-9197	Tire builders	16,680	15,790	13,410	13,020	16,400	17,960	19,860	23,210	20,530	21,740	17,820	15,020	16,690
53-6031	Automotive and Watercraft Service Attendants	109,050	106,010	107,650	102,550	96,450	90,640	96,340	94,780	93,140	84,480	79,480	86,440	102,090
53-7061	Cleaners of vehicles and equipment	302,380	301,330	304,500	311,070	321,630	330,520	333,350	334,560	336,210	330,850	298,500	288,110	290,780
Transportation Infrastructure construction and maintenance occupations														
47-2071	Paving, surfacing, and tamping equipment operators	58,410	56,330	57,880	58,760	60,210	61,860	63,220	63,090	63,850	61,230	54,850	51,830	54,120
47-4051	Highway maintenance workers	139,540	145,790	148,390	146,290	139,810	136,550	140,600	138,670	137,140	136,420	139,490	142,530	143,760
47-4061	Rail-track laying and maintenance equipment operators	8,620	9,940	11,680	10,450	12,120	10,430	13,510	13,680	14,050	15,020	14,880	15,520	15,590
49-9097	Signal and track switch repairers	3,720	5,540	8,550	7,990	7,600	7,780	6,100	5,980	6,090	6,570	6,450	7,400	8,300
53-7031	Dredge operators	1,910	3,100	2,920	2,850	2,190	1,730	1,720	1,780	1,910	1,910	1,990	1,720	1,590
Secondary Support Service Occupations														
13-1032	Insurance appraisers, auto damage	19,310	12,320	12,110	13,270	11,260	12,520	12,900	12,630	12,150	11,280	10,960	10,280	10,950
33-3041	Parking enforcement workers	7,660	8,040	9,160	10,180	9,690	9,990	10,140	10,090	9,910	9,530	9,670	9,430	9,310
33-3052	Transit and railroad police	4,590	5,760	6,750	6,010	4,790	4,610	5,090	5,320	5,530	3,830	3,930	3,540	3,890
33-9091	Crossing guards	68,310	72,830	69,990	73,020	68,910	70,180	69,390	67,750	67,570	68,530	68,470	68,740	68,520
39-7012	Travel guides	4,180	5,200	5,480	4,960	5,240	4,140	3,120	3,220	3,520	4,510	4,270	3,620	4,110
53-2031	Flight attendants	123,310	126,380	115,750	104,360	99,910	101,980	99,590	96,760	97,010	99,480	95,810	88,020	87,190
53-6061	Transportation attendants, except flight attendants and baggage porters	22,780	23,550	25,910	26,580	28,440	27,730	24,810	20,790	20,690	21,870	22,450	25,150	27,040
41-3041	Travel agents	111,130	124,030	111,310	104,550	98,410	90,500	88,590	87,600	85,580	86,420	76,990	70,930	67,490
43-4181	Reservation and transportation ticket agents and travel clerks	222,340	199,700	183,280	174,170	156,140	159,910	160,120	157,650	167,390	163,880	142,500	121,250	126,790
43-5021	Couriers and messengers	134,370	130,210	121,670	120,900	117,460	111,700	106,520	105,070	100,820	96,110	93,460	85,620	83,250
43-5032	Dispatchers, except police, fire, and ambulance	171,560	167,180	170,050	168,380	161,570	165,910	172,550	185,410	190,190	193,210	185,100	180,540	182,310
43-5052	Postal service mail carriers	352,550	354,980	355,120	347,420	344,090	344,050	347,180	346,990	348,070	354,570	339,030	324,990	315,330
43-5071	Shipping, receiving, and traffic clerks	886,230	864,530	802,600	792,470	757,750	747,270	759,910	763,350	755,790	760,950	715,130	687,850	687,940
53-6021	Parking lot attendants	109,340	116,930	109,930	108,460	109,890	120,080	124,250	131,870	131,860	136,470	129,990	124,590	126,160
53-6041	Traffic technicians	5,000	4,590	5,090	5,370	5,980	6,240	6,990	6,560	6,550	7,030	6,570	6,730	6,280
53-6051	Transportation inspectors	22,440	26,520	27,670	28,340	23,860	24,140	25,570	23,790	24,130	24,940	24,250	24,280	24,810
53-7081	Refuse and recyclable material collectors	135,320	118,910	125,600	132,290	137,510	139,920	133,930	125,770	126,270	129,080	128,940	126,360	123,160
53-7121	Tank car, truck, and ship loaders	20,830	17,480	19,430	16,960	15,910	16,530	15,950	15,360	14,870	12,330	11,560	10,390	10,960
Other														
11-3071	Transportation, storage, and distribution managers	123,450	116,680	108,590	107,400	90,940	88,100	84,870	89,010	92,790	96,300	92,380	90,280	92,150
53-1011	Aircraft cargo handling supervisors	8,090	9,960	9,070	8,920	8,580	7,460	6,210	5,620	4,690	4,950	5,370	6,160	6,710
53-1021	First-line supervisors/managers of helpers, laborers, and material movers, hand	138,210	146,790	147,490	147,180	159,780	169,860	176,030	178,820	184,400	186,230	174,540	166,360	166,560
53-1031	First-line supervisors/managers of transportation and material-moving machine and vehicle operators	175,260	186,710	197,430	207,280	211,960	222,590	221,520	220,570	223,710	218,480	205,780	196,420	198,690

KEY: SOC = Standard Occupational Classification; U = data are unavailable.

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.

In 2010, the standard occupational classification code for *Travel guides*, *Flight attendants* and *Transportation attendants, Except flight attendants and baggage* are changed to 39-7012, 53-2031 and 53-6061 respectively.

SOURCE

U.S. Department of Labor, Bureau of Labor Statistics, Occupational Employment Statistics, *Occupational Employment and Wages* (Washington, DC: Annual Issues), available at http://www.bls.gov/oes/current/oes_nat.htm as of Jul. 13, 2012.

Table 3-25: Average Wage[a] and Salary Accruals per Full-Time Equivalent Employee by Transportation Industry (North American Industry Classification System [NAICS] basis) (Current dollars)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	(R) 2009	(R) 2010	2011
All industries	35,504	37,108	39,243	40,201	40,957	42,450	44,152	45,729	47,780	49,953	51,387	51,829	53,237	54,710
Transportation and warehousing	36,021	37,447	39,057	39,913	40,641	41,490	43,210	43,865	45,454	47,386	48,174	48,341	49,796	51,376
Air	49,115	50,812	53,107	56,052	58,035	57,469	58,887	56,707	59,282	63,586	62,667	62,319	65,994	69,596
Rail	59,786	61,306	63,353	63,708	64,491	67,273	71,119	72,235	74,578	77,658	83,695	81,641	82,612	88,592
Water	51,190	53,493	54,727	56,149	56,714	57,897	61,470	62,852	66,463	72,824	75,451	76,827	78,528	82,414
Truck	33,687	34,865	36,029	36,500	37,312	38,284	40,090	41,476	43,058	44,305	45,056	44,418	45,519	46,854
Transit and ground passenger transportation	21,838	22,801	23,824	24,344	24,771	25,373	26,212	26,820	28,599	29,926	30,607	30,870	31,400	32,024
Pipeline	64,143	71,872	96,520	100,398	81,969	83,849	89,175	88,856	97,780	105,880	104,865	107,982	112,597	119,030
Other transportation and support activities[b]	32,607	34,460	35,765	36,133	37,629	39,109	41,433	42,509	44,134	45,836	46,613	47,527	49,133	49,984
Warehousing and storage	31,290	32,301	33,613	34,171	35,178	36,614	37,947	38,863	39,398	41,007	41,716	43,080	44,187	45,020

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, and couriers and messengers.

NOTES

Data in this table are based on the 2002 NAICS codes. The Bureau of Economic Analysis (BEA) provides these data on a Standard Industrial Classification (SIC) basis ending in 2000 and on a NAICS basis beginning in 1998. This table is not comparable to previous editions due to the Comprehensive Benchmark revision by the BEA in 2007.

Use care in comparing the data in this table with those in table 3-26. This table includes weighted part-time employees' salaries. Table 3-26 covers only full-time employees.

Wage and salary accruals consist of the monetary remuneration of employees, including compensation of corporate officers; commissions, tips and bonuses; voluntary employee contributions to certain deferred compensation plans, such as 401(k) plans; and receipts in kind that represent income. In other words, accruals are wage and salary earned, not wage and salary paid. For example, wage and salary earned in 1999 but not paid until 2000 are included in accruals for 1999. However, the difference between wage and salary earned and wage and salary paid is usually very small.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables* , table 6.6d, available at http://www.bea.gov/ as of Mar. 19, 2013.

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

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TOTAL, all occupations[a]	**576**	**596**	**608**	**620**	**638**	**651**	**671**	**695**	**722**	**739**	**747**	**756**
Transportation and material moving occupations	**481**	**504**	**514**	**520**	**520**	**543**	**556**	**570**	**593**	**599**	**599**	**614**
Supervisors, transportation and material moving workers	671	648	709	705	655	734	767	811	761	786	743	761
Aircraft pilots and flight engineers	1,193	1,040	1,233	1,350	1,418	1,366	1,407	1,358	1,390	1,650	1,365	1,461
Air traffic controllers and airfield operations specialists	1,090	1,123	1,041	1,583	1,239	1,444	1,259	1,225	1,116	1,056	1,626	1,335
Ambulance drivers and attendants, except emergency medical technicians	580	521	456	322	399	939	452	693	432	663	518	503
Bus drivers	462	467	499	501	500	517	519	507	561	563	574	608
Driver/sales workers and truck drivers	551	585	599	603	610	624	642	665	702	685	686	705
Taxi drivers and chauffeurs	451	484	488	481	486	483	538	501	503	514	537	553
Motor vehicle operators, all other	509	508	409	353	380	394	417	484	511	511	522	520
Locomotive engineers and operators	870	953	963	925	1,056	998	1,129	1,157	1,223	1,122	1,268	1,130
Railroad brake, signal, and switch operators	689	753	792	880	820	698	999	706	1,027	960	1,114	917
Railroad conductors and yardmasters	817	927	818	884	881	1,017	904	912	1,067	1,027	1,198	1,181
Subway, streetcar, and other rail transportation workers	754	727	579	515	686	497	696	973	700	1,003	488	876
Sailors and marine oilers	508	697	701	616	424	628	812	549	666	980	902	992
Ship and boat captains and operators	779	848	899	944	848	798	829	1,158	1,154	1,491	1,637	1,326
Ship engineers	712	1,190	1,181	1,154	980	1,288	452	997	1,158	1,583	1,512	1,435
Bridge and lock tenders	935	560	667	726	599	637	627	892	512	918	1,127	1,060
Parking lot attendants	316	329	341	350	378	360	397	410	436	421	464	467
Service station attendants	314	335	362	369	319	323	364	404	373	398	393	404
Transportation inspectors	731	696	747	847	810	893	771	839	910	962	1,013	1,007
Other transportation workers	483	491	645	652	606	735	749	600	631	602	831	752
Conveyor operators and tenders	465	488	350	363	521	501	847	563	549	538	850	688
Crane and tower operators	675	688	694	589	732	727	790	715	925	778	659	739
Dredge, excavating, and loading machine operators	572	617	602	653	607	616	623	726	708	827	708	708
Hoist and winch operators	733	610	604	789	709	516	625	446	406	962	631	667
Industrial truck and tractor operators	448	477	499	488	486	499	513	519	534	531	559	562
Cleaners of vehicles and equipment	361	363	354	373	384	385	379	405	428	421	448	465
Laborers and freight, stock, and material movers, hand	401	426	420	464	443	456	474	474	501	502	497	509
Machine feeders and offbearers	412	403	433	437	422	449	451	511	439	532	423	520
Packers and packagers, hand	313	332	338	348	349	372	391	374	388	408	400	397
Pumping station operators	730	622	786	801	747	910	888	942	919	835	952	815
Refuse and recyclable material collectors	435	505	430	456	508	491	393	517	475	463	481	541
Shuttle car operators	992	696	1,030	741	736	772	436	364	643	610	1,046	1,159
Tank car, truck, and ship loaders	420	703	506	589	504	462	407	607	683	1,032	456	608
Material moving workers, all other	491	463	516	515	591	598	553	665	517	643	742	614

[a] Earnings for all full-time workers, not just transportation related.

NOTES

The 1998 Standard Occupational Classification (SOC) System was developed by the Federal Government in response to a growing need for a universal occupational classification system. The SOC is being adopted by all Federal agencies and consists of 821 detailed occupations, grouped into 449 broad occupations, 96 minor groups, and 23 major groups.

This table does not include part-time employees, while table 3-25 includes salaries of part-time employees.

SOURCE

U.S. Department of Commerce, Bureau of the Census, *Current Population Survey* , table A-26, personal communications, Oct. 4, 2004, Nov. 20, 2005, Oct. 27, 2006, Dec. 20, 2007, Mar. 4, 2009, June 8, 2010, May 23, 2011, and July 17, 2012.

Table 3-27: Total Wage[a] and Salary Accruals by Transportation Industry (North American Industry Classification System [NAICS] basis) (Current $ millions)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	(R) 2009	(R) 2010	2011
All industries	**4,180,916**	**4,465,176**	**4,827,698**	**4,952,202**	**4,997,306**	**5,154,598**	**5,410,691**	**5,705,982**	**6,070,143**	**6,415,473**	**6,545,859**	**6,275,331**	**6,404,563**	**6,661,292**
Transportation and warehousing, total	**145,915**	**154,753**	**164,611**	**167,412**	**165,098**	**166,849**	**176,601**	**183,949**	**194,415**	**205,811**	**208,174**	**193,916**	**198,136**	**209,163**
Air	26,030	28,047	30,513	32,831	31,064	28,911	28,805	27,111	27,274	29,725	29,210	27,173	28,095	29,925
Rail	12,687	12,706	12,524	12,215	11,971	12,265	12,955	13,720	14,416	14,909	15,897	14,584	14,659	16,330
Water	2,526	2,617	2,666	2,828	2,896	2,974	3,257	3,619	3,942	4,420	4,816	4,611	4,696	4,917
Truck	44,328	46,895	49,337	49,364	48,870	49,701	53,250	56,744	60,267	62,377	61,470	54,766	55,811	59,358
Transit and ground passenger transportation	7,997	8,588	8,876	8,985	9,210	9,454	9,925	10,381	11,281	12,078	12,676	12,737	13,084	13,598
Pipeline	3,090	3,227	4,239	4,232	3,274	3,186	3,172	3,185	3,593	4,071	4,064	4,172	4,478	4,807
Other transportation and support activities[b]	35,001	37,569	40,085	40,215	40,266	41,682	44,591	46,853	49,754	52,381	53,413	50,029	51,033	52,863
Warehousing and storage	14,256	15,104	16,370	16,742	17,545	18,676	20,646	22,336	23,888	25,850	26,628	25,843	26,279	27,366

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

[b] Comprises business establishments involved in scenic and sightseeing transportation, support activities for transportation, postal service, and couriers and messengers.

NOTE

Data in this table are based on the 2002 NAICS codes.

SOURCE

U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Tables* , table 6.3d, available at http://www.bea.gov/ as of Sept. 14, 2012.

Table 3-28: Labor Productivity Indices for Selected Transportation Industries (North American Industry Classification System [NAICS] basis) (Index, 2002 = 100)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	(R) 2008	(R) 2009	2011
Output per hour[a] worked																								
Air transportation[b]	77	77	75	73	76	80	83	91	92	95	98	95	94	96	(R) 91	100	(R) 110	(R) 124	(R) 134	(R) 140	(R) 142	141	141	150
Line-haul railroads	44	47	50	52	56	61	64	66	68	73	74	76	78	85	91	100	105	107	103	109	103	108	104	112
General freight trucking, long-distance	80	81	80	83	87	91	90	92	90	89	93	93	93	95	96	100	103	102	104	103	104	104	98	108
Postal Service	85	85	85	89	88	89	92	92	92	91	94	95	97	99	100	100	101	103	104	(R) 105	105	102	104	106
Output per employee[c]																								
Air transportation[b]	77	77	75	73	76	80	83	91	92	95	98	95	94	96	(R) 91	100	(R) 110	(R) 124	(R) 134	(R) 140	(R) 142	141	141	150
Line-haul railroads	47	51	53	56	58	63	66	71	76	80	83	82	85	91	93	100	105	108	109	114	108	114	101	114
General freight trucking, long-distance	77	78	77	80	83	88	88	91	88	89	93	92	93	96	95	100	103	105	106	105	105	107	99	111
Postal Service	82	82	82	87	88	90	93	93	92	91	95	96	97	101	100	100	102	106	108	108	107	103	97	98

KEY: R = revised.

[a] Based on the number of paid hours.

[b] The average weekly hours were assumed to be constant for *Air transportation* industries; therefore, the *Output per hour worked* and the *Output per employee* measures are identical.

[c] Full-time and part-time employees are counted equally. Hence, these data do not reflect output per full-time equivalent employee.

NOTES

Bureau of Labor Statistics developed labor productivity indexes for all manufacturing and retail trade of the North American Industry Classification System (NAICS) industries as well as selected mining, transportation, communications and services industries.

Data in this table are not comparable to the data published in previous editions of the report due to change in base year of the index from 1997 to 2002.

SOURCE

U.S. Department of Labor, Bureau of Labor Statistics, *Industry Productivity and Costs* , available at http://www.bls.gov/data/ as of July 13, 2012.

Section D
Government Finance

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

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total government revenues	94,548	97,591	101,257	112,733	129,743	128,073	125,480	131,412	132,774	136,328	146,856	(R) 155,303	157,276
Federal	30,478	31,188	31,960	39,442	52,567	47,147	43,197	45,914	46,434	46,284	51,284	52,244	54,020
State and local	64,070	66,403	69,297	73,291	77,176	80,926	82,284	85,497	86,340	90,044	(R) 95,572	(R) 103,059	103,256
Total government expenditures	143,256	149,133	155,954	163,544	182,318	186,374	211,180	223,808	238,092	237,636	243,086	(R) 257,226	221,707
State and local expenditures including federal grants	123,369	129,158	135,988	142,364	161,352	165,290	180,864	188,012	195,423	198,377	208,045	(R) 221,391	185,063
Federal grants	24,793	24,760	25,913	25,014	27,824	35,277	38,668	42,593	42,547	42,779	50,032	45,334	46,719
Federal expenditures, less grants	19,886	19,976	19,965	21,180	20,966	21,084	30,316	35,796	42,669	39,260	35,041	35,836	36,644

KEY: R = revised.

NOTES

Numbers may not add to totals due to rounding.

Total government expenditure is the sum of state and local expenditure including federal grants and federal expenditures, less grants.

Local government receipts and outlays for highway are not included in 2007.

Government transportation revenues consist of money collected by governments from transportation user charges and taxes to finance transportation programs. The following types of receipts are excluded: 1) revenues collected from users of the transportation system that are directed to the general fund and used for nontransportation purposes, 2) nontransportation general fund revenues that are used to finance transportation programs and 3) proceeds from borrowing.

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2009*.

Table 3-30: Federal, State, and Local Government Transportation-Related Revenues and Expenditures, Fiscal Year (Chained 2005 $ millions)

	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	2008	2009
Total government revenues	**128,789**	**130,231**	**132,684**	**145,437**	**161,552**	**154,272**	**147,273**	**150,076**	**145,133**	**143,257**	**147,474**	**146,749**	**148,203**	**140,904**	**135,554**
Federal	41,892	41,870	42,133	51,304	66,258	57,128	50,953	52,768	51,223	48,962	52,974	49,507	49,567	45,167	43,483
State and local	86,897	88,361	90,551	94,133	95,294	97,145	96,320	97,308	93,910	94,295	94,500	97,241	98,637	95,737	92,072
Total government expenditures	**196,938**	**200,237**	**205,393**	**212,605**	**226,465**	**226,526**	**248,957**	**257,225**	**262,690**	**251,361**	**247,498**	**245,367**	**254,853**	**256,697**	**211,476**
State and local expenditures including federal grants	169,510	173,394	179,124	185,030	197,098	200,074	213,337	216,098	215,580	209,853	208,045	211,166	221,222	221,489	174,259
Federal grants	34,079	33,240	34,162	32,387	37,033	40,592	43,560	46,270	44,026	42,366	42,276	40,322	40,253	43,326	45,235
Federal expenditures, less grants	27,428	26,843	26,269	27,575	29,367	26,452	35,620	41,127	47,110	41,507	39,453	34,201	33,631	35,207	37,216

KEY: R = revised.

NOTES

Total government expenditures are the sum of state and local expenditures including federal grants and federal expenditures less grants.

To eliminate the effects of inflation over time, the Bureau of Transportation Statistics converted current dollars to chained 2005 dollars.

BTS used the Price Index for Government Consumption Expenditures and Gross Investment as the price deflator. Previous editions of this table used chained 2000 dollars, so this table is not comparable to previous editions.

Local government receipts and outlays for highway are not included in 2009.

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 2012.*

Table 3-31: Summary of Transportation Revenues and Expenditures from Own Funds and User Coverage, Fiscal Year (Current and chained 2005 $ millions)

	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	2008
Federal revenues														
Current	30,478	31,188	31,960	39,442	52,567	47,138	43,190	45,910	46,434	46,284	52,974	51,905	54,456	52,053
Chained	41,892	41,870	42,133	51,304	66,258	57,128	50,953	52,768	51,223	48,962	52,974	49,507	49,567	45,167
Federal expenditures														
Current	44,748	44,755	45,839	46,098	52,680	55,320	67,116	76,038	82,615	79,286	81,729	78,131	81,171	90,491
Chained	61,507	60,084	60,431	59,962	66,400	67,044	79,180	87,397	91,136	83,873	81,729	74,522	73,884	78,533
Federal user coverage (percent)	**68**	**70**	**70**	**86**	**100**	**85**	**64**	**60**	**56**	**58**	**65**	**66**	**67**	**58**
State and local revenues														
Current	63,220	65,818	68,686	72,368	75,604	80,157	81,645	84,661	85,130	89,138	94,500	101,949	108,365	110,332
Chained	86,897	88,361	90,551	94,133	95,294	97,145	96,320	97,308	93,910	94,295	94,500	97,241	98,637	95,737
State and local expenditures														
Current	123,323	129,158	135,873	142,249	156,371	165,087	180,833	188,012	195,423	198,377	208,045	221,391	243,041	255,255
Chained	169,510	173,394	179,124	185,030	197,098	200,074	213,337	216,098	215,580	209,853	208,045	211,166	221,222	221,489
State and local user coverage (percent)	**51**	**51**	**51**	**51**	**48**	**49**	**45**	**45**	**44**	**45**	**45**	**46**	**45**	**43**

KEY: R = Revised.

NOTES

Sate and local expenditure includes outlays from all sources of funds excluding federal grants.

Federal expenditure includes direct federal spending and grants to state and local governments.

Local government receipts from highway are not included in 2009.

Government transportation revenues consist of money collected by governments from transportation user charges and taxes to finance transportation programs. The following types of receipts are excluded: 1) revenues collected from users of the transportation system that are directed to the general fund and used for nontransportation purposes, 2) nontransportation general fund revenues that are used to finance transportation programs and 3) proceeds from borrowing.

The big jump of federal user coverage (percent) in 1999 is due to the fact that Taxpayer Relief Act of 1997 allowed taxpayers to delay depositing highway motor fuel tax receipts that would have been required to be made in August and September of 1998 until October 5, 1998. October 5, 1998 is in fiscal year 1999.

User coverage ratio is a measure of the extent to which federal outlays on transportation programs are covered by receipt from transportation- related taxes and charges that are earmarked for transportation programs.

SOURCE

U. S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2012* .

Table 3-32: Transportation Revenues by Mode and Level of Government, Fiscal Year (Current $ millions)

	1995	1996	1997	1998	1999	(R) 2000	2001	(R) 2002	2003	2004	2005	(R) 2006	(R) 2007	2008	2009
TOTAL, all modes	**(R) 93,698**	**(R) 97,006**	**(R) 100,646**	**(R) 111,810**	**(R) 128,170**	**127,295**	**(R) 124,835**	**130,570**	**(R) 131,563**	**(R) 135,422**	**(R) 147,474**	**153,854**	**162,821**	**162,385**	**155,729**
Federal	30,478	31,188	31,960	39,442	52,567	47,138	(R) 43,190	45,910	46,434	46,284	(R) 52,974	51,905	54,456	52,053	49,954
State and local	(R) 63,220	(R) 65,818	(R) 68,686	(R) 72,368	(R) 75,604	80,157	(R) 81,645	84,661	(R) 85,130	(R) 89,138	(R) 94,500	101,949	108,365	110,332	105,775
Highway, total	**(R) 66,716**	**(R) 72,167**	**(R) 73,528**	**(R) 79,024**	**(R) 91,771**	**90,275**	**(R) 86,397**	**90,616**	**(R) 91,138**	**(R) 95,321**	**(R) 104,225**	**106,041**	**113,297**	**110,464**	**104,379**
Federal	22,200	25,981	25,316	28,638	39,308	34,986	31,486	33,298	34,421	35,107	(R) 40,437	38,798	40,061	37,080	35,144
State and local	(R) 44,516	(R) 46,186	(R) 48,213	(R) 50,386	(R) 52,463	55,289	(R) 54,912	57,318	(R) 56,717	(R) 60,214	(R) 63,788	67,243	73,236	73,384	69,235
Air, total	**(R) 14,497**	**(R) 11,876**	**(R) 13,856**	**(R) 19,008**	**(R) 22,026**	**22,235**	**(R) 23,207**	**24,492**	**(R) 24,173**	**(R) 23,092**	**(R) 25,602**	**27,028**	**29,384**	**30,702**	**29,818**
Federal	6,291	3,128	4,488	8,682	11,089	10,544	10,103	11,282	10,597	9,652	10,797	11,137	11,994	12,484	12,491
State and local	(R) 8,206	(R) 8,748	(R) 9,368	(R) 10,326	(R) 10,937	11,691	(R) 13,104	13,210	(R) 13,576	(R) 13,440	(R) 14,805	15,891	17,390	18,218	17,327
Railroads, Total	**36**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Federal	36	2	0	0	0	1	0	0	0	0	0	0	0	0	0
Transit, total	**8,575**	**8,753**	**9,006**	**9,417**	**(R) 9,849**	**10,670**	**10,922**	**11,448**	**11,906**	**12,377**	**12,512**	**15,117**	**13,874**	**14,591**	**15,292**
State and local	8,575	8,753	9,006	9,417	(R) 9,849	10,670	10,922	11,448	11,906	12,377	12,512	15,117	13,874	14,591	15,292
Water, total	**3,832**	**4,168**	**4,216**	**4,323**	**4,486**	**4,058**	**4,250**	**3,937**	**4,279**	**4,569**	**5,070**	**5,590**	**6,191**	**6,551**	**6,142**
Federal	1,909	2,037	2,117	2,084	2,131	1,551	1,543	1,252	1,349	1,462	1,676	1,891	2,325	2,412	2,221
State and local	1,923	2,131	2,099	2,239	2,355	2,507	2,707	2,685	2,930	3,107	3,394	3,699	3,866	4,139	3,921
Pipeline, total	**35**	**31**	**30**	**29**	**30**	**30**	**(R) 37**	**52**	**57**	**55**	**56**	**58**	**60**	**63**	**78**
Federal	35	31	30	29	30	30	(R) 37	52	57	55	56	58	60	63	78
General support, total	**7**	**9**	**9**	**9**	**9**	**26**	**21**	**26**	**10**	**8**	**8**	**21**	**16**	**14**	**20**
Federal	7	9	9	9	9	26	21	26	10	8	8	21	16	14	20

KEY: R = Revised.

NOTES

Numbers may not add to total due to independent rounding.

Local government receipts from highway are not included in 2009.

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 2012* .

Table 3-33: Transportation Revenues by Mode and Level of Government, Fiscal Year (Chained 2005 $ millions)

	1995	1996	1997	1998	1999	(R) 2000	2001	(R) 2002	2003	2004	2005	(R) 2006	(R) 2007	2008	2009
TOTAL, all modes	**(R) 128,789**	**(R) 130,231**	**(R) 132,684**	**(R) 145,437**	**(R) 161,552**	**154,272**	**(R) 147,273**	**150,076**	**(R) 145,133**	**(R) 143,257**	**(R) 147,474**	**146,749**	**148,203**	**140,904**	**135,554**
Federal	41,892	41,870	42,133	51,304	66,258	57,128	(R) 50,953	52,768	51,223	(R) 48,962	(R) 52,974	49,507	49,567	45,167	43,483
State and Local	(R) 86,897	(R) 88,361	(R) 90,551	(R) 94,133	(R) 95,294	97,145	(R) 96,320	97,308	(R) 93,910	(R) 94,295	(R) 94,500	97,241	98,637	95,737	92,072
Highway, total	**92,840**	**(R) 96,068**	**(R) 95,379**	**(R) 100,811**	**(R) 115,085**	**108,527**	**(R) 104,152**	**103,054**	**(R) 103,852**	**(R) 99,706**	**(R) 104,135**	**100,794**	**100,602**	**98,836**	**94,268**
Federal	30,514	34,879	33,374	37,251	49,545	42,400	37,145	38,272	37,971	37,139	(R) 40,437	37,006	36,464	32,175	30,591
State and Local	62,326	(R) 61,188	(R) 62,004	(R) 63,560	(R) 65,539	66,126	(R) 67,007	64,782	(R) 65,881	(R) 62,567	(R) 63,698	63,788	64,137	66,661	63,677
Air, total	**(R) 19,926**	**(R) 15,944**	**(R) 18,267**	**(R) 24,725**	**(R) 27,763**	**26,947**	**(R) 27,378**	**28,151**	**(R) 26,667**	**(R) 24,428**	**(R) 25,602**	**25,780**	**26,746**	**26,641**	**25,955**
Federal	8,647	4,199	5,917	11,293	13,977	12,779	11,919	12,967	11,690	10,210	10,797	10,623	10,917	10,833	10,873
State and Local	(R) 11,279	(R) 11,745	(R) 12,350	(R) 13,432	(R) 13,786	14,169	(R) 15,459	15,183	(R) 14,977	(R) 14,217	(R) 14,805	15,157	15,828	15,808	15,082
Railroads, total	**49**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Federal	49	3	0	0	0	1	0	0	0	0	0	0	0	0	0
Transit, total	**11,786**	**11,751**	**11,873**	**12,249**	**(R) 12,414**	**12,931**	**12,886**	**13,158**	**13,134**	**13,093**	**12,512**	**14,418**	**12,628**	**12,661**	**13,311**
State and Local	11,786	11,751	11,873	12,249	(R) 12,414	12,931	12,886	13,158	13,134	13,093	12,512	14,418	12,628	12,661	13,311
Water, total	**5,267**	**5,596**	**5,558**	**5,624**	**5,654**	**4,918**	**5,014**	**4,525**	**4,720**	**4,833**	**5,070**	**5,332**	**5,635**	**5,684**	**5,346**
Federal	2,624	2,735	2,791	2,711	2,686	1,880	1,820	1,439	1,488	1,547	1,676	1,804	2,116	2,093	1,933
State and Local	2,644	2,861	2,767	2,913	2,968	3,038	3,194	3,086	3,232	3,287	3,394	3,528	3,519	3,591	3,413
Pipeline, total	**48**	**42**	**40**	**38**	**38**	**36**	**(R) 44**	**60**	**63**	**58**	**56**	**55**	**55**	**55**	**68**
Federal	48	42	40	38	38	36	(R) 44	60	63	58	56	55	55	55	68
General support, total	**10**	**12**	**12**	**12**	**11**	**32**	**25**	**30**	**11**	**8**	**8**	**20**	**15**	**12**	**17**
Federal	10	12	12	12	11	32	25	30	11	8	8	20	15	12	17

KEY: R = Revised.

NOTES

Numbers may not add to totals due to rounding.

Local government receipts from highway are not included in 2009.

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 2012* .

Table 3-34: Cash Balances of the Transportation-Related Federal Trust Funds, Fiscal Year ($ millions)

	1980	1985	1990	1991	1992	1993	(R) 1994	1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	2000	(R) 2001	(R) 2002	2003	2004	2005	2006	2007	2008	2009	2010
TOTAL, all funds																							
Current $	16,441	20,483	31,795	35,697	37,475	36,499	33,588	(R) 32,385	31,802	31,383	38,375	44,515	(R) 48,176	45,534	38,176	(R) 33,562	(R) 29,758	(R) 27,609	(R) 29,529	30,222	32,125	29,331	45,640
Chained 2005 $	39,456	37,259	50,146	54,411	55,704	52,937	47,428	(R) 44,514	42,695	41,373	49,916	56,109	(R) 58,386	53,719	43,879	(R) 37,024	(R) 31,480	(R) 27,609	28,166	(R) 27,509	(R) 27,932	25,584	39,070
Airport / Airway Trust Fund																							
Current $	5,442	7,426	14,355	15,263	15,204	12,850	12,386	11,365	7,875	6,442	9,140	12,446	13,934	14,485	12,642	12,397	11,669	11,290	10,336	10,103	9,705	8,780	9,428
Chained 2005 $	13,060	13,508	22,640	23,265	22,599	18,637	17,490	15,621	10,572	8,493	11,889	15,688	16,887	17,089	14,531	13,676	12,344	11,290	9,859	(R) 9,196	(R) 8,438	7,658	8,071
Highway Trust Fund, highway account																							
Current $	10,999	10,361	9,629	10,246	11,300	11,523	9,517	9,421	12,118	12,577	16,535	19,206	(R) 22,554	20,372	16,136	(R) 12,991	(R) 10,807	(R) 10,592	(R) 9,014	8,110	10,032	8,881	20,743
Chained 2005 $	26,396	18,847	15,186	15,617	16,797	16,713	13,439	12,950	16,268	16,580	21,508	24,208	27,333	24,033	18,547	14,331	(R) 11,433	(R) 10,592	8,598	(R) 7,382	(R) 8,723	7,747	17,758
Highway Trust Fund, transit account																							
Current $	N	2,524	7,155	9,250	9,798	10,617	9,945	9,579	9,525	9,858	10,051	9,753	8,547	7,369	6,097	4,823	(R) 3,777	1,950	(R) 6,223	7,306	6,787	5,212	8,489
Chained 2005 $	N	4,591	11,285	14,100	14,564	15,399	14,043	13,166	12,787	12,996	13,073	12,293	(R) 10,359	8,693	7,007	5,321	(R) 3,995	1,950	5,936	(R) 6,650	(R) 5,901	4,546	7,267
Harbor Maintenance Trust Fund																							
Current $	N	N	30	74	121	305	451	621	865	1,106	1,246	1,736	1,621	1,777	1,854	2,001	2,299	2,695	3,234	3,751	4,559	5,004	5,474
Chained 2005 $	N	N	47	113	180	442	637	854	1,161	1,458	1,621	2,188	1,965	2,096	2,131	2,207	2,432	2,695	3,085	(R) 3,414	(R) 3,964	4,365	4,686
Inland Waterway Trust Fund																							
Current $	N	172	281	217	186	180	214	(R) 278	301	300	327	357	364	389	412	383	350	323	237	138	29	16	38
Chained 2005 $	N	313	443	331	276	261	303	(R) 382	404	395	425	450	441	459	474	423	370	323	226	126	25	14	33
Oil Spill Liability Trust Fund																							
Current $	N	N	345	647	866	1,024	1,074	1,121	1,119	1,101	1,076	1,017	1,156	1,143	1,035	966	856	759	485	814	1,013	1,437	1,467
Chained 2005 $	N	N	544	986	1,287	1,485	1,516	1,541	1,502	1,451	1,400	1,282	1,401	1,348	1,190	1,066	906	759	463	(R) 741	(R) 881	1,253	1,256

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

NOTES

Reported figures are cash balances at the end of the fiscal year for all trust funds.
The chained dollar numbers are not comparable to the data published in 2009 and before editions of NTS due to changes in the reference (base) year of the deflators used.

SOURCES

Highway:

1980: 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.

1985-2010: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), tables FE10 and FE210, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of July 12, 2011.

All others:

1980-1994: 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.

1995-2010: U.S. Executive Office of the President, Office of Management and Budget, *Budget of the United States Government, Appendix* (Washington, DC: Annual Issues), available at http://www.gpoaccess.gov/usbudget/browse.html as of July 12, 2011.

Chained dollar deflator:

U.S. Department of Commerce, Bureau of Economic Analysis, *Interactive Access to National Income and Product Accounts Tables,* table 3.9.4, available at http://www.bea.gov/national/nipaweb as of July 12, 2011.

Table 3-35: Transportation Expenditures by Mode and Level of Government from Own Funds, Fiscal Year (Current $ millions)

	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	2008	2009
TOTAL, all modes	**168,072**	**173,913**	**181,712**	**188,347**	**209,052**	**220,407**	**247,949**	**264,050**	**278,038**	**277,662**	**289,774**	**299,521**	**324,213**	**345,761**	**294,917**
Federal	44,748	44,755	45,839	46,098	52,680	55,320	67,116	76,038	82,615	79,286	81,729	78,131	81,171	90,506	94,722
State and local	123,323	129,158	135,873	142,249	156,371	165,087	180,833	188,012	195,423	198,377	208,045	221,391	243,041	255,255	200,194
Highways, total	**108,555**	**113,478**	**118,239**	**123,079**	**134,234**	**145,641**	**154,761**	**163,607**	**168,446**	**169,385**	**178,203**	**190,401**	**209,337**	**218,169**	**160,384**
Federal	20,165	20,710	21,421	20,745	23,551	27,921	30,151	32,689	33,112	33,398	33,539	35,759	36,813	39,965	42,578
State and local	88,391	92,768	96,817	102,334	110,683	117,720	124,610	130,918	135,334	135,987	144,664	154,641	172,524	178,204	117,806
Air, total	**21,030**	**21,425**	**22,120**	**23,243**	**27,743**	**24,023**	**34,859**	**39,885**	**36,866**	**42,137**	**44,389**	**45,715**	**47,684**	**50,412**	**51,707**
Federal	12,633	12,576	11,925	12,704	15,066	10,863	19,240	23,535	19,700	24,106	26,427	27,322	27,623	29,148	28,846
State and local	8,397	8,849	10,195	10,539	12,677	13,160	15,619	16,350	17,166	18,031	17,962	18,393	20,061	21,264	22,861
Transit, total	**29,870**	**30,411**	**32,261**	**33,103**	**38,166**	**41,575**	**46,013**	**48,969**	**48,857**	**52,166**	**54,120**	**49,715**	**52,243**	**60,844**	**65,619**
Federal	5,687	5,492	6,268	6,568	8,286	10,548	11,464	11,874	11,862	12,077	12,670	5,701	6,588	10,041	11,370
State and local	24,183	24,919	25,993	26,535	29,880	31,027	34,549	37,095	36,995	40,089	41,450	44,014	45,655	50,803	54,249
Water, total	**6,728**	**6,782**	**7,139**	**7,130**	**7,722**	**7,643**	**10,621**	**8,038**	**11,775**	**10,905**	**10,307**	**10,888**	**12,075**	**13,398**	**13,772**
Federal	4,419	4,204	4,330	4,345	4,651	4,502	4,627	4,467	5,900	6,858	6,411	6,603	7,314	8,458	8,553
State and local	2,309	2,578	2,809	2,785	3,070	3,141	5,995	3,571	5,875	4,047	3,896	4,286	4,761	4,940	5,219
Rail, total	**1,070**	**1,051**	**1,201**	**1,135**	**491**	**791**	**784**	**1,367**	**1,264**	**1,553**	**1,507**	**1,568**	**1,533**	**1,544**	**1,908**
Federal	1,044	1,024	1,162	1,099	452	778	753	1,324	1,242	1,533	1,472	1,548	1,528	1,543	1,908
State and local	26	27	39	36	39	13	31	43	22	20	35	20	5	1	0
Pipeline, total	**38**	**45**	**48**	**52**	**58**	**73**	**63**	**75**	**89**	**92**	**106**	**116**	**112**	**123**	**143**
Federal	26	34	35	38	42	55	44	53	69	73	82	91	89	92	99
State and local	12	11	13	14	16	18	19	22	20	19	24	25	23	31	44
General support, total	**781**	**722**	**704**	**606**	**638**	**661**	**848**	**2,109**	**10,742**	**1,425**	**1,143**	**1,119**	**1,229**	**1,271**	**1,384**
Federal	775	716	698	600	632	653	838	2,097	10,730	1,240	1,129	1,107	1,216	1,259	1,368
State and local	6	6	6	6	6	8	10	12	12	185	14	12	13	12	16

KEY: R = revised.

NOTES

Numbers may not add to totals due to rounding.

Federal expenditures from own funds include all amounts of money paid out by the federal government including not only direct spending but also grants to state and local governments. State and local expenditures from own funds include outlays of the state and local governments from all sources of funds excluding federal grants.

Local government outlays for highway are not included in 2009 due to lack of data.

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2012* .

Table 3-36: Transportation Expenditures by Mode and Level of Government from Own Funds, Fiscal Year (Chained 2005 $ millions)

	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	2008	2009
TOTAL, all modes	**230,283**	**235,360**	**245,153**	**253,578**	**271,386**	**269,807**	**292,277**	**299,462**	**304,296**	**291,904**	**290,914**	**288,643**	**U**	**U**	**U**
Federal	60,773	61,966	66,028	68,549	74,288	69,733	78,940	83,364	88,716	82,051	82,869	77,477	U	U	U
State and local	169,510	173,394	179,124	185,030	197,098	200,074	213,337	216,098	215,580	209,853	208,045	211,166	221,222	221,489	174,259
Highways, total	**148,477**	**154,226**	**161,475**	**168,681**	**177,082**	**179,196**	**182,339**	**184,014**	**183,400**	**177,363**	**179,342**	**184,562**	**U**	**U**	**U**
Federal	26,983	29,685	33,838	35,570	37,572	36,527	35,331	33,539	34,108	33,508	34,678	37,062	U	U	U
State and local	121,494	124,541	127,636	133,111	139,510	142,669	147,008	150,475	149,292	143,854	144,664	147,500	157,036	154,630	102,544
Air, total	**28,907**	**28,763**	**29,161**	**30,234**	**34,969**	**29,114**	**41,124**	**45,844**	**40,668**	**44,574**	**44,389**	**43,604**	**43,403**	**43,744**	**45,008**
Federal	17,364	16,883	15,721	16,525	18,990	13,165	22,698	27,051	21,732	25,501	26,427	26,060	25,143	25,292	25,109
State and local	11,542	11,879	13,440	13,709	15,979	15,949	18,426	18,793	18,936	19,074	17,962	17,543	18,260	18,451	19,899
Transit, total	**41,056**	**40,827**	**42,531**	**43,058**	**48,106**	**50,386**	**54,284**	**56,285**	**53,897**	**55,184**	**54,120**	**47,419**	**47,553**	**52,795**	**57,118**
Federal	7,817	7,373	8,263	8,543	10,444	12,783	13,525	13,648	13,085	12,776	12,670	5,438	5,997	8,713	9,897
State and local	33,239	33,454	34,268	34,515	37,662	37,603	40,759	42,637	40,811	42,408	41,450	41,981	41,556	44,083	47,221
Water, total	**9,248**	**9,105**	**9,412**	**9,274**	**9,733**	**9,262**	**12,531**	**9,238**	**12,989**	**11,536**	**10,307**	**10,385**	**10,991**	**11,626**	**11,988**
Federal	6,073	5,644	5,708	5,652	5,863	5,456	5,458	5,134	6,509	7,255	6,411	6,298	6,657	7,339	7,445
State and local	3,174	3,460	3,704	3,622	3,870	3,806	7,072	4,105	6,481	4,281	3,896	4,088	4,333	4,287	4,543
Rail, total	**1,470**	**1,411**	**1,583**	**1,477**	**619**	**959**	**925**	**1,572**	**1,394**	**1,643**	**1,507**	**1,496**	**1,395**	**1,340**	**1,661**
Federal	1,435	1,375	1,532	1,430	570	943	888	1,522	1,370	1,622	1,472	1,477	1,391	1,339	1,661
State and local	35	36	52	47	49	16	37	50	24	21	35	19	5	1	0
Pipeline, total	**52**	**61**	**63**	**67**	**73**	**88**	**74**	**86**	**99**	**97**	**106**	**111**	**102**	**107**	**125**
Federal	36	46	46	49	53	67	52	61	76	77	82	87	81	80	86
State and local	16	15	17	18	20	22	23	25	22	20	24	24	21	27	38
General support, total	**1,073**	**969**	**928**	**788**	**804**	**801**	**1,000**	**2,424**	**11,850**	**1,508**	**1,143**	**1,067**	**1,119**	**1,103**	**1,205**
Federal	1,065	961	920	780	796	791	988	2,410	11,836	1,312	1,129	1,055	1,107	1,092	1,191
State and local	8	8	8	8	8	10	12	14	13	196	14	11	12	10	14

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

NOTES

Numbers may not add to totals due to rounding.

Federal expenditures from own funds include all amounts of money paid out by the federal government including not only direct spending but also grants to state and local governments. State and local expenditures from own funds include outlays of the state and local governments from all sources of funds excluding federal grants.

Local government outlays for highway are not included in 2009 due to lack of data.

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2012.*

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

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total, all modes	**24,793**	**24,760**	**25,913**	**(R) 24,899**	**(R) 29,381**	**(R) 33,493**	**(R) 36,923**	**(R) 40,256**	**(R) 39,910**	**(R) 40,049**	**(R) 42,276**	**(R) 42,274**	**(R) 44,223**	**49,931**	**51,967**
Highway	18,457	18,712	19,819	19,073	21,952	25,710	(R) 27,631	29,890	(R) 29,799	29,276	30,847	(R) 32,769	(R) 33,828	36,112	36,735
Air	1,826	1,655	1,489	1,511	1,565	1,578	2,020	2,860	2,681	2,961	3,531	3,842	3,878	3,819	3,876
Transit	4,410	4,298	4,518	(R) 4,227	(R) 5,783	(R) 6,158	(R) 7,211	(R) 7,430	(R) 7,375	(R) 7,588	(R) 7,838	(R) 5,618	(R) 6,490	9,951	11,278
Water	62	55	31	32	21	9	1	0	0	0	0	0	0	2	6
Rail	21	23	37	35	38	13	31	43	22	20	35	20	5	16	28
Pipeline	12	11	13	14	16	18	19	22	20	19	24	25	23	31	44
General Support	6	6	6	6	6	8	10	12	12	185	0	0	0	0	0

KEY: R = Revised.

NOTE

Numbers may not add to totals due to rounding.

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2012.*

Table 3-38: Federal Transportation Grants to State and Local Governments by Mode, Fiscal Year (Chained 2005 $ millions)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	(R) 2007	2008	2009
Total, all modes	**34,079**	**33,240**	**34,162**	**(R) 32,387**	**(R) 37,033**	**(R) 40,592**	**(R) 43,560**	**(R) 46,270**	**(R) 44,026**	**(R) 42,366**	**(R) 42,276**	**(R) 40,322**	**40,253**	**43,326**	**45,235**
Highway	25,369	25,121	26,128	24,809	27,669	31,158	(R) 32,598	34,355	(R) 32,873	30,969	30,847	(R) 31,255	30,791	31,335	31,976
Air	2,510	2,222	1,963	1,965	1,973	1,912	2,383	3,287	2,958	3,132	3,531	3,665	3,530	3,314	3,374
Transit	6,062	5,769	5,956	(R) 5,499	(R) 7,289	(R) 7,463	(R) 8,507	(R) 8,540	(R) 8,136	(R) 8,027	(R) 7,838	(R) 5,359	5,907	8,635	9,817
Water	85	74	41	42	26	11	1	0	0	0	0	0	0	2	5
Rail	29	31	49	46	48	16	37	49	24	21	35	19	5	14	24
Pipeline	16	15	17	18	20	22	23	25	22	20	24	24	21	27	38
General support	8	8	8	8	8	10	12	14	13	196	0	0	0	0	0

KEY: R = revised.

NOTES

Numbers may not add to totals due to rounding.

BTS used the Price Index for Government Consumption Expenditures and Gross Investment as the price deflator.

SOURCE

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *Government Transportation Financial Statistics 2012* .

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	2007	2008	2009	(R) 2010	(P) 2011
Domestic production, total[a]	**7.96**	**9.01**	**11.30**	**10.01**	**10.17**	**10.58**	**8.91**	**9.08**	**8.87**	**8.58**	**8.39**	**8.32**	**8.29**	**8.27**	**8.01**	**7.73**	**7.73**	**7.67**	**7.63**	**7.40**	**7.23**	**6.90**	**6.84**	**6.85**	**6.73**	**7.27**	**7.56**	**7.88**
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	5.10	5.06	4.95	5.36	5.48	5.69
Natural gas plant liquids	0.93	1.21	1.66	1.63	1.57	1.61	1.56	1.66	1.70	1.74	1.73	1.76	1.83	1.82	1.76	1.85	1.91	1.87	1.88	1.72	1.81	1.72	1.74	1.78	1.78	1.91	2.07	2.18
Gross imports, total	**1.81**	**2.47**	**3.42**	**6.06**	**6.91**	**5.07**	**8.02**	**7.63**	**7.89**	**8.62**	**9.00**	**8.83**	**9.48**	**10.16**	**10.71**	**10.85**	**11.46**	**11.87**	**11.53**	**12.26**	**13.15**	**13.71**	**13.71**	**13.47**	**12.92**	**11.69**	**11.79**	**11.36**
Crude oil[b,c]	1.02	1.24	1.32	4.10	5.26	3.20	5.89	5.78	6.08	6.79	7.06	7.23	7.51	8.23	8.71	8.73	9.07	9.33	9.14	9.66	10.09	10.13	10.12	(R) 9.83	(R) 9.42	(R) 8.17	8.70	8.72
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	3.59	(R) 3.63	(R) 3.50	(R) 3.52	3.10	2.64
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**	**1.03**	**1.05**	**1.16**	**1.32**	**1.43**	**1.80**	**2.02**	**2.35**	**2.92**
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**	**12.39**	**12.04**	**11.11**	**9.67**	**9.44**	**8.44**
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**	**20.69**	**20.68**	**19.50**	**18.77**	**19.18**	**18.84**
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	13.32	13.72	13.96	14.18	14.29	13.70	13.28	13.47	13.22
Transportation petroleum use as 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	180.0	189.8	202.4	207.3	208.6	203.5	182.6	178.2	167.9
Transportation petroleum use as 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	66.5	66.2	67.1	68.5	69.1	70.3	70.7	70.2	70.2
World petroleum consumption	**21.34**	**31.14**	**46.81**	**56.20**	**63.11**	**60.09**	**66.69**	**67.29**	**67.48**	**67.60**	**68.92**	**70.13**	**71.67**	**73.43**	**74.07**	**75.76**	**76.74**	**77.47**	**78.12**	**79.68**	**82.46**	**84.04**	**85.20**	**86.14**	**85.75**	**U**	**U**	**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	24.8	25.2	25.5	25.7	25.3	25.5	25.4	25.5	25.8	25.7	25.4	25.3	25.1	25.1	24.8	24.3	24.0	22.7	U	U	U

KEY: P = preliminary; R = revised; U = data are unavailable.

[a] Includes crude oil and natural gas plant liquids. This data series has been revised from 1975 forward to exclude the field production of other liquids including: finished motor gasoline, motor gasoline blending components, and other hydrocarbons and 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
Component numbers may not add to totals due to independent rounding.

SOURCES
Domestic production, imports, exports, and U.S. petroleum consumption:
1960-70: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review*, DOE/EIA-0384(2000) (Washington, DC: August 2001), table 5.1.
1975-2011: Ibid., *Monthly Energy Review* (Washington, DC: September 2012), tables 3.1 and 3.3b, available at http://www.eia.doe.gov/mer/contents.html as of Sept. 21, 2012.
U.S. petroleum consumption by transportation sector:
1960-2006: Ibid., *Annual Energy Review 2006*, DOE/EIA-0384(2005) (Washington, DC: July 2007), table 5.13c, available at http://www.eia.doe.gov as of Sept. 23, 2008.
2007-11: Ibid., *Monthly Energy Review* (Washington, DC: September 2012), tables 3.7a-3.7c, available at http://www.eia.doe.gov/mer/contents.html as of Sept. 21, 2012.
World petroleum consumption:

Ibid., *Annual Energy Review* (Washington, DC: Annual Issues), table 11.10, available at http://www.eia.doe.gov/emeu/aer/inter.html as of Aug. 20, 2010.

Table 4-2: U.S. Consumption of Energy from Primary Sources by Sector (Quadrillion Btu)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	(R) 2010	2011
Energy consumption, total	**45.09**	**54.02**	**67.84**	**71.96**	**78.07**	**76.39**	**84.49**	**84.44**	**85.78**	**87.42**	**89.09**	**91.03**	**94.02**	**94.60**	**95.02**	**96.65**	**98.81**	**96.17**	**(R) 97.65**	**97.98**	**(R) 100.16**	**100.28**	**(R) 99.63**	**(R) 101.30**	**99.27**	**(R) 94.56**	**97.67**	**97.22**
Transportation	10.56	12.40	16.06	18.21	19.66	20.04	22.37	22.06	22.36	22.72	23.31	23.79	24.38	24.70	25.20	25.89	26.49	26.21	26.78	26.92	27.82	28.27	28.75	29.03	27.93	(R) 26.99	27.38	27.00
Transportation as percent of total energy consumption	23.4	23.0	23.7	25.3	25.2	26.2	26.5	26.1	26.1	26.0	26.2	26.1	25.9	26.1	26.5	26.8	26.8	27.3	27.4	27.5	27.8	28.2	28.9	(R) 28.7	28.1	28.5	28.0	27.8
Industrial	16.98	20.12	22.97	21.43	22.59	19.44	21.18	20.82	21.76	21.75	22.39	22.72	23.41	23.69	23.18	22.95	22.82	21.79	(R) 21.80	21.50	(R) 22.41	21.41	(R) 21.54	(R) 21.37	(R) 20.48	(R) 18.81	20.00	20.21
Industrial as percent of total energy consumption	37.7	37.3	33.9	29.8	28.9	25.5	25.1	24.7	25.4	24.9	25.1	25.0	24.9	25.0	24.4	23.7	23.1	22.7	22.3	21.9	22.4	21.4	21.6	21.1	20.6	19.9	20.5	20.8
Residential and commercial	9.39	10.48	12.55	12.05	11.54	10.88	10.45	10.69	10.94	11.12	10.99	11.04	11.74	11.33	10.42	10.83	11.44	10.95	11.04	11.49	11.23	10.96	(R) 9.91	(R) 10.52	10.89	10.68	10.64	10.67
Residential and commercial as percent of total energy consumption	20.8	19.4	18.5	16.7	14.8	14.2	12.4	12.7	12.8	12.7	12.3	12.1	12.5	12.0	11.0	11.2	11.6	11.4	11.3	11.7	11.2	10.9	10.0	10.4	11.0	11.3	10.9	11.0
Energy input at electric utilities	8.16	11.01	16.26	20.27	24.27	26.03	30.50	30.86	30.72	31.85	32.40	33.48	34.49	34.89	36.23	36.98	38.06	37.22	38.02	38.06	38.71	39.64	39.43	40.38	39.98	38.08	39.63	39.35
Energy input at electric utilities as percent of total energy consumption	18.1	20.4	24.0	28.2	31.1	34.1	36.1	36.5	35.8	36.4	36.4	36.8	36.7	36.9	38.1	38.3	38.5	38.7	38.9	38.8	38.7	39.5	39.6	39.9	40.3	40.3	40.6	40.5
Percentage of primary demand met by petroleum																												
Transportation	95.9	95.7	95.3	96.7	96.7	97.2	96.7	96.9	96.9	97.2	97.0	97.0	97.0	96.9	97.4	97.4	97.5	97.5	97.4	97.7	97.9	97.8	97.8	97.6	97.5	97.2	97.3	97.0
Industrial	33.9	33.7	33.9	37.9	42.1	39.7	39.0	38.2	39.3	38.6	39.2	37.8	38.5	39.1	39.2	40.8	39.8	42.1	(R) 42.1	42.8	43.9	45.0	45.4	(R) 44.3	41.6	41.6	41.1	40.0
Residential and commercial	37.2	36.9	34.3	31.7	26.4	24.3	22.8	21.7	21.1	20.3	20.3	19.4	19.4	19.1	19.3	20.1	20.6	21.2	(R) 19.8	20.4	20.8	20.2	19.0	(R) 18.1	17.4	17.4	17.2	17.1
Electric utilities	6.8	6.6	13.0	15.6	10.9	4.2	4.2	3.9	3.2	3.5	3.3	2.3	2.4	2.7	3.6	3.3	3.0	3.4	2.5	3.2	3.1	3.1	1.6	1.6	1.2	1.0	1.0	0.7

KEY: Btu = British thermal unit; R = revised.

NOTES

The data for *Residential, Commercial, and Industrial* sectors include only fossil fuels consumed directly. Most renewable fuels are not included. The data for the *Transportation* sector includes only fossil and renewable fuels consumed directly. The data for *Electric utilities* includes all fuels (fossil, nuclear, geothermal, hydro, and other renewables) used by electric utilities. Due to a lack of consistent historical data, some renewable energy resources are not included in this table. The totals in table 4-4 are the best numbers for total U.S. energy consumption from all sources. Numbers may not add to totals due to rounding.

SOURCES

1960-70: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review,* (Washington, DC: Annual Issues), tables 2.1a - 2.1f, available at http://www.eia.doe.gov/emeu/aer/contents.html as of Sept. 15, 2011 .

1975-2011: Ibid., *Monthly Energy Review* , (Washington, DC: September 2011), tables 2.1, 3-8a, 3-8b and 3.8c, available at http://www.eia.doe.gov/emeu/mer/contents.html as of Jul. 17, 2012.

Table 4-3: Domestic Demand for Refined Petroleum Products by Sector (Quadrillion Btu)

	1960	1965	1970	(R) 1975	(R) 1980	(R) 1985	(R) 1990	(R) 1991	(R) 1992	(R) 1993	(R) 1994	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	2010
Total petroleum demand	19.92	23.26	29.53	32.73	34.20	30.92	33.55	32.85	33.52	33.74	34.56	34.44	35.68	36.16	36.82	37.84	38.26	38.19	38.22	38.81	40.29	40.39	39.96	39.77	37.28	35.40	35.97
Transportation	10.13	11.87	15.31	17.62	19.01	19.47	21.63	21.37	21.67	21.98	22.50	22.95	23.57	23.81	24.42	25.10	25.68	25.41	25.91	26.06	26.92	27.31	27.65	27.76	26.41	25.34	25.65
Industrial	5.75	6.79	7.79	8.13	9.51	7.71	8.25	7.96	8.55	8.39	8.77	8.59	9.02	9.25	9.08	9.36	9.07	9.18	9.17	9.20	9.82	9.63	9.77	9.45	8.51	7.82	8.01
Residential and commercial	3.49	3.87	4.31	3.82	3.05	2.65	2.39	2.32	2.31	2.26	2.23	2.14	2.27	2.16	2.01	2.17	2.36	2.32	2.18	2.35	2.33	2.21	1.89	1.90	1.89	1.86	1.93
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	1.23	0.65	0.66	0.47	0.39	0.38
Transportation as percent of total petroleum demand	50.9	51.0	51.8	53.8	55.6	63.0	64.5	65.1	64.7	65.1	65.1	66.7	66.1	65.9	66.3	66.3	67.1	66.5	67.8	67.2	66.8	67.6	69.2	69.8	70.8	71.6	71.3

KEY: Btu = British thermal unit; R = revised.

NOTES

Transportation's share of U.S. petroleum demand in this table differs slightly from table 4-1 because this table takes into account differences within sectors in the use of various grades of petroleum-based fuel that have a different Btu content per unit volume.

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

SOURCES

1960-70: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 1997*, DOE/EIA-0384(97) (Washington, DC: July 1998), tables 2.1, 5.12b, and A3.

1975-2010: Ibid., *Monthly Energy Review* (Washington, DC: May 2010), tables 2.2, 2.3, 2.4, 2.5, 2.6, available at http://www.eia.doe.gov/mer/consump.html as of June 1, 2011.

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	(R) 2008	(R) 2009	(P) 2010
Energy consumption (all sectors)	45.09	54.02	67.84	71.96	78.07	(R) 76.39	(R) 84.49	(R) 84.44	(R) 85.78	(R) 87.42	(R) 89.09	(R) 91.03	(R) 94.02	(R) 94.60	(R) 95.02	(R) 96.65	(R) 98.81	(R) 96.17	(R) 97.69	(R) 97.98	(R) 100.15	(R) 100.28	(R) 99.62	(R) 101.36	99.27	94.47	98.00
Total transportation consumption[a]	10.60	12.43	16.10	18.25	19.70	20.09	22.42	22.12	22.42	22.77	(R) 23.37	23.85	24.44	24.75	25.26	25.95	26.55	(R) 26.28	26.84	26.99	(R) 27.90	28.35	28.83	29.12	28.01	27.00	27.51
Transportation as percent of total energy consumption	23.5	23.0	23.7	(R) 25.4	25.2	26.3	26.5	(R) 26.2	26.1	26.0	26.2	26.2	(R) 26.0	(R) 26.2	(R) 26.6	26.8	(R) 26.9	27.3	(R) 27.5	(R) 27.6	(R) 27.9	(R) 28.3	28.9	28.7	28.2	28.6	28.1
Total primary consumption[b]	(R) 10.56	(R) 12.40	(R) 16.06	18.21	19.66	20.04	22.37	(R) 22.06	22.36	22.72	23.31	23.79	24.38	24.70	25.20	25.89	26.49	(R) 26.21	(R) 26.78	26.92	27.82	28.27	28.75	29.03	27.93	26.92	27.43
Coal[c]	0.075	0.016	0.007	0.001	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
in million short tons[c]	3.046	0.655	0.298	0.024	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Natural gas[d]	0.36	0.52	0.74	0.59	0.65	0.52	0.68	0.62	0.61	0.64	0.71	0.72	0.74	0.78	0.67	0.68	0.67	0.66	0.70	0.63	0.60	0.62	0.62	0.67	0.69	0.64	0.68
in trillion cubic feet	0.35	0.50	0.72	0.58	0.63	0.50	0.66	0.60	0.59	0.63	0.69	0.70	0.72	0.76	0.64	0.66	0.65	0.64	0.68	0.61	0.59	0.61	0.61	0.65	0.67	0.63	0.66
Petroleum products[e]	10.13	11.87	15.31	17.62	19.01	19.47	(R) 21.63	21.37	21.67	21.98	22.50	22.95	(R) 23.57	23.81	24.42	25.10	25.68	25.41	25.91	26.06	26.92	27.31	27.65	27.76	26.41	25.34	25.65
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	4,821	4,862	5,021	5,094	5,175	5,215	5,016	4,847	4,931
Electricity	0.010	0.010	0.011	0.010	0.011	0.014	0.016	0.016	0.016	0.016	0.017	0.017	0.017	0.017	0.017	0.017	0.018	0.020	0.019	0.023	0.025	0.026	0.025	0.028	0.026	0.027	0.026
Electrical system energy losses[f]	0.026	0.024	0.026	0.024	0.027	0.032	0.037	0.037	(R) 0.036	0.037	0.038	(R) 0.038	0.038	0.038	0.038	0.040	0.042	0.043	0.042	0.051	(R) 0.054	0.056	0.054	0.060	0.056	0.056	0.055

KEY: Btu = British thermal unit; N = data do not exist; P = preliminary; R = revised.

[a] Sum of primary consumption, electricity, and electrical system energy losses categories.

[b] Sum of biomass, natural gas, and petroleum categories.

[c] Beginning from 1980, small amounts of coal consumed for transportation are included in industrial sector consumption.

[d] Consumed in the operation of pipelines, primarily in compressors, and small amounts consumed as vehicle fuel.

[e] Includes most nonutility use of fossil fuels to produce electricity and small amounts (about 0.1 quadrillion Btu per year since 1990) of renewable energy in the form of ethanol blended into motor gasoline.

[f] Incurred in the generation, transmission, and distribution of electricity plus plant use and unaccounted for electrical system energy losses.

NOTE

Energy consumption (all sectors) differs from totals in table 4-2 for 1990 and subsequent years.

SOURCES

All except noted:

U.S. Department of Energy, Energy Information Administration *Annual Energy Review* (Washington DC: Annual Issues) tables 2.1a, 2-1e, 4-3, 7-3, and 5-13c, available at http://www.eia.doe.gov as of Oct. 22, 2011.

Natural gas:

Cubic feet:

1960-70: U.S. Department of Energy, Energy Information Administration *Annual Energy Review 2000,* DOE/EIA-0384 (2000) (Washington DC: August 2001) table 6.5.

1975-2010: Ibid., *Monthly Energy Review* (Washington DC: December 2011), table 4.3, available at http://www.eia.doe.gov as of Dec. 7, 2011.

Table 4-5: Fuel Consumption by Mode of Transportation in Physical Units

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Air																									
Certificated carriers[a]																									
Jet fuel (million gallons)	1,954	3,889	7,857	7,558	8,519	10,115	12,212	11,360	11,598	11,960	12,501	12,812	13,187	13,658	13,303	14,491	13,904	13,112	12,287	12,417	13,380	13,284	13,019	12,999	12,469
General aviation[b]																									
Aviation gasoline (million gallons)	242	292	551	412	520	421	353	354	314	268	266	287	289	292	311	345	333	279	277	272	273	295	283	274	248
Jet fuel (million gallons)	N	56	208	453	766	691	663	577	494	454	464	560	608	642	815	967	972	918	938	932	1,231	1,527	1,643	1,486	1,706
Highway																									
Gasoline, diesel and other fuels (million gallons)																									
Light duty vehicle, short wheel base and motorcycle[c]	41,171	49,723	67,879	74,253	70,186	71,700	69,759	64,501	65,627	67,246	68,079	68,268	69,419	70,094	71,901	73,495	73,275	73,752	75,662	75,646	75,604	77,608	75,230	90,052	86,079
Light duty vehicle, long wheel base[c]	N	U	12,313	19,081	23,796	27,363	35,611	38,217	40,929	42,851	44,112	45,605	47,354	49,388	50,462	52,859	52,939	53,522	55,220	60,758	63,417	58,869	60,685	36,910	34,925
Single-unit 2-axle 6-tire or more truck	N	13,848	3,968	5,420	6,923	7,399	8,357	8,172	8,237	8,488	9,032	9,216	9,409	9,576	6,817	9,372	9,563	9,667	10,321	8,880	8,959	9,501	9,852	16,314	17,144
Combination truck	N	6,658	7,348	9,177	13,037	14,005	16,133	16,809	17,216	17,748	18,653	19,777	20,193	20,302	25,158	24,537	25,666	25,512	26,480	23,815	24,191	27,689	28,107	30,904	30,561
Bus	827	875	820	1,053	1,018	834	895	864	878	929	964	968	990	1,027	1,040	1,148	1,112	1,026	1,000	969	1,360	1,120	1,148	2,022	2,057
Transit[d]																									
Electricity (million kWh)	2,908	2,584	2,561	2,646	2,446	4,216	4,837	4,853	4,716	4,865	5,081	5,068	4,923	4,908	4,962	5,126	5,382	5,485	5,529	5,508	5,657	5,765	5,770	6,216	6,337
Motor fuel (million gallons)																									
Diesel[e]	208	248	271	365	431	609	651	665	685	679	678	678	535	539	560	576	591	596	674	555	544	532	545	537	536
Gasoline and other nondiesel fuels[f]	192	124	68	8	11	46	34	34	37	46	60	61	25	26	22	21	24	26	35	26	28	29	31	29	31
Compressed natural gas	N	N	N	N	N	N	N	N	1	2	5	11	11	19	29	35	44	53	66	79	87	94	111	108	113
Rail, Class I (in freight service)																									
Distillate / diesel fuel (million gallons)	3,463	3,592	3,545	3,657	3,904	3,110	3,115	2,906	3,005	3,088	3,334	3,480	3,579	3,575	3,583	3,715	3,700	3,710	3,730	3,826	4,059	4,098	4,192	4,062	3,886
Amtrak																									
Electricity (million kWh)	N	N	N	180	254	295	330	303	300	301	309	336	363	390	416	443	470	456	518	537	551	531	549	578	582
Distillate / diesel fuel (million gallons)	N	N	N	63	64	65	82	82	82	83	74	72	71	76	76	79	95	97	84	75	69	65	62	62	63
Water																									
Residual fuel oil (million gallons)	3,952	3,093	3,774	4,060	8,952	4,590	6,326	6,773	6,563	5,282	5,386	5,886	5,701	5,010	5,620	5,838	6,410	5,409	4,848	3,874	4,690	5,179	5,754	6,327	5,066
Distillate / diesel fuel oil (million gallons)	787	652	819	1,098	1,478	1,699	2,065	2,046	2,219	2,155	2,189	2,339	2,491	2,574	2,595	2,419	2,261	2,044	2,079	2,217	2,140	2,006	1,903	1,924	1,187
Gasoline (million gallons)	N	N	598	730	1,052	1,053	1,300	1,710	1,316	874	876	1,060	994	987	956	1,098	1,124	994	1,081	1,107	1,005	1,261	1,237	1,222	1,136
Pipeline																									
Natural gas (million cubic feet)	347,075	500,524	722,166	582,963	634,622	503,766	659,816	601,305	587,710	624,308	685,362	700,335	711,446	751,470	635,477	645,319	642,210	624,964	666,920	591,492	566,187	584,026	584,213	621,364	647,956

KEY: kWh = kilowatt-hour; 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. 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] Data for 2007-10 were calculated using a new methodology developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category Light duty vehicle, short wheel base includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. The new category Light duty vehicle, long wheel base includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches. In addition, this edition of table 4-5 is not comparable to previous editions.

[d] Data from 1997-2009 are not comparable to data before 1997 due to different sources. Prior to 1984, excludes commuter rail, automated guideway, ferryboat, demand responsive vehicles, and most rural and small systems.

[e] *Diesel* includes Diesel and Bio-Diesel.

[f] Gasoline and all other nondiesel fuels include Gasoline, Liquified Petroleum Gas, Liquified Natural Gas, Methane, Ethanol, Bunker Fuel, Kerosene, Grain Additive, and Other Fuel.

SOURCES

Air:

Certificated air carriers:

1960-2010: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Fuel Cost and Consumption,* available at http://www.bts.gov/programs/airline_information as of Mar. 8, 2012.

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.

1994-2010: Ibid., *FAA Aerospace Forecasts Fiscal Years 2011-2031* (Washington, DC: February 2011), tables 23 and 31, and similar tables in earlier editions, available at http://www.faa.gov/about/office_org/headquarters_offices/apl/aviation_forecasts/ as of Mar. 8, 2012.

Highway:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of June 29, 2010.

1995-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

Transit:

Electricity / motor fuel / compressed natural gas:

1960-96: American Public Transportation Association, *2009 Public Transportation Fact Book* (Washington, DC: June 2009), tables 26, 27, 28 and similar tables in earlier editions.

1997-2010: U.S. Department of Transportation, Federal Transit Administration, *National Transportation Database* , table 17 and similar tables in previous years, available at www.ntdprogram.gov as of Mar. 8, 2012.

Rail:

1960-2010: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 40.

Amtrak:

1975-2010: National Railroad Passenger Corporation (Amtrak), Energy Management Department and Government Affairs Department, personal communication, Apr. 27, 2011.

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.

1985-2010 U.S. Department of Energy, Energy Information Administration, Fuel Oil and Kerosene Sales (Washington, DC: Annual Issues), available at http://www.eia.doe.gov/oil_gas/petroleum/data_publications/fuel_oil_and_kerosene_sales/foks.html as of Mar. 9, 2012.

Gasoline:

1970-2010: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table MF-24 and similar tables in earlier editions, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 8, 2012.

Pipeline:

1960-2010: U.S. Department of Energy, *Natural Gas Annual 2009,* DOE/EIA-0131(04) (Washington, DC: December 2010), table 15 and similar tables in earlier editions, available at http://www.eia.doe.gov/natural_gas/data_publications/natural_gas_annual/nga.html as of Mar. 8, 2012.

Table 4-6: Energy Consumption by Mode of Transportation (Trillion Btu)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Air																									
Certificated carriers[a]																									
Jet fuel	264	525	1,061	1,020	1,150	1,366	1,649	1,534	1,566	1,615	1,688	1,730	1,780	1,844	1,796	1,956	1,877	1,770	1,659	1,676	1,806	1,793	1,758	1,755	1,683
General aviation[b,c]																									
Aviation gasoline	29	35	66	50	63	51	42	43	38	32	32	34	35	35	37	42	40	34	33	33	33	35	34	33	30
Jet fuel	U	8	28	61	103	93	90	78	67	61	63	76	82	87	110	131	131	124	127	126	166	206	222	201	230
Highway																									
Gasoline, diesel and other fuels																									
Light duty vehicle, short wheel base and motorcycle[d]	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	9,425	9,701	9,404	11,256	10,760
Light duty vehicle, long wheel base[d]	U	U	1,539	2,385	2,975	3,420	4,451	4,777	5,116	5,356	5,514	5,701	5,919	6,173	6,308	6,607	6,617	6,690	6,903	7,595	7,927	7,359	7,586	4,614	4,366
Single-unit 2-axle 6-tire or more truck[e]	U	1,921	550	752	960	1,026	1,159	1,133	1,142	1,177	1,253	1,278	1,305	1,328	946	1,300	1,195	1,208	1,290	1,110	1,120	1,188	1,232	2,039	2,143
Combination truck	U	923	1,019	1,273	1,808	1,942	2,238	2,331	2,388	2,462	2,587	2,743	2,801	2,816	3,489	3,403	3,208	3,189	3,310	2,977	3,024	3,461	3,513	3,863	3,820
Bus	115	121	114	146	141	116	124	120	122	129	134	134	137	142	144	159	139	128	125	121	170	140	144	253	257
Transit[f]																									
Electricity	10	9	9	9	8	14	17	17	16	17	17	17	17	17	17	17	18	19	19	19	19	20	20	21	22
Motor fuel																									
Diesel[g]	29	34	38	51	60	84	90	92	95	94	94	94	74	75	78	80	82	83	93	77	76	74	76	74	74
Gasoline and other nondiesel fuels[h]	24	16	9	1	1	6	4	4	5	6	8	8	3	3	3	3	3	3	4	3	4	4	4	4	4
Compressed natural gas	U	U	U	U	U	U	U	U	0	0	1	1	2	3	4	5	6	7	9	11	12	13	15	15	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	568	581	563	539
Amtrak																									
Electricity	U	U	U	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
Distillate / diesel fuel	U	U	U	9	9	9	11	11	11	11	10	10	10	10	11	11	13	13	12	10	10	9	9	9	9
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	775	861	947	758
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	278	264	267	165
Gasoline	U	U	75	91	132	132	163	214	165	109	109	133	124	123	120	137	141	124	135	138	126	158	155	153	142
Pipeline																									
Natural gas	358	516	745	601	654	519	680	620	606	644	707	722	734	775	655	665	662	644	688	610	584	602	602	641	668

KEY: Btu = British thermal unit; P = preliminary; R = revised; U = data are unavailable.

[a] Domestic operations only.
[b] Includes fuel used in air taxi operations, but not commuter operations.
[c] The values for energy consumption by general aviation in 2010 are estimated values.

[d] Data for 2007-10 were calculated using a new methodology developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category *Light duty vehicle, short wheel base* includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. The new category *Light duty vehicle, long wheel base* includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches. In addition, this edition of table 4-06 is not comparable to previous editions.

[e] 1965 data includes other 2-axle 4-tire vehicles.
[f] Prior to 1984, excludes commuter rail, automated guideway, ferryboat, demand responsive vehicles, and most rural and smaller systems.
[g] *Diesel* includes Diesel and Bio-Diesel.
[h] *Gasoline and all other nondiesel fuels* include Gasoline, Liquified Petroleum Gas, Liquified Natural Gas, Methane, Ethanol, Bunker Fuel, Kerosene, Grain Additive, and Other Fuel.

NOTES

The following conversion rates were used:
Jet fuel = 135,000 Btu/gallon.
Aviation gasoline = 120,200 Btu/gallon.
Automotive gasoline = 125,000 Btu/gallon.
Diesel motor fuel = 138,700 Btu/gallon.
Compressed natural gas = 138,700 Btu/gallon.
Distillate fuel = 138,700 Btu/gallon.
Residual fuel = 149,700 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 Jan 3, 2012.

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.

1994-2010: Ibid., *FAA Aerospace Forecasts Fiscal Years 2011-2031* (Washington, DC: February 2011), tables 22 and 30, and similar tables in earlier editions, available at http://www.faa.gov/about/office_org/headquarters_offices/apl/aviation_forecasts/ as of Jan. 3, 2012.

Highway:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Sep. 28, 2009.

1995-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 9, 2012.

Transit:

Electricity / motor fuel / compressed natural gas:

1960-96: American Public Transportation Association, *Public Transportation Fact Book, Appendix A: Historical Tables* (Washington, DC: Annual Issues), tables 29, 30, 31 and similar tables in earlier editions, available at http://apta.com/resources/statistics/Pages/transitstats.aspx as of Apr. 26, 2011.

1997-2010: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* , table 17 and similar tables in previous years, available at www.ntdprogram.gov as of Jan. 3, 2012.

Rail:

Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 40 and similar tables in previous editions.

Amtrak:

1975-2010: 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.

1985-2010 U.S. Department of Energy, Energy Information Administration, *Fuel Oil and Kerosene Sales* (Washington, DC: Annual Issues), available at http://www.eia.doe.gov/oil_gas/petroleum/data_publications/fuel_oil_and_kerosene_sales/foks.html as of Mar. 9, 2012.

Gasoline:

1970-2010: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table MF-24 and similar tables in earlier editions, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Jan. 3, 2012.

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, available at http://tonto.eia.doe.gov/dnav/ng/ng_pub_publist.asp as of Jan. 3, 2012.

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	2007	2008	(R) 2009	(R) 2010	2011
TOTAL demand	60,761	71,187	89,601	102,996	104,838	107,550	113,606	112,222	114,883	116,579	118,717	120,253	122,595	124,235	127,978	131,781	131,891	133,740	138,041	139,156	141,146	140,549	139,794	139,897	135,976	136,696	137,706	135,171
Highway	55,429	66,979	85,598	99,354	101,183	103,545	109,529	107,913	110,974	113,668	115,682	117,061	119,515	120,938	124,694	128,743	128,884	129,682	133,736	134,643	136,419	135,664	134,882	135,414	132,205	132,878	133,725	131,477
Nonhighway, total	5,332	4,208	4,003	3,642	3,655	4,005	4,076	4,309	3,908	2,911	3,035	3,192	3,081	3,297	3,284	3,038	3,007	4,058	4,305	4,514	4,727	4,885	4,912	4,484	3,771	3,818	3,981	3,694
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	1,061	634	676	784	799
Aviation[a]	1,324	501	393	410	413	382	361	339	344	340	364	367	344	335	351	322	296	356	342	304	314	332	355	362	298	326	240	221
Marine	61	96	598	730	1,052	1,053	1,300	1,710	1,319	874	897	1,060	994	987	956	1,098	1,124	994	1,081	1,108	1,033	1,262	1,237	1,222	1,136	1,130	1,167	1,104
Other[b]	1,656	1,647	1,080	938	1,131	1,490	1,733	1,482	1,439	850	862	838	825	990	1,070	915	934	1,907	2,051	2,249	2,286	2,213	2,090	1,840	1,704	1,685	1,790	1,570

KEY: R = revised.

[a] Does not include aviation jet fuel.
[b] Includes state, county, and municipal use, industrial and commercial use, construction use, and miscellaneous.

NOTE
All nonhighway uses of gasoline were estimated by the U.S. Department of Transportation, Federal Highway Administration.

SOURCES
Highway:
1960-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics* , *Summary to 1995* (Washington, DC: 1996), table MF-221, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 29, 2012.
1995-2001: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table MF-21, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 29, 2012.
2002-07: Ibid., personal communication, June 21, 2010.
2008-11: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table MF-21, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 19, 2013.
Nonhighway:
1960-2001: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), tables MF-21 and MF-24, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 29, 2012.
2002-07: Ibid., personal communication, June 21, 2010.
2008-11: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), tables MF-21 and MF-24, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 19, 2013.

Table 4-8: Certificated Air Carrier Fuel Consumption and Travel[a]

	1960	1965	1970	(R) 1975	(R) 1980	1985	1990	1991	1992	1993	1994	1995	1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010
Number of aircraft	**2,135**	**2,125**	**2,679**	**2,495**	**3,808**	**4,678**	**6,083**	**6,054**	**7,320**	**7,297**	**7,370**	**7,411**	**7,478**	**7,616**	**8,111**	**8,228**	**8,055**	**8,497**	**8,194**	**8,176**	**8,186**	**8,225**	**8,089**	**8,044**	**7,856**	**U**	**U**
Average miles flown per aircraft (thousands)	**487**	**667**	**949**	**808**	**768**	**(R) 736**	**777**	**770**	**669**	**701**	**726**	**759**	**(R) 782**	**791**	**766**	**796**	**862**	**801**	**834**	**901**	**978**	**1,003**	**1,016**	**1,046**	**1,036**	**U**	**U**
Aircraft-miles (millions)																											
Domestic operations	858	1,134	2,068	1,638	2,276	(R) 3,026	3,963	3,854	3,995	4,156	4,378	4,628	4,807	4,907	5,030	5,326	5,662	5,545	5,613	6,106	6,602	6,716	6,606	6,733	6,446	5,935	5,976
International operations	182	284	475	334	334	415	760	807	904	958	975	998	(R) 1,043	1,114	1,186	1,225	1,282	1,264	1,222	1,261	1,403	1,536	1,615	1,682	1,696	1,599	1,690
Fuel consumption (million gallons)																											
Domestic operations	1,954	3,889	(R) 7,857	7,558	8,519	10,115	12,212	11,360	11,598	11,960	12,501	12,812	13,187	13,658	13,303	14,491	14,865	13,868	12,922	13,082	14,091	13,976	13,694	13,682	12,686	11,339	11,256
International operations	566	1,280	(R) 2,243	1,949	1,747	2,488	3,938	3,888	4,079	4,112	4,325	4,511	4,658	4,962	4,915	5,277	5,508	5,336	5,079	5,219	5,592	5,975	6,018	6,205	6,187	5,721	6,028
Aircraft-miles flown per gallon																											
Domestic operations	0.44	0.29	0.26	0.22	0.27	0.30	0.32	0.34	0.34	0.35	0.35	0.36	0.36	0.36	0.38	0.37	0.38	0.40	0.43	0.47	0.47	0.48	0.48	0.49	0.51	0.52	0.53
International operations	0.32	0.22	(R) 0.21	0.17	0.19	0.17	0.19	0.21	0.22	0.23	0.23	0.22	(R) 0.22	0.22	0.24	0.23	0.23	0.24	0.24	0.24	0.25	0.26	0.27	0.27	0.27	0.28	0.28

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

[a] Aircraft operating under 14 CFR 121 and 14 CFR 135.

SOURCES

Number of aircraft:

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

1970-75: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1979* (Washington, DC: 1979), table 5.1.

1980-85: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1986* (Washington, DC: 1986), table 5.1.

1990-97: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1997* (Washington, DC: unpublished), personal communication, Mar. 19, 1999.

1998-2008: Aerospace Industries Association, *Aerospace Facts and Figures* (Washington DC: Annual Issues), "Active U.S. Air Carrier Fleet", p. 94 and similar pages in earlier editions.

Aircraft-miles flown:

1960-70: Air Transport Association, available at http://www.air-transport.org/ as of July 31, 2002.

1975-2011: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class* , available at http://www.transtats.bts.gov/Fields.asp?Table_ID=264 as of July 23, 2012.

Fuel consumption:

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airline Fuel Cost and Consumption* , available at http://www.transtats.bts.gov/fuel.asp as of July 23, 2012.

Table 4-9: Motor Vehicle Fuel Consumption and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	(R) 2010	2011
Vehicles registered (thousands)	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	243,011	247,421	250,845	254,403	255,918	254,213	250,070	253,108
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	2,795,610	2,855,508	2,890,221	2,964,788	2,989,430	3,014,371	3,031,124	2,976,528	2,956,764	2,967,266	2,946,131
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	173,531	174,787	175,023	176,203	170,765	168,140	170,411	168,597
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	12.2	12.1	12.0	11.9	11.6	11.6	11.9	11.6
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	17.1	17.1	17.2	17.2	17.4	17.6	17.4	17.5
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	714	706	698	693	667	661	681	666

KEY: R = revised.

NOTES

See tables 4-11, 4-12, 4-13, 4-14, and 4-15 for individual highway vehicles.
Motor vehicles, fuel consumption and travel data include light duty vehicles, buses, trucks and motorcycles.
For 2007-11, the methodology and data categories of the Highway Statistics series were updated, so the data from 1960-2006 are not comparable. In addition, this edition of table 4-9 is not comparable to editions from 2009 or earlier.

SOURCES

1960-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995*, tables VM-201A and MF-221, available at www.fhwa.dot.gov/policy/ohpi as of Feb. 16, 2010.
1995-2011: Ibid.,*Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 19, 2013.

Table 4-10: Estimated Consumption of Alternative and Replacement Fuels for Highway Vehicles (Thousand gasoline-equivalent gallons)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
TOTAL fuel consumption [a]	134,230,631	135,912,964	140,718,522	144,774,683	148,180,046	151,597,859	156,838,150	161,210,087	163,032,407	165,201,691	169,983,219	177,697,941	180,698,532	182,185,778	184,810,803	185,593,715	(R) 176,509,233	172,518,178
Alternative fuels, total	229,631	293,334	281,152	276,643	295,616	312,589	323,790	302,287	322,037	348,421	378,589	402,941	428,532	420,778	417,803	414,715	430,329	431,107
Liquefied petroleum gases	208,142	264,655	248,467	232,701	239,158	238,356	241,386	209,817	212,576	215,876	223,143	224,697	211,883	188,171	173,130	152,360	147,784	129,631
Compressed natural gas	16,823	21,603	24,160	35,162	46,923	65,192	72,412	79,620	86,475	104,496	120,670	133,222	158,903	166,878	172,011	178,565	189,358	199,513
Liquefied natural gas	585	1,901	2,345	2,759	3,247	3,714	5,343	5,828	7,259	8,921	9,382	13,503	20,888	22,409	23,474	24,594	25,554	25,652
Methanol, 85% [b]	1,069	1,593	2,340	2,023	1,775	1,554	1,212	1,073	585	439	337	N	N	N	N	N	N	N
Methanol, neat	2,547	3,166	3,190	2,150	347	347	449	447	0	0	0	0	N	N	N	N	N	N
Ethanol, 85% [b]	21	48	80	190	694	1,280	1,727	3,916	12,071	14,623	17,783	26,376	31,581	38,074	44,041	54,091	62,464	71,213
Ethanol, 95% [b]	85	80	140	995	2,699	1,136	59	62	13	0	0	0	N	N	N	N	N	N
Electricity [c]	359	288	430	663	773	1,010	1,202	1,524	3,058	4,066	7,274	5,141	5,269	5,219	5,104	5,037	5,050	4,956
Hydrogen	N	N	N	N	N	N	N	N	N	N	N	2	8	25	41	66	117	140
Other Fuels	N	N	N	N	N	N	N	N	N	N	N	0	0	2	2	2	2	2
Biodiesel	N	N	N	N	N	N	N	N	6,816	7,076	16,917	18,220	27,616	93,281	267,623	367,764	324,329	325,102
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	0	0	0
Ethanol in gasohol	701,000	760,000	845,900	910,700	660,200	830,700	889,500	950,300	1,085,800	1,143,300	1,413,600	1,919,572	2,414,167	(R) 2,765,663	3,729,168	4,694,304	6,442,781	7,343,133
Traditional fuels, total	134,001,000	135,619,630	140,437,370	144,498,040	147,884,430	151,285,270	156,514,360	160,907,800	162,710,370	164,853,270	169,604,630	177,295,000	180,270,000	181,765,000	184,393,000	185,179,000	(R) 176,078,904	172,087,071
Gasoline [e]	110,135,000	111,323,000	113,144,000	115,943,000	117,783,000	119,336,000	122,849,000	125,111,000	125,720,000	127,768,000	131,299,000	135,330,000	138,283,000	138,723,000	140,146,000	140,646,000	134,644,492	134,385,175
Diesel [f]	23,866,000	24,296,630	27,293,370	28,555,040	30,101,430	31,949,270	33,665,360	35,796,800	36,990,370	37,085,270	38,305,630	41,965,000	41,987,000	43,042,000	44,247,000	44,533,000	(R) 41,434,412	37,701,896

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 da
reflect this new methodology.
The traditional fuel consumption data in this table are slightly different from the fuel consumption data in table 4-9 due to different sources.

SOURCE

U.S. Department of Energy, Energy Information Administration, *Alternatives to Traditional Transportation Fuels 2009*, table C-1 and similar tables in earlier editions, available at http://www.eia.gov/renewable/alternative_transport_vehicles/index.cfm as of May 12, 2011.

Table 4-11: Light Duty Vehicle, Short Wheel Base 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	2007	2008	2009	(R) 2010
Vehicles registered (thousands)																											
Light duty vehicles, short wheel base	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	196,491	196,763	193,980	190,203
Motorcycles	574	1,382	2,824	4,964	5,694	5,444	4,259	4,177	4,065	3,978	3,757	3,897	3,872	3,826	3,879	4,152	4,346	4,903	5,004	5,370	5,768	6,227	6,679	7,138	7,753	7,930	8,010
Vehicle-miles traveled (millions)																											
Light duty vehicles, short wheel base [a]	587,000	723,000	917,000	1,034,000	1,112,000	1,247,000	1,408,000	1,358,000	1,372,000	1,375,000	1,406,000	1,438,000	1,469,854	1,502,556	1,549,577	1,569,100	1,600,287	1,628,332	1,658,474	1,672,079	1,699,890	1,708,421	1,690,534	2,104,416	2,024,757	2,015,714	2,025,745
Motorcycles	U	U	3,000	5,600	10,200	9,100	9,600	9,200	9,600	9,900	10,200	9,800	9,920	10,081	10,283	10,584	10,469	9,639	9,552	9,577	10,122	10,454	12,049	21,396	20,811	20,822	18,513
Fuel consumed (million gallons)																											
Light duty vehicles, short wheel base [a]	41,171	49,723	67,819	74,140	69,982	71,518	69,568	64,317	65,436	67,048	67,874	68,072	69,221	69,892	71,695	73,283	73,065	73,559	75,471	75,455	75,402	77,418	75,009	89,577	85,589	85,658	86,789
Motorcycles	U	U	60	113	204	182	191	184	191	198	205	196	198	202	206	212	209	193	191	192	202	189	221	475	489	482	427
Average miles traveled per vehicle (thousands)																											
Light duty vehicles, short wheel base [a]	9.5	9.6	10.3	9.7	9.1	9.8	10.5	10.6	10.8	10.8	11.0	11.2	11.3	11.6	11.8	11.8	12.0	11.8	12.2	12.3	12.5	12.5	12.5	10.7	10.3	10.4	10.7
Motorcycles	U	U	1.1	1.1	1.8	1.7	2.3	2.2	2.4	2.5	2.7	2.5	2.6	2.6	2.7	2.5	2.4	2.0	1.9	1.8	1.8	1.7	1.8	3.0	2.7	2.6	2.3
Average miles traveled per gallon																											
Light duty vehicles, short wheel base [a]	14.3	14.5	13.5	13.9	15.9	17.4	20.2	21.1	21.0	20.5	20.7	21.1	21.2	21.5	21.6	21.4	21.9	22.1	22.0	22.2	22.5	22.1	22.5	23.5	23.7	23.5	23.3
Motorcycles	U	U	50.0	49.6	50.0	50.0	50.3	50.0	50.3	50.0	49.8	50.0	50.0	50.0	50.0	50.0	50.0	49.9	50.0	50.0	50.0	55.3	54.5	45.1	42.5	43.2	43.4
Average fuel consumed per vehicle (gallons)																											
Light duty vehicles, short wheel base [a]	667.6	660.7	759.9	694.8	575.5	559.2	520.3	501.3	516.9	526.6	530.8	530.2	533.6	538.7	543.8	553.4	546.8	534.5	555.3	556.2	552.7	566.9	554.0	455.9	435.0	441.6	456.3
Motorcycles	U	U	21.2	22.8	35.8	33.4	44.8	44.1	47.0	49.8	54.6	50.3	51.2	52.7	53.0	51.0	48.2	39.4	38.2	35.7	35.1	30.4	33.1	66.5	63.1	60.8	53.3

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

[a] 1960 and 1965 data include *Motorcycles*.

NOTES

Average miles traveled per vehicle, *Average miles traveled per gallon*, and *Average fuel consumed per vehicle* are derived by calculation.

Data for 2007-11 were calculated using a new methodology for light duty vehicles and motorcycles developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category *Light duty vehicle, short wheel base* includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. The new category *Light duty vehicle, long wheel base* is found in table 4-12 and includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches. This edition of 4-11 is not comparable to editions from 2009 or earlier.

SOURCES

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), tables MV-201 and VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 23, 2009.
1995-2011: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 19, 2013.

Table 4-12: Light Duty Vehicle, Long Wheel Base Fuel Consumption and Travel

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	(R) 2010	2011
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	39,187	39,685	40,488	40,242	41,328
Vehicle-miles traveled (millions)	123,000	201,000	291,000	391,000	575,000	649,000	707,000	746,000	765,000	790,000	816,540	850,739	868,275	901,022	923,059	943,207	966,034	984,094	1,027,164	1,041,051	1,082,490	586,618	605,456	617,534	622,712	603,232
Fuel consumed (million gallons)	12,313	19,081	23,796	27,363	35,611	38,217	40,929	42,851	44,112	45,605	47,354	49,388	50,462	52,859	52,939	53,522	55,220	60,758	63,417	58,869	60,685	36,910	34,925	35,711	36,251	35,326
Average miles traveled per vehicle (thousands)	8.7	9.8	10.4	10.5	11.9	12.2	12.4	12.4	12.2	12.0	11.8	12.1	12.2	12.0	11.7	11.2	11.4	11.3	11.2	10.9	10.9	15.0	15.3	15.3	15.5	14.6
Average miles traveled per gallon	10.0	10.5	12.2	14.3	16.1	17.0	17.3	17.4	17.3	17.3	17.2	17.2	17.2	17.0	17.4	17.6	17.5	16.2	16.2	17.7	17.8	15.9	17.3	17.3	17.2	17.1
Average fuel consumed per vehicle (gallons)	866.5	934.5	853.6	735.3	737.7	720.6	716.9	714.3	701.3	693.7	685.0	703.3	707.4	701.5	669.4	635.7	649.6	696.9	690.5	617.5	612.2	941.9	880.1	882.0	900.8	854.8

KEY: R = revised.

NOTES

Data for 2007-11 were calculated using a new methodology for light duty vehicles and motorcycles developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category *Light duty vehicle, long wheel base* includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches. The new category *Light duty vehicle, short wheel base* is found in table 4-11 and includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. This edition of 4-12 is not comparable to editions from 2009 or earlier.
For 1993-2006, nearly all vehicles in this category are light trucks, which include vans, pickup trucks, and sport utility vehicles. In 1995, the U.S. Department of Transportation, Federal Highway Administration revised its vehicle categories beginning with 1993 data. The new categories were passenger car, other 2-axle 4-tire vehicle, single-unit 2-axle 6-tire or more truck, and combination truck. Prior to 1993, some minivans and sport utility vehicles were included under the passenger car category.

SOURCES

1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 23, 2009.
1995-2011: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 20, 2013.

Table 4-13: Single-Unit 2-Axle 6-Tire or More Truck Fuel Consumption and Travel

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	(R) 2007	(R) 2008	2009	2010
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	8,117	8,288	8,356	8,217
Vehicle-miles (millions)	27,100	34,600	39,800	45,400	51,900	52,900	53,900	56,800	61,300	62,705	64,072	66,893	68,021	70,304	70,500	72,448	75,866	77,757	78,441	78,496	80,344	119,979	126,855	120,207	110,674
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	9,741	9,372	9,563	9,667	10,321	8,880	8,959	9,501	9,852	16,314	17,144	16,253	15,072
Average miles traveled per vehicle (thousands)	7.4	8.2	9.1	9.9	11.6	11.8	12.3	12.9	12.5	12.5	12.2	12.6	11.9	12.2	11.9	12.7	13.4	13.3	12.7	12.3	12.1	14.8	15.3	14.4	13.5
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	7.0	7.5	7.4	7.5	7.4	8.8	8.8	8.3	8.2	7.4	7.4	7.4	7.3
Average fuel consumed per vehicle (gallons)	1,077.8	1,280.8	1,582.8	1,610.9	1,862.5	1,823.8	1,885.0	1,925.7	1,840.9	1,834.5	1,786.7	1,809.1	1,698.5	1,626.3	1,613.7	1,695.0	1,826.5	1,518.4	1,454.1	1,485.6	1,481.7	2,010.0	2,068.5	1,945.0	1,834.2

KEY: R = revised.

NOTES

Data for 2007-10 were calculated using new sources and a new methodology developed by FHWA. Data for these years are not comparable to previous years. The FHWA estimates national trends by using State reported Highway Performance and Monitoring System (HPMS) data, fuel consumption data (MF-21 and MF-27), vehicle registration data (MV-1, MV-9, and MV-10), other data such as the R. L. Polk vehicle data, and a host of modeling techniques. Starting with the 2007 VM-1, an enhanced methodology is used to provide timely indictors on both travel and travel behavior changes.

From 1998-2006, the Federal Highway Administration (FHWA) used the Census Bureau's 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.

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 those that have single frames, two axles, and at least 6 tires or a gross vehicle weight rating exceeding 10,000 lbs.. Pre-1993 data have been reassigned to the most appropriate category.

SOURCES

1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 23, 2009.

1995-2010: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 13, 2012.

Table 4-14: Combination Truck Fuel Consumption and Travel

	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	(R) 2010	2011
Number registered (thousands)	787	905	1,131	1,417	1,403	1,709	1,691	1,675	1,680	1,682	1,696	1,747	1,790	1,997	2,029	2,097	2,154	2,277	1,908	2,010	2,087	2,170	2,635	2,585	2,617	2,553	2,452
Vehicle-miles traveled (millions)	31,700	35,100	46,700	68,700	78,100	94,300	96,600	99,500	103,100	108,900	115,500	118,899	124,584	128,359	132,384	135,020	136,584	138,737	140,160	142,370	144,028	142,169	184,199	183,826	168,100	175,789	163,692
Fuel consumed (million gallons)	6,658	7,348	9,177	13,037	14,005	16,133	16,809	17,216	17,748	18,653	19,777	20,193	20,302	25,158	24,537	25,666	25,512	26,480	23,815	24,191	27,689	28,107	30,904	30,561	28,050	29,927	28,193
Average miles traveled per vehicle (thousands)	40.3	38.8	41.3	48.5	55.7	55.2	57.1	59.4	61.4	64.8	68.1	68.1	69.6	64.3	65.3	64.4	63.4	60.9	73.4	70.8	69.0	65.5	69.9	71.1	64.2	68.9	66.8
Average miles traveled per gallon	4.8	4.8	5.1	5.3	5.6	5.8	5.7	5.8	5.8	5.8	5.8	5.9	6.1	5.1	5.4	5.3	5.4	5.2	5.9	5.9	5.2	5.1	6.0	6.0	6.0	5.9	5.8
Average fuel consumed per vehicle (gallons)	8,465.2	8,118.6	8,115.9	9,201.3	9,980.3	9,440.6	9,938.3	10,276.0	10,562.4	11,093.1	11,662.7	11,561.1	11,341.9	12,595.7	12,095.9	12,241.5	11,843.0	11,630.9	12,479.5	12,033.3	13,268.9	12,954.3	11,726.9	11,821.3	10,717.9	11,722.8	11,499.8

KEY: R = revised.

NOTES

Data for 2007-11 were calculated using new sources and a new methodology developed by FHWA. Data for these years are not comparable to previous years. The FHWA estimates national trends by using State reported Highway Performance and Monitoring System (HPMS) data, fuel consumption data (MF-21 and MF-27), vehicle registration data (MV-1, MV-9, and MV-10), other data such as the R. L. Polk vehicle data, and a host of modeling techniques. Starting with the 2007 VM-1, an enhanced methodology is used to provide timely indictors on both travel and travel behavior changes.

From 1998-2006, the Federal Highway Administration (FHWA) used the Census Bureau's 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.

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. Pre-1993 data have been reassigned to the most appropriate category.

SOURCES

1965-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 23, 2009.

1995-2011: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 20, 2013.

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	2007	2008	2009	(R) 2010	2011
Number registered (thousands)	272	314	378	462	529	593	627	631	645	654	670	686	695	698	716	729	746	750	761	777	795	807	822	834	843	842	846	666
Vehicle-miles traveled (millions)	4,300	4,700	4,500	6,100	6,100	4,500	5,700	5,800	5,800	6,100	6,400	6,400	6,563	6,842	7,007	7,662	7,590	7,077	6,845	6,783	6,801	6,980	6,783	14,516	14,823	14,387	13,770	13,783
Fuel consumed (million gallons)	827	875	820	1,053	1,018	834	895	864	878	929	964	968	990	1,027	1,040	1,148	1,112	1,026	1,000	969	1,360	1,120	1,148	2,022	2,057	1,987	1,921	1,933
Average miles traveled per vehicle (thousands)	15.8	15.0	11.9	13.2	11.5	7.6	9.1	9.2	9.0	9.3	9.5	9.3	9.4	9.8	9.8	10.5	10.2	9.4	9.0	8.7	8.6	8.6	8.3	17.4	17.6	17.1	16.3	20.7
Average miles traveled per gallon	5.2	5.4	5.5	5.8	6.0	5.4	6.4	6.7	6.6	6.6	6.6	6.6	6.6	6.7	6.7	6.7	6.8	6.9	6.8	7.0	5.0	6.2	5.9	7.2	7.2	7.2	7.2	7.1
Average fuel consumed per vehicle (gallons)	3,039.0	2,784.1	2,171.8	2,278.5	1,925.2	1,405.3	1,427.5	1,368.6	1,361.8	1,419.6	1,437.9	1,412.1	1,424.8	1,471.7	1,453.9	1,575.7	1,490.4	1,368.7	1,314.0	1,247.8	1,710.3	1,387.8	1,397.2	2,422.8	2,439.1	2,360.0	2,270.7	2,901.9

KEY: R = revised.

NOTE

This table Includes data for both publicly and privately owned school, transit, and other commercial buses.

Data for 2007-11 were calculated using new sources and a new methodology developed by FHWA. Data for these years are not comparable to previous years. The FHWA estimates national trends by using State reported Highway Performance and Monitoring System (HPMS) data, fuel consumption data (MF-21 and MF-27), vehicle registration data (MV-1, MV-9, and MV-10), other data such as the R. L. Polk vehicle data, and a host of modeling techniques. Starting with the 2007 VM-1, an enhanced methodology is used to provide timely indictors on both travel and travel behavior changes.

SOURCES

1960-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 23, 2009.

1995-2011: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Ma 20, 2013.

Table 4-16: Transit Industry Electric Power and Primary Energy Consumption[a] and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of vehicles (millions)	65	62	61	62	75	94	93	97	103	108	116	116	94	98	100	103	106	111	112	115	117	122	126	126	129	136	136
Vehicle-miles traveled (millions)	2,143	2,008	1,883	2,176	2,287	2,791	3,242	3,306	3,355	3,435	3,468	3,550	2,751	2,853	2,970	3,111	3,202	3,319	3,433	3,476	3,548	3,603	3,671	3,769	3,895	3,988	4,400
Electric power consumed (million kWh)	2,908	2,584	2,561	2,646	2,446	4,216	4,837	4,853	4,716	4,865	5,081	5,068	4,923	4,908	4,962	5,126	5,382	5,485	5,529	5,508	5,657	5,765	5,770	6,216	6,337	6,492	6,414
Primary energy consumed (thousand gallons)																											
Diesel	208,100	248,400	270,600	365,060	431,400	608,738	651,030	665,158	684,944	678,511	678,226	678,286	534,958	539,169	560,448	575,889	590,610	595,918	673,040	554,286	541,998	480,456	528,236	514,954	499,400	614,433	583,446
Gasoline and other nondiesel fuels[b]	191,900	124,200	68,200	7,576	11,400	45,704	33,906	34,467	37,179	45,672	60,003	60,730	25,227	25,726	22,107	21,097	23,641	26,008	35,395	26,690	30,874	80,720	46,907	51,300	67,919	141,668	146,804
Compressed natural gas	N	N	N	N	N	N	N	N	1,009	1,579	4,835	10,740	11,476	19,339	28,800	34,825	43,676	52,510	65,774	79,456	86,595	93,866	110,643	107,703	112,753	142,156	126,235

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

[a] Prior to 1984, the data in this table include the energy consumption of bus, heavy rail, light rail and trolley bus. Commuter rail, automated guideway, urban ferryboat, demar responsive vehicles, and most rural and smaller systems are excluded from the data during this period.

[b] 1960 to 1991 data include propane. Series not continuous between 1991 and 1992. 1992 to 1995 data include propane, liquefied natural gas, bio/soy fuel, biodiesel, hydrogen, methanol and ethynol, except compressed natural gas. 1996 to 2001 data include only propane, liquified natural gas, methanol and ethynol. 2002 to 2009 data include the above, and also biodiesel and grain fuel.

NOTES

Data prior to 1996 are not comparable to data from 1996 onward due to a change in sources with differing methodologies. 2009 data for *Gasoline and other nondiesel fuels* is not comparable to previous years' data due to a change in the reporting requirements that require transit agencies to submit energy consumption data for both purchased transportation (PT) services and directly operated (DO) transportation services. The major effect of this reporting change occurred within the following modes: Demand Response, Motor Bus, Publico, and Vanpool.

This table includes approximate electrical system losses, and thus the conversion factor is multiplied by 3.

SOURCE

1960-95: American Public Transportation Association, *2009 Public Transportation Fact Book Appendix A: Historical Tables* (Washington, DC: Annual Issues), tables 7, 17, 29, 30, 31 and similar tables in earlier editions, available at http://www.apta.com/resources/statistics/Pages/transitstats.aspx as of Apr. 1, 2010.

1996-2010: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database*, tables 19 and 17 and similar tables in previous editions, available at www.ntdprogram.gov as of November 2011.

Table 4-17: Class I Rail Freight Fuel Consumption and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Number in use																										
Locomotives[a]	29,031	27,780	27,077	27,846	28,094	22,548	18,835	18,344	18,004	18,161	18,505	18,812	19,269	19,684	20,261	20,256	20,028	19,745	20,506	20,774	22,015	22,779	23,732	24,143	24,003	24,045
Freight 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	1,316,522	1,361,250	1,385,709	1,392,972	1,363,433
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	543	524	436
Locomotive unit-miles	N	N	N	1,479	1,531	1,228	1,280	1,238	1,278	1,320	1,405	1,445	1,465	1,423	1,440	1,504	1,503	1,478	1,444	1,484	1,538	1,588	1,660	1,609	1,559	1,309
Freight car-miles	28,170	29,336	29,890	27,656	29,277	24,920	26,159	25,628	26,128	26,883	28,485	30,383	31,715	31,660	32,657	33,851	34,590	34,243	34,680	35,555	37,071	37,712	38,955	38,186	37,226	32,115
Average miles traveled per gallon																										
Freight trains	0.12	0.12	0.12	0.11	0.11	0.11	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.14
Freight cars	8.13	8.17	8.43	7.56	7.50	8.01	8.40	8.82	8.69	8.71	8.54	8.73	8.86	8.86	9.11	9.11	9.35	9.23	9.30	9.29	9.13	9.20	9.29	9.40	9.58	10.06
Fuel consumed (million gallons)	3,463	3,592	3,545	3,657	3,904	3,110	3,115	2,906	3,005	3,088	3,334	3,480	3,579	3,575	3,583	3,715	3,700	3,710	3,730	3,826	4,059	4,098	4,192	4,062	3,886	3,192
Revenue ton-miles per gallon of fuel consumed	165	194	216	206	235	282	332	357	355	359	360	375	379	377	384	386	396	403	404	405	410	414	423	436	457	480
Average miles traveled per locomotive (thousands)	N	N	N	53.1	54.5	54.5	68.0	67.5	71.0	72.7	75.9	76.8	76.0	72.3	71.1	74.2	75.0	74.8	70.4	71.4	69.9	69.7	69.9	66.6	64.9	54.4
Average fuel consumed per locomotive[a] (thousand gallons)	119.3	129.3	130.9	131.3	139.0	137.9	165.4	158.4	166.9	170.0	180.2	185.0	185.7	181.6	176.8	183.4	184.7	187.9	181.9	184.2	184.4	179.9	176.6	168.2	161.9	132.8

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* (Washington, DC: Annual Issues), pp. 33, 34, 40, 49, and 51, and similar pages 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).

2005-09: Association of American Railroads, personal communications, June 13, 2007, Apr. 24, 2008, Apr. 28, 2010, and Aug. 12, 2011.

Table 4-18: Amtrak Fuel Consumption and Travel

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Number in use																							
Locomotives	355	419	291	318	316	336	360	338	313	299	332	345	329	378	401	372	442	276	258	319	270	278	274
Cars	1,913	2,128	1,854	1,863	1,786	1,796	1,853	1,852	1,722	1,730	1,728	1,962	1,992	1,894	2,084	2,896	1,623	1,211	1,186	1,191	1,164	1,177	1,214
Miles traveled (millions)																							
Train-miles	30	30	30	33	34	34	35	34	32	30	32	33	34	35	36	38	37	37	36	36	37	38	38
Car-miles	253	235	251	301	313	307	303	304	292	276	288	312	342	368	378	379	332	308	265	264	267	272	283
Locomotive fuel consumed																							
Electric (million of kWhs)	180	254	295	330	303	300	301	309	336	363	390	416	443	470	456	518	537	551	531	549	578	582	565
Diesel (million gallons)	63	64	65	82	82	82	83	74	72	71	76	76	79	95	97	84	75	69	65	62	62	63	62
Average miles traveled per car (thousands)	132	110	135	162	175	171	164	164	170	160	167	159	172	194	181	131	204	255	223	222	229	231	233

KEY: kWh = kilowatt hour.

SOURCES

Number of locomotives and cars:

1975–80: National Passenger Railroad Corporation (Amtrak), State and Local Affairs Department, personal communication.

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

2001–09: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in earlier editions.

Miles traveled:

Train-miles:

1975–2002: National Passenger Railroad Corporation (Amtrak), *Amtrak Annual Report*, Statistical Appendix (Washington, DC: Annual Issues).

2003–09: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in earlier editions.

Car-miles:

1975: Association of American Railroads, *Yearbook of Railroad Facts 1975* (Washington, DC: 1976), p. 40.

1980–85: National Passenger Railroad Corporation (Amtrak), State and Local Affairs Department and Public Affairs Department, personal communication.

1990–2000: Ibid., Amtrak Corporate Reporting, Route Profitability System, personal communication, Aug. 22, 2001.

2001–09: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in earlier editions.

Locomotive fuel consumed:

1975-2000: National Passenger Railroad Corporation (Amtrak), State and Local Affairs Department, personal communication.

2001-09: National Passenger Railroad Corporation (Amtrak), personal communication, May 2, 2011.

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 2003, total	45.7	189.8	517.9	6.6	760.3	196.1	139.7	40.2	1,136.3
Agriculture	2.2	0.4	0.0	0.7	3.3	2.6	1.4	0.3	7.7
Defense	16.5	166.5	509.9	4.2	697.1	101.1	76.6	27.6	902.3
Energy	0.9	2.0	Z	0.1	3.0	18.0	7.0	3.6	31.6
GSA	0.1	0.1	0.0	0.0	0.2	10.0	7.6	1.8	19.6
Health and Human Services	0.5	0.9	0.0	0.1	1.5	3.6	3.7	1.3	10.1
Interior	2.4	1.2	0.1	0.7	4.4	2.4	1.3	0.1	8.2
Justice	4.5	0.4	1.5	0.0	6.5	7.0	8.6	0.7	22.7
NASA	0.2	0.4	0.6	0.1	1.4	5.8	2.9	0.8	10.8
Postal Service	12.9	5.1	0.0	0.2	18.2	21.7	10.4	0.7	50.9
Transportation	0.7	0.3	0.6	0.1	1.6	3.2	0.7	0.0	5.6
Veterans Affairs	0.9	1.9	0.0	0.0	2.8	10.2	15.6	1.9	30.5
Other[a]	4.1	10.7	5.2	0.3	20.3	10.5	4.2	1.2	36.2
FY 2010, total	(R) 51.3	(R) 158.4	536.2	(R) 4.8	(R) 750.7	(R) 195.1	(R) 129.3	(R) 36.9	(R) 1,112.0
Agriculture	2.2	0.6	(R) 0.0	0.4	3.2	1.9	1.4	0.3	6.8
Defense	18.6	138.2	529.2	2.7	688.8	(R) 103.2	72.9	(R) 24.3	(R) 889.3
Energy	0.6	1.6	0.2	0.4	2.8	(R) 17.1	7.1	(R) 4.7	(R) 31.7
GSA	0.1	0.1	0.0	Z	0.2	9.9	7.0	1.8	18.8
Health and Human Services	0.2	0.6	0.0	0.1	0.8	3.4	5.9	0.1	10.3
Interior	2.1	1.3	Z	0.4	3.8	(R) 2.7	1.1	0.8	8.3
Justice	2.8	0.3	0.3	0.1	3.4	5.4	6.8	0.1	(R) 15.7
NASA	0.1	0.3	0.8	0.1	1.2	(R) 5.4	2.6	(R) 0.8	10.1
Postal Service	14.5	4.6	0.0	0.3	19.4	17.8	4.5	0.5	(R) 42.3
Transportation	0.6	0.2	0.5	Z	1.5	(R) 4.0	0.3	(R) 0.0	5.7
Veterans Affairs	0.9	1.1	0.0	0.1	2.1	(R) 11.1	14.9	2.1	30.2
Other[b]	(R) 8.5	(R) 9.5	5.1	0.3	(R) 23.4	(R) 13.3	(R) 4.7	(R) 1.4	(R) 42.8
FY 2011[P], total	52.5	167.3	534.5	4.7	759.0	195.9	125.7	36.0	1,116.6
Agriculture	2.6	0.6	1.0	0.4	4.6	1.8	1.7	0.2	8.3
Defense	19.7	146.1	526.9	2.6	695.3	104.1	68.6	22.3	890.3
Energy	0.7	2.4	0.2	0.4	3.6	17.9	7.4	4.6	33.4
GSA	0.1	0.1	0.0	Z	0.2	9.5	7.1	1.8	18.5
Health and Human Services	0.2	0.6	0.0	0.1	0.9	3.5	5.9	0.2	10.5
Interior	2	1.4	Z	0.2	3.7	2.7	1.2	0.7	8.3
Justice	3	0.3	0.7	0.2	4.1	5.3	4.2	0.4	13.9
NASA	0.1	0.2	0.7	0.1	1.1	5.4	2.5	1.1	10.1
Postal Service	15.4	4.9	0.0	0.3	20.5	16.9	6.3	0.7	44.4
Transportation	0.4	0.1	0.5	Z	1.1	4.1	0.8	0.7	6.7
Veterans Affairs	1.1	1.1	0.0	0.1	2.3	11.4	15.1	1.8	30.6
Other[b]	7.3	9.5	4.5	0.3	21.6	13.4	5.0	1.5	41.5

KEY: Btu = British thermal unit; FY = fiscal year; GSA = General Services Administration; NASA = National Aeronautics and Space Administration; P = preliminary; R= revised; Z = value too small to report.

[a] Includes National Archives and Records Administration, U.S. Department of Commerce, U.S. Department of Labor, U.S. Department of State, Environmental Protection Agency, Federal Communications Commission, Federal Trade Commission, Panama Canal Commission, Equal Employment Opportunity Commission, Nuclear Regulatory Commission, Office of Personnel Management, U.S. Department of Housing and Urban Development, U.S. Department of the Treasury, Railroad Retirement Board, Tennessee Valley Authority, Federal Emergency Management Agency, and U.S. Information Agency.

[b] Includes National Archives and Records Administration, U.S. Department of Commerce, Tennessee Valley Authority, U.S. Department of Labor, National Science Foundation, Federal Trade Commission, Federal Communications Commission, Environmental Protection Agency, U.S. Department of Homeland Security, U.S. Department of Housing and Urban Development, Railroad Retirement Board, Equal Employment Opportunity Commission, Nuclear Regulatory Commission, U.S. Department of State, U.S. Department of the Treasury, Office of Personnel Management, Consumer Product Safety Commission, Central Intelligence Agency, Social Security Administration, and U.S. information Agency (International Broadcasting Bureau).

[c] Includes liquefied petroleum gases.

[d] Includes purchased steam, chilled water from district heating and cooling systems, and any other energy type, such as renewable energy.

NOTES

Totals may not equal sum of components due to independent rounding.

These data include energy consumed at foreign installations and in foreign operations, including aviation and ocean bunkering, primarily by the U.S. Department of Defense. U.S. government energy use for electricity generation and uranium enrichment is excluded. Other energy used by U.S. agencies that produce electricity or enriched uranium is included. The U.S. government's fiscal year runs from October 1 through September 30.

Data in this table are prepared using the following conversion factors:

Electricity = 3,412 Btu/kilowatt-hour.

Purchased steam = 1,000 Btu/pound.

Coal = 24.580 million Btu/short ton.

Natural gas = 1,031 Btu/cubic foot.

Aviation gasoline: 5.250 million Btu/barrel.

Fuel oil = 5.8254 million Btu/barrel.

Jet fuel = 5.460 million Btu/barrel.

Liquefied petroleum gas = 4.011 million Btu/barrel.

Motor gasoline = 5.250 million Btu/barrel.

SOURCE

U.S. Department of Energy, Energy Information Administration, *Annual Energy Review,* table 1.13, available at http://www.eia.doe.gov/emeu/aer/ as of Feb. 14, 2013.

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	(R) 2007	(R) 2008	2009	2010
Air, certificated carrier																											
Domestic operations	8,633	10,118	10,185	(R) 8,532	(R) 6,029	(R) 4,950	(R) 4,767	(R) 4,536	(R) 4,413	(R) 4,457	(R) 4,345	(R) 4,282	(R) 4,096	(R) 4,091	(R) 3,881	(R) 4,009	(R) 3,892	(R) 3,848	(R) 3,608	(R) 3,493	(R) 3,408	(R) 3,232	(R) 3,142	3,040	2,936	2,774	2,691
International operations	9,199	10,292	10,986	(R) 7,547	(R) 4,374	(R) 4,586	(R) 4,207	(R) 4,192	(R) 3,963	(R) 3,861	(R) 3,916	(R) 3,932	(R) 3,893	(R) 3,955	(R) 3,854	(R) 3,952	(R) 3,857	(R) 4,039	(R) 3,984	(R) 4,180	(R) 3,890	(R) 3,817	(R) 3,665	3,572	3,473	3,384	3,330
Highway[a]																											
Light duty vehicle, short wheel base[bc]	4,495	4,455	4,841	4,743	4,348	4,269	3,811	3,654	(R) 3,704	(R) 3,787	3,771	3,721	(R) 3,702	3,657	3,637	(R) 3,671	3,589	3,597	3,600	3,570	3,509	3,585	3,510	3,368	3,344	3,823	3,831
Light duty vehicle, long wheel base[c]	N	N	6,810	6,571	5,709	4,971	(R) 4,451	4,277	4,256	4,275	4,345	(R) 4,539	(R) 4,560	(R) 4,563	(R) 4,568	(R) 4,611	4,509	3,985	4,121	4,452	4,452	4,077	4,042	4,537	4,159	5,411	5,433
Motorcycle[b]	U	U	2,500	2,354	2,125	1,896	(R)1,990	1,917	1,990	2,063	2,135	(R) 2,227	(R) 2,250	(R) 2,295	(R) 2,341	(R) 2,205	2,273	2,049	1,969	1,969	1,969	1,784	1,805	2,185	2,315	2,688	2,675
Transit motor bus	N	N	N	N	N	N	N	N	N	N	N	N	(R) 4,170	(R) 3,989	(R) 3,918	(R) 3,848	(R) 3,960	(R) 3,839	(R) 3,766	(R) 3,778	(R) 3,886	(R) 3,657	(R) 3,702	3,596	3,511	3,472	3,347
Amtrak	N	N	N	2,383	2,148	2,089	2,066	1,978	2,024	2,018	1,900	2,017	2,201	2,289	2,255	2,344	2,688	2,690	2,537	2,145	2,068	2,025	1,948	1,824	1,745	1,773	1,668

KEY: Btu = British thermal unit; N = data do not exist; R = revised; U = data are unavailable.

[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] *Motorcycle* was included in *Light duty vehicle, short wheel base* (previously *Passenger car*) in 1960 and 1965.

[c] 1960-99 data are for *Passenger car* and *Other 2-axle, 4-tire vehicles*, respectively. Data for 2007-10 were calculated using a new methodology developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category *Light duty vehicle, short wheel base* includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. The new category *Light duty vehicle, long wheel base* includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches. The data from 1960-2006 are not comparable to the data from 2007-09.

NOTES

To calculate total Btu, multiply fuel consumed (see tables 4-21, 4-22, 4-24, 4-26) by 135,000 Btu/gallon for *air carrier*; 125,000 Btu/gallon for *Light duty vehicle, short wheel base*, *Light duty vehicle, long wheel base*, and *Motorcycle*; 138,700 Btu/gallon for Transit motor bus and *Amtrak* diesel consumption; and 3,412 Btu/KwH for *Amtrak* electric consumption.

Amtrak passenger-miles data for 2000 and earlier years are for fiscal years; and are not be comparable with 2001 and later years which is reported in calendar year. *Transit motor bus* data for 1996 and later years are obtained from the National Transit Database and cannot be compared with data for earlier years.

SOURCES

Air:

Certificated air carriers:

Passenger-miles:

1960-70: Air Transport Association, available at http://www.air-transport.org/ as of July 31, 2002.

1975-2010: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *T1: U.S. Air Carrier Traffic and*

Fuel consumed:

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airline Fuel Cost and Consumption*, available at http://www.transtats.bts.gov/fuel.asp as of July 23, 2012.

Highway:

Passenger car:

1960-94: U.S. Department of Transportation, Federal Highway Administration, Highway Statistics Summary to 1995, table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

1995-2010: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

Other 2-axle 4-tire vehicle:

http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

1995-2010: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

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.

1995-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 14, 2012.

Transit motor bus:

1960-95: American Public Transportation Association, *2010 Public Transportation Fact Book Appendix A: Historical Tables* (Washington, DC: Annual Issues), tables 2,

1996-2010: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database*, tables 17, 19, and similar tables in earlier editions, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Mar. 14, 2012.

Amtrak:

1975-2001: Amtrak., State and Local Affairs Department, personal communication.

2001-10: Amtrak, personal communications, Jan. 7, 2010, Jul. 26, 2011, and Apr. 24, 2012.

Table 4-21: Energy Intensity of Certificated Air Carriers, All Services[a]

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010
Aircraft-miles (millions)																											
Domestic operations	858	1,134	2,068	1,638	2,276	3,026	3,963	3,854	3,995	4,156	4,378	4,628	4,807	4,907	5,030	5,326	5,662	5,545	5,613	6,106	6,602	6,716	6,606	6,733	6,446	5,935	5,976
International operations	182	284	475	334	334	415	760	807	904	958	975	998	1,043	1,114	1,186	1,225	1,282	1,264	1,222	1,261	1,403	1,536	1,615	1,682	1,696	1,599	1,690
Available seat-miles (millions)																											
Domestic operations	52,220	94,787	213,160	215,275	326,734	452,756	570,558	551,562	567,040	582,122	598,150	616,459	639,013	652,026	661,616	698,866	726,291	704,801	687,226	697,012	750,902	758,665	746,002	763,581	734,241	683,441	689,911
International operations	13,347	29,533	51,960	64,138	84,514	110,578	182,652	186,468	205,829	211,831	211,109	215,623	220,708	228,689	237,413	242,981	254,048	245,718	227,291	225,396	249,123	270,588	281,551	296,535	306,599	291,866	302,013
Passenger-miles (millions)																											
Domestic operations	30,557	51,887	104,147	119,591	190,766	275,864	345,873	338,085	354,764	362,227	388,410	403,912	434,652	450,673	462,754	487,940	515,598	486,506	483,525	505,602	558,194	583,771	588,471	607,564	583,292	551,741	564,695
International operations	8,306	16,789	27,563	34,864	53,932	73,237	126,363	125,211	138,950	143,766	149,108	154,882	161,512	169,356	172,179	180,269	192,798	178,343	172,086	168,535	194,071	211,325	221,648	234,462	240,491	228,256	244,371
Fuel consumed (million gallons)																											
Domestic operations	1,954	3,889	7,857	7,558	8,519	10,115	12,212	11,360	11,598	11,960	12,501	12,812	13,187	13,658	13,303	14,491	14,865	13,868	12,922	13,082	14,091	13,976	13,694	13,682	12,686	11,339	11,256
International operations	566	1,280	2,243	1,949	1,747	2,488	3,938	3,888	4,079	4,112	4,325	4,511	4,658	4,962	4,915	5,277	5,508	5,336	5,079	5,219	5,592	5,975	6,018	6,205	6,187	5,721	6,028
Seats per aircraft																											
Domestic operations	60.9	83.6	103.1	131.5	143.6	149.6	144.0	143.1	141.9	140.1	136.6	133.2	132.9	132.9	131.5	131.2	128.3	127.1	122.4	114.2	113.7	113.0	112.9	113.4	113.9	115.1	115.5
International operations	73.3	104.0	109.4	192.1	252.7	266.2	240.2	231.2	227.6	221.1	216.4	216.1	211.5	205.3	200.1	198.3	198.2	194.5	186.0	178.7	177.6	176.2	174.3	176.3	180.7	182.5	178.7
Seat-miles per gallon																											
Domestic operations	26.7	24.4	27.1	28.5	38.4	44.8	46.7	48.6	48.9	48.7	47.8	48.1	48.5	47.7	49.7	48.2	48.9	50.8	53.2	53.3	53.3	54.3	54.5	55.8	57.9	60.3	61.3
International operations	23.6	23.1	23.2	32.9	48.4	44.4	46.4	48.0	50.5	51.5	48.8	47.8	47.4	46.1	48.3	46.0	46.1	46.1	44.8	43.2	44.5	45.3	46.8	47.8	49.6	51.0	50.1
Energy intensity (Btu/passenger-mile)																											
Domestic operations	8,633	10,118	10,185	8,532	6,029	4,950	4,767	4,536	4,413	4,457	4,345	4,282	4,096	4,091	3,881	4,009	3,892	3,848	3,608	3,493	3,408	3,232	3,142	3,040	2,936	2,774	2,691
International operations	9,199	10,292	10,986	7,547	4,374	4,586	4,207	4,192	3,963	3,861	3,916	3,932	3,893	3,955	3,854	3,952	3,857	4,039	3,984	4,180	3,890	3,817	3,665	3,572	3,473	3,384	3,330
Load factor (percent)																											
Domestic operations	58.5	54.7	48.9	55.6	58.4	60.9	60.6	61.3	62.6	62.2	64.9	65.5	68.0	69.1	69.9	69.8	71.0	69.0	70.4	72.5	74.3	76.9	78.9	79.6	79.4	80.7	81.9
International operations	62.2	56.8	53.0	54.4	63.8	66.2	69.2	67.1	67.5	67.9	70.6	71.8	73.2	74.1	72.5	74.2	75.9	72.6	75.7	74.8	77.9	78.1	78.7	79.1	78.4	78.2	80.9

KEY: Btu = British thermal unit; R = revised.

[a] U.S. owned carriers only. Operations of foreign-owned carriers in or out of the United States not included.

NOTES

Aircraft-miles include all four large certificated air-carrier groups (majors, nationals, large regionals, and medium regionals), scheduled and charter, passenger, and all-cargo. *Fuel consumed* includes majors, nationals, and large regionals, scheduled and charter, passenger, and all-cargo.

Passenger-miles include all four large certificated air-carrier groups, scheduled and charter, passenger service only.

International operations include operations outside the United States, including those between the United States and foreign countries and the United States and its territories or possessions.

Load factor: Ratio of *Passenger-miles* to *Available seat-miles.*

Heat equivalent factor used for Btu conversion is 135,000 Btu/gallon.

SOURCES

Aircraft-miles, available seat-miles, and passenger-miles:

1960-70: Air Transport Association, available at http://www.air-transport.org/ as of July 31, 2002.

1975-2011: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class* , available at http://www.transtats.bts.gov/Fields.asp?Table_ID=264 as of July 23, 2012.

Fuel consumed:

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airline Fuel Cost and Consumption* , available at http://www.transtats.bts.gov/fuel.asp as of July 23, 2012.

Seats per aircraft, seat-miles per gallon, energy intensiveness and load factor:

Derived by calculation.

Table 4-22: Energy Intensity of Light Duty Vehicles and Motorcycles

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Vehicle-miles (millions)																									
Light duty vehicle, short wheel base[a,b]	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	1,627,365	1,658,474	1,671,967	1,699,890	1,708,421	1,690,534	2,104,416	2,024,757
Light duty vehicle, long wheel base[b]	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	942,614	966,034	984,020	1,027,164	1,041,051	1,082,490	586,618	605,456
Motorcycle[a]	U	U	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	9,633	9,552	9,576	10,122	10,454	12,049	21,396	20,811
Passenger-miles (millions)																									
Light duty vehicle, short wheel base[a,b]	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	2,671,044	3,324,977	3,199,116
Light duty vehicle, long wheel base[b]	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	1,876,690	1,017,007	1,049,667
Motorcycle[a]	U	U	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	15,303	27,173	26,430
Average occupancy rate																									
Light duty vehicle, short wheel base[a,b]	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	1.58	1.58
Light duty vehicle, long wheel base[b]	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	1.73	1.73
Motorcycle[a]	U	U	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	1.27	1.27
Fuel consumed (million gallons)																									
Light duty vehicle, short wheel base[a,b]	41,171	49,723	67,819	74,140	69,982	71,518	69,568	64,317	65,436	67,048	67,874	68,072	69,221	69,892	71,695	73,283	73,065	73,559	75,471	75,455	75,402	77,418	75,009	89,577	85,589
Light duty vehicle, long wheel base[b]	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	60,685	36,910	34,925
Motorcycle[a]	U	U	60	113	204	182	191	184	191	198	205	196	198	202	206	212	209	193	191	192	202	189	221	475	489
Energy intensity (Btu/passenger-mile)[b]																									
Light duty vehicle, short wheel base[a,b]	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	3,510	3,368	3,344
Light duty vehicle, long wheel base[b]	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	4,042	4,537	4,159
Motorcycle[a]	U	U	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	1,784	1,805	2,185	2,315

KEY: Btu = British thermal unit; N = data do not exist; R = revised; U = data are unavailable.

[a] *Motorcycle* was included in *Light duty vehicle, short wheel base* (previously *Passenger car*) in 1960 and 1965.

[b] 1960-99 data are for *Passenger car* and *Other 2-axle, 4-tire vehicles*, respectively. The data from 1960-2006 are not comparable to the data from 2007-09.

[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. The heat equivalent factor used for Btu conversion is 125,000 Btus/gallon.

NOTES

Data for 2007-10 were calculated using a new methodology developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category *Light duty vehicle, short wheel* base includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. The new category *Light duty vehicle, long wheel base* includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches.

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.

For 1970-94, the unrevised motorcycle fuel consumed is subtracted from the combined passenger car and motorcycle fuel consumed from VM-201A.

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, table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

1995-2006: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

Light duty vehicle, short wheel base:

2007-2010: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 14, 2012.

Other 2-axle 4-tire vehicle:

1970-94: U.S. Department of Transportation, Federal Highway Administration, Highway Statistics Summary to 1995, table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

1995-2006: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

Light duty vehicle, long wheel base:

2007-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 14, 2012.

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.

1995-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 14, 2012.

Passenger-miles:

1960-97: Vehicle-miles multiplied by vehicle occupancy rates.

1998-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 14, 2012.

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.

1995-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 14, 2012.

Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	(R) 2010	2011
Average U.S. light duty vehicle fuel efficiency (mpg) (calendar year)																								
Light duty vehicle, short wheel base[a,b]	16.0	17.5	20.3	21.2	21.0	20.6	20.8	21.1	21.2	21.5	21.6	21.4	21.9	22.1	22.0	22.2	22.5	22.1	22.5	22.9	23.7	23.8	U	U
Light duty vehicle, long wheel base[a]	12.2	14.3	16.1	17.0	17.3	17.4	17.3	17.3	17.2	17.2	17.2	17.0	17.4	17.6	17.5	16.2	16.2	17.7	17.8	17.1	17.3	17.4	U	U
New vehicle fuel efficiency (mpg)[c] (model year)																								
Light-duty vehicle																								
Passenger car	24.3	27.6	28.0	28.4	27.9	28.4	28.3	28.6	28.5	28.7	28.8	28.3	28.5	28.8	29.0	29.5	29.5	30.3	30.1	31.2	31.5	32.9	33.9	33.8
Domestic	22.6	26.3	26.9	27.3	27.0	27.8	27.5	27.7	28.1	27.8	28.6	28.0	28.7	28.7	29.1	29.1	29.9	30.5	30.3	30.6	31.2	32.1	33.1	32.5
Imported	29.6	31.5	29.9	30.1	29.2	29.6	29.7	30.3	29.6	30.1	29.2	29.0	28.3	29.0	28.8	29.9	28.7	29.9	29.7	32.2	31.8	33.8	35.2	35.3
Light truck (<8,500 lbs GVWR)[d]	18.5	20.7	20.8	21.3	20.8	21.0	20.8	20.5	20.8	20.6	21.0	20.9	21.3	20.9	21.4	21.8	21.5	22.1	22.5	23.1	23.6	24.8	25.2	24.5
CAFE standards (mpg)[c] (model year)																								
Passenger car	20.0	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	30.1
Light truck[e]	U	19.5	20.0	20.2	20.2	20.4	20.5	20.6	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	21.0	21.6	22.2	22.5	23.1	23.5	24.2

KEY: CAFE = Corporate Average Fuel Economy; GVWR = gross vehicle weight rating; mpg = miles per gallon; R = revised; U = data are unavailable.

[a] 1960-2006 data are for *Passenger car* and *Other 2-axle, 4-tire vehicles*, respectively. The data from 1960-2006 are not comparable to the data from 2007-09.

[b] From 1980 to 1994, *Light duty vehicle, short wheel base* (previously *Passenger car*) fuel efficiency includes motorcycles.

[c] 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.

[d] Beginning with FY 1999, the total *Light truck* fleet ceased to be categorized by either domestic or import fleets.

[e] No combined figure is available for 1980. In 1980, CAFE standard for 2 wheel drive, and 4 wheel drive light trucks were 16.0, and 14.0 mpg respectively.

NOTES

Data for 2007-09 were calculated using a new methodology developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category *Light duty vehicle, short wheel* base includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. The new category *Light duty vehicle, long wheel base* includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches.

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. light duty vehicle fuel efficiency:

Passenger car:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

1995-2006: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

Light duty vehicle, short wheel base:

2007-09: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

Other 2-axle 4-tire vehicle:

1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

1995-2006: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

Light duty vehicle, long wheel base:

2007-09: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

New vehicle fuel efficiency (based on model year production) and CAFE standards:

U.S. Department of Transportation, National Highway Traffic Safety Administration, *Summary of Fuel Economy Performance* (Washington, DC: Annual Issues), available at http://www.nhtsa.gov/fuel-economy as of Dec. 19, 2011.

Table 4-24: Energy Intensity of Transit Motor Buses

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Vehicle-miles (millions)	1,576	1,528	1,409	1,526	1,677	1,863	2,130	2,167	2,178	2,210	2,162	2,184	1,673	1,705	1,765	1,821	1,860	1,913	1,912	1,862	1,849	1,840	1,837	1,861	1,895	1,901	1,848	1,758
Passenger-miles (millions)	N	N	N	N	21,790	21,161	20,981	21,090	20,336	20,247	18,832	18,818	15,820	16,507	16,931	17,556	17,625	18,352	18,084	17,065	16,682	17,034	17,491	17,480	18,299	18,005	17,669	17,206
Energy consumed																												
Diesel (million gallons)	208	248	271	365	431	518	563	573	592	576	565	564	466	463	468	477	490	492	468	442	441	375	422	405	403	386	369	354
Compressed Natural Gas (million gallons)	N	N	N	N	N	N	N	N	N	N	N	10	10	18	27	33	42	51	65	78	85	93	109	106	111	124	106	106
Bio-diesel (million gallons)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	1	2	51	16	21	33	35	31	35
Liquefied natural gas (million gallons)	N	N	N	N	N	N	N	N	N	N	N	2	2	3	3	4	9	10	14	12	13	14	15	15	15	14	13	11
Gasoline (million gallons)	N	N	N	N	N	N	N	N	N	N	N	2	1	1	2	1	1	1	1	1	1	1	2	2	3	3	3	4
Other major fuels[a] (million gallons)	N	N	N	N	N	N	N	N	N	N	N	N	11	9	4	2	1	1	2	2	2	3	2	1	1	1	(R) 1	1
Power[b] (million KWH)	N	N	N	N	N	N	N	N	N	N	N	N	0	0	1	1	1	1	3	1	2	1	1	1	1	1	1	1
Energy consumed, total (Billion Btu)	N	N	N	N	N	N	N	N	N	N	N	N	65,971	65,846	66,340	67,548	69,801	70,455	68,097	64,473	64,820	62,291	64,752	62,861	64,243	62,515	(R) 59,199	57,518
Diesel	28,850	34,398	37,588	50,626	59,780	71,860	78,109	79,456	82,117	79,855	78,374	78,194	64,603	64,261	64,964	66,111	67,907	68,218	64,959	61,269	61,100	52,048	58,508	56,241	55,903	53,574	51,198	49,153
Compressed Natural Gas	N	N	N	N	N	N	N	N	N	N	N	225	228	398	613	749	947	1,148	1,462	1,760	1,921	2,084	2,454	2,390	2,503	2,796	2,387	2,390
Bio-diesel	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	98	107	268	6,492	2,027	2,602	4,151	4,475	3,951	4,398
Liquefied natural gas	N	N	N	N	N	N	N	N	N	N	N	144	190	274	218	372	741	829	1,188	995	1,116	1,227	1,309	1,283	1,261	1,173	1,113	970
Gasoline	N	N	N	N	N	N	N	N	N	N	N	288	125	165	189	135	127	154	132	115	180	96	231	238	354	374	417	529
Other major fuel[a]	N	N	N	N	N	N	N	N	N	N	N	N	822	745	349	173	69	96	233	213	215	331	211	96	62	116	(R) 125	68
Power[b]	N	N	N	N	N	N	N	N	N	N	N	N	3	2	6	8	10	10	26	14	20	12	12	11	9	7	(R) 8	9
Energy intensity (Btu/passenger-mile)	N	N	N	N	N	N	N	N	N	N	N	N	4,170	3,989	3,918	3,848	3,960	3,839	3,766	3,778	3,886	3,657	3,702	3,596	3,511	3,472	(R) 3,350	3,343

KEY: Btu = British thermal unit; N = data do not exist; R = revised.

[a] Before 2002, *Other major fuels* includes liquefied petroleum gas, methanol, ethanol, and bunker fuel. From 2002 to 2010, *Other major fuels* includes liquefied petroleum gas, methanol, ethanol, bunker fuel, kerosene, and grain additive.
[b] Power includes electric propulsion and electric battery.

NOTES

Data from 1996 and after are not comparable to the data for earlier years or to the data published in previous editions of the report due to different data sources used.
Data from 1996 and after are for those vehicles used for directly operated (DO) services only .
Energy consumed, total does not include the other types of energy identified in table 17 in the *National Transit Database* due to the lack of information on the unit of measurement for such data before 2008.
The following conversion rates were used:
Diesel =138,700 Btu/gallon.
Compressed natural gas = 22,500 Btu/gallon.
Bio-Diesel = 126,200 Btu/gallon.
Liquefied natural gas = 84,800 Btu/gallon.
Gasoline = 125,000 Btu/gallon
Liquefied petroleum gas = 91,300 Btu/gallon.
Methanol = 64,600 Btu/gallon.
Ethanol = 84,600 Btu/gallon.
Bunker fuel = 149,700 Btu/gallon.
Kerosene = 135,000 Btu/gallon.
Grain additive = 120,900 Btu/gallon.
Electricity 1KWH = 3,412 Btu, negating electrical system losses. This table includes approximate electrical system losses, and thus the conversion factor is multiplied by 3.

SOURCES

1960-95: American Public Transportation Association, *2010 Public Transportation Fact Book Appendix A: Historical Tables* (Washington, DC: Annual Issues), tables 2, 6, 30, 32 and similar tables in earlier editions, available at http://www.apta.com/resources/statistics/Pages/transitstats.aspx as of Aug 23, 2010.
1996-2011: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* , tables 17, 19, and similar tables in earlier editions, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Feb. 4, 2013.

Table 4-25: Energy Intensity of Class I Railroad[a] Freight Service

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Revenue freight ton-miles (millions)	572,309	697,878	764,809	754,252	918,958	876,984	1,033,969	1,038,875	1,066,781	1,109,309	1,200,701	1,305,688	1,355,975	1,348,926	1,376,802	1,433,461	1,465,960	1,495,472	1,507,011	1,551,438	1,662,598	1,696,425	1,771,897	1,770,545	1,777,236	1,532,214
Car-miles (millions)	28,170	29,336	29,890	27,656	29,277	24,920	26,159	25,628	26,128	26,883	28,485	30,383	31,715	31,660	32,657	33,851	34,590	34,243	34,680	35,555	37,071	37,712	38,955	38,186	37,226	32,115
Tons per car load	44.4	48.9	54.9	60.8	67.1	67.7	66.6	66.2	66.0	64.4	63.4	65.3	66.6	63.4	64.1	63.4	62.6	64.0	63.3	62.3	61.3	61.0	60.9	61.7	63.1	64.2
Fuel consumed (million gallons)	3,463	3,592	3,545	3,657	3,904	3,110	3,115	2,906	3,005	3,088	3,334	3,480	3,579	3,575	3,583	3,715	3,700	3,710	3,730	3,826	4,059	4,098	4,192	4,062	3,886	3,192
Energy intensity (Btu/revenue freight ton-mile)	839	714	643	672	589	492	418	388	391	386	385	370	366	368	361	359	350	344	343	342	339	335	328	318	303	289
Energy intensity (Btu/car-mile)	17,051	16,983	16,450	18,341	18,495	17,310	16,516	15,727	15,952	15,932	16,234	15,886	15,652	15,662	15,218	15,222	14,836	15,027	14,918	14,925	15,187	15,072	14,926	14,754	14,479	13,786

KEY: Btu = British thermal unit.

[a] The threshold for classification as a Class I Railroads is based on operating revenues; the 2009 threshold is $389.8 million.

NOTE

The heat equivalent factor used for Btu conversion is 138,700 Btu/gallon.

SOURCE

Association of American Railroads, *Railroad Facts 2010* (Washington, DC: 2010), pp. 34, 37, and 40, and similar tables in earlier editions.

Table 4-26: Energy Intensity of Amtrak Services

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Revenue passenger-miles (millions)[a]	3,931	4,503	4,785	6,057	6,273	6,091	6,199	5,921	5,545	5,050	5,166	5,304	5,330	5,498	5,571	5,314	5,680	5,511	5,381	5,410	5,783	6,179	5,914	6,420
Locomotive fuel consumed																								
Total energy consumed (billion Btu)[b]	9,367	9,673	9,995	12,512	12,406	12,328	12,511	11,251	11,184	11,117	11,823	11,962	12,494	14,776	14,987	13,479	12,182	11,394	10,895	10,536	10,547	10,783	10,486	10,710
Electric (millions of kWh)[b,c]	180	254	295	330	303	300	301	309	336	363	390	416	443	470	456	518	537	551	531	549	578	582	565	559
Diesel (million gallons)[c]	63	64	65	82	82	82	83	74	72	71	76	76	79	95	97	84	75	69	65	62	62	63	62	63
Energy intensity (Btu/revenue passenger-mile)[a]	2,383	2,148	2,089	2,066	1,978	2,024	2,018	1,900	2,017	2,201	2,289	2,255	2,344	2,688	2,690	2,537	2,145	2,068	2,025	1,948	1,824	1,745	1,773	1,668

KEY: Btu = British thermal unit; kWh = kilowatt hour; U = data are not available.

[a] *Revenue passenger-miles* data prior to 2001 are fiscal year data; 2001 data and more recent data are calendar year data.

[b] Does not include electric power generation and distribution losses, which, if included, would triple the electric conversion factor given below and increase the numbers in this row by about 20 percent.

[c] *Electric* usage and diesel usage data are calendar year data.

NOTE

The heat equivalent factors used in Btu conversion are: diesel = 138,700 Btu/gallon; electric = 3,412 Btu/kWh.

SOURCES

Revenue passenger-miles:

1975-2000: Amtrak, *Amtrak Annual Report,* Statistical Appendix (Washington, DC: Annual Issues).

2001-10: Amtrak, personal communications, Jan. 7, 2010 and July 26, 2011.

Locomotive fuel consumed:

1975-2001: Amtrak., State and Local Affairs Department, personal communication.

2001-10: Amtrak, personal communications, Jan. 7, 2010 and July 26, 2011.

Table 4-27: Energy Intensity of Amtrak Services (Loss-adjusted conversion factors)

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Revenue passenger-miles (millions)[a]	**3,753**	**4,503**	**4,785**	**6,057**	**6,273**	**6,091**	**6,199**	**5,869**	**5,401**	**5,066**	**5,166**	**5,325**	**5,289**	**5,574**	**5,571**	**5,314**	**5,680**	**5,511**	**5,381**	**5,410**	**5,784**	**6,179**	**5,914**	**6,420**
Total fuel consumed (billion Btu)[a,b]	U	U	U	U	U	U	U	13,409	13,530	13,651	14,545	14,872	15,591	18,061	18,171	17,101	15,934	15,242	14,607	14,371	14,584	14,850	14,433	14,613
Electric (millions of kWh)[a,b]	U	U	U	U	U	U	U	309	336	363	390	416	443	470	456	518	537	551	531	549	578	582	565	559
Diesel (million gallons)	U	U	U	U	U	U	U	74	72	71	76	76	79	95	97	84	75	69	65	62	62	63	62	63
Energy intensity (Btu/revenue passenger-mile)[a,b]	**3,548**	**3,065**	**2,703**	**2,505**	**2,417**	**2,534**	**2,565**	**2,282**	**2,501**	**2,690**	**2,811**	**2,788**	**2,943**	**3,235**	**3,257**	**3,212**	**2,800**	**2,760**	**2,709**	**2,650**	**2,516**	**2,398**	**2,435**	**2,276**

KEY: Btu = British thermal unit; kWh = kilowatt hour; U = data are unavailable.

[a] Energy use for 1994 on is not directly comparable to earlier years. Some commuter rail energy use may have been inadvertently included in earlier years.
[b] Includes electric power generation and distribution losses.

NOTE

Energy intensity (Btu/revenue passenger-mile) is calculated by the source and may differ from direct calculations.
The heat equivalent factors used in Btu conversion are:
Diesel = 138,700 Btu/gallon.
Electric = 10,399 Btu/kWh. The electric conversion factor takes into account losses associated with the generation, transmission and distribution of electricity, and thus it is more than three times the value of the factor that is used in table 4-26.

SOURCE

U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy and Oak Ridge National Laboratory Center for Transportation Analysis, *Transportation Energy Databook, Edition 31* (Oak Ridge, TN: 2012), tables A.15 and 9.10, available at http://www.cta.ornl.gov/data as of Aug. 15, 2012.

Table 4-28: Annual Wasted Fuel Due to Congestion

		Gallons wasted (millions)																									Percent change[a]			
																											Short-term 2006-2011		Long-term 1982-2011	
Urban area	Population group	(R) 1982	(R) 1985	(R) 1990	(R) 1991	(R) 1992	(R) 1993	(R) 1994	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010	2011	Percent	Rank	Percent	Rank
Akron, OH	Medium	0.7	1.0	2.3	2.4	3.0	3.8	4.7	4.1	5.1	6.0	6.4	6.5	6.3	6.2	6.0	5.7	6.4	6.2	6.6	5.4	4.3	4.0	4.2	4.1	-36.8	91	515.3	51
Albany-Schenectady, NY	Medium	1.1	1.4	2.6	2.7	2.8	2.9	3.3	3.4	3.6	3.8	4.3	4.7	5.2	5.7	6.3	7.1	8.2	8.6	9.9	11.2	9.4	9.8	8.0	8.0	-18.8	65	660.6	37
Albuquerque, NM	Medium	1.3	1.9	3.4	3.6	4.3	4.6	5.0	5.7	6.4	6.8	7.0	7.2	6.6	6.4	5.9	6.2	6.9	7.4	7.6	7.9	8.8	7.6	6.4	6.4	-16.1	58	377.5	63
Allentown-Bethlehem, PA-NJ	Medium	1.4	1.7	2.5	2.6	3.2	3.9	4.4	4.9	5.8	6.4	6.8	6.1	6.6	6.5	6.6	6.4	6.8	6.9	6.5	6.8	5.7	6.0	6.3	6.3	-2.1	31	345.8	69
Anchorage, AK	Small	1.8	2.0	2.0	2.0	2.2	2.1	2.2	2.1	2.3	2.2	2.5	2.5	2.6	2.9	3.0	3.0	3.0	2.9	3.1	3.1	2.5	2.2	1.8	1.8	-43.6	98	0.8	101
Atlanta, GA	Very large	7.9	11.8	19.3	22.0	25.9	30.8	36.7	40.8	44.4	49.7	55.3	57.6	62.9	65.4	69.9	72.5	73.2	76.8	74.9	73.0	61.6	60.2	62.7	63.5	-15.2	55	704.8	32
Austin, TX	Large	1.5	2.7	4.1	4.7	4.6	5.1	5.0	7.7	8.7	9.8	9.9	11.0	11.5	13.3	14.1	15.9	17.8	20.2	19.5	19.3	15.2	15.1	16.6	17.1	-12.2	51	1,003.0	17
Bakersfield, CA	Medium	0.1	0.2	0.4	0.4	0.5	0.6	0.6	0.6	0.8	0.8	1.0	1.0	1.0	1.1	1.4	1.5	1.9	2.1	2.2	2.1	2.1	2.3	2.2	2.2	2.3	24	1,936.4	5
Baltimore, MD	Large	4.2	7.2	15.6	15.7	15.6	16.7	17.3	19.0	19.3	20.0	19.8	20.6	22.9	25.8	31.8	33.8	34.7	35.4	36.1	36.2	30.1	31.7	32.9	33.1	-8.5	44	694.3	33
Baton Rouge, LA	Medium	2.1	2.9	4.0	4.5	4.4	5.6	6.2	7.0	7.5	7.6	7.9	9.5	9.7	10.2	10.2	11.7	12.3	12.8	13.7	13.9	12.1	11.0	10.2	10.2	-25.8	79	376.5	64
Beaumont, TX	Small	0.5	0.6	0.6	0.7	0.8	0.9	0.9	1.0	1.2	1.2	1.4	1.7	1.9	2.1	2.5	2.7	2.8	3.0	3.0	3.0	1.9	1.8	2.1	2.1	-31.1	85	322.9	75
Birmingham, AL	Medium	1.7	2.4	3.0	3.4	3.7	4.4	5.4	5.8	6.5	7.1	8.7	9.0	9.3	9.5	10.1	10.9	11.8	11.9	11.9	12.0	10.1	11.2	10.3	10.3	-13.8	53	520.3	50
Boise, ID	Small	0.1	0.2	0.4	0.5	0.5	0.6	0.5	0.6	0.8	1.0	1.2	1.3	1.4	1.8	1.8	1.9	2.0	2.1	2.3	2.3	1.9	1.8	1.6	1.7	-27.8	81	1,529.4	9
Boston, MA-NH-RI	Very large	14.4	21.4	37.4	38.4	42.7	43.7	45.0	45.4	47.3	51.7	56.7	57.4	61.3	64.2	71.5	72.3	81.2	83.9	83.2	78.5	67.7	65.7	66.2	66.6	-20.0	67	363.3	67
Boulder, CO	Small	0.6	0.8	1.1	1.2	1.5	1.7	1.8	2.0	2.0	2.4	2.3	2.4	2.4	2.5	2.3	2.4	2.5	2.5	2.9	2.5	1.9	1.9	1.2	1.2	-58.3	101	104.6	98
Bridgeport-Stamford, CT-NY	Medium	2.5	4.0	5.8	5.7	6.6	6.7	7.4	8.3	8.1	9.5	10.8	11.9	12.7	13.2	14.8	14.8	14.4	15.4	16.5	16.7	13.1	11.3	12.1	12.2	-25.8	78	380.4	62
Brownsville, TX	Small	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.0	1.1	1.2	1.2	1.3	1.6	1.8	2.3	2.3	87.9	1	2,446.7	4
Buffalo, NY	Large	2.5	3.0	4.8	4.6	4.9	5.2	5.6	5.8	6.0	6.7	7.7	9.0	10.4	10.6	11.0	13.0	12.6	13.1	14.1	13.1	10.5	11.5	11.6	11.6	-17.6	62	363.5	66
Cape Coral, FL	Small	0.9	1.2	1.8	2.0	2.3	3.0	3.6	4.3	4.5	4.4	4.2	4.3	4.3	5.2	5.7	6.3	6.7	7.1	8.8	8.9	6.2	6.4	5.0	5.1	-41.6	97	462.4	54
Charleston-North Charleston, SC	Medium	1.4	1.9	3.0	3.1	3.6	3.7	3.9	3.8	3.8	3.9	4.4	4.5	4.6	4.7	4.9	5.3	5.6	5.5	6.0	6.0	4.8	5.5	5.0	5.1	-15.0	54	271.8	80
Charlotte, NC-SC	Large	1.2	2.2	3.7	4.0	4.5	4.3	4.3	4.5	5.4	6.9	7.9	9.4	11.5	12.5	14.5	15.3	16.8	16.9	17.9	18.5	16.6	16.3	14.4	14.6	-18.3	63	1,105.5	15
Chicago, IL-IN	Very large	23.6	36.4	58.3	60.0	62.3	63.2	65.2	75.8	86.8	88.1	94.4	94.9	94.1	98.3	116.7	122.1	129.6	138.2	133.9	126.1	109.1	123.9	126.7	127.0	-5.1	37	438.9	58
Cincinnati, OH-KY-IN	Large	2.2	3.8	9.5	10.2	11.9	14.0	16.8	17.2	18.5	21.9	22.8	22.6	24.6	24.2	25.2	27.0	26.5	26.6	26.4	26.4	22.5	20.4	20.7	20.8	-21.2	69	851.2	23
Cleveland, OH	Large	2.7	2.8	8.1	9.1	9.7	12.0	13.7	16.9	18.2	21.1	19.6	20.7	20.3	17.9	16.5	16.2	18.6	16.9	16.7	15.6	17.3	17.2	17.5	17.5	4.8	19	558.4	47
Colorado Springs, CO	Medium	0.4	0.6	0.9	0.9	1.3	1.5	1.9	2.3	2.4	3.2	3.8	4.8	5.7	6.0	6.1	6.0	5.5	7.1	7.0	6.3	4.2	4.5	4.1	4.1	-41.1	96	825.6	25
Columbia, SC	Small	0.5	0.9	1.4	1.4	1.6	1.6	1.7	1.8	2.0	2.2	2.3	2.6	3.0	3.1	3.3	3.7	3.8	3.8	4.7	5.6	4.9	5.2	4.8	4.9	2.9	23	906.2	20
Columbus, OH	Large	1.0	1.6	5.0	5.3	6.1	7.3	8.3	9.4	10.1	11.1	11.4	11.5	11.2	12.6	13.3	14.6	16.5	16.3	16.0	15.3	15.7	14.2	15.3	15.5	-3.5	34	1,428.0	10
Corpus Christi, TX	Small	0.4	0.5	0.7	0.8	0.8	0.8	0.8	0.8	0.9	1.0	1.0	1.2	1.1	1.3	1.2	1.3	1.4	1.4	1.2	1.4	1.3	1.4	1.3	1.3	9.8	11	219.8	84
Dallas-Fort Worth-Arlington, TX	Very large	4.9	9.4	18.1	20.1	21.5	23.8	25.1	28.7	31.1	32.1	37.4	43.4	46.6	49.1	53.4	57.4	65.1	70.6	74.8	73.5	71.5	72.0	73.4	74.8	0.0	29	1,414.3	11
Dayton, OH	Medium	3.0	3.5	5.7	5.9	6.2	7.2	6.4	8.3	8.2	8.9	9.1	10.1	9.6	8.6	8.4	8.0	9.8	8.8	8.8	7.7	7.4	6.3	6.1	6.1	-30.3	84	103.9	99
Denver-Aurora, CO	Large	4.6	6.1	7.9	9.1	10.1	12.3	13.8	16.7	18.9	20.9	22.6	24.9	27.0	28.5	27.7	28.7	30.2	32.9	32.4	32.0	31.1	31.2	33.9	34.5	6.6	16	650.9	38
Detroit, MI	Very large	17.9	21.9	38.8	41.4	46.7	49.6	47.4	47.3	49.8	51.5	52.5	55.2	55.4	59.0	62.5	64.5	63.8	62.8	64.2	63.2	53.8	47.9	48.8	48.7	-24.1	75	172.1	90
El Paso, TX-NM	Medium	0.8	1.2	2.3	3.0	3.8	4.0	5.0	4.6	4.3	4.8	5.7	7.2	8.5	8.9	9.3	9.8	11.3	11.7	11.8	11.4	8.5	7.4	8.3	8.5	-28.1	82	901.2	21
Eugene, OR	Small	0.5	0.5	0.6	0.6	0.7	0.6	0.6	0.7	0.7	0.9	1.0	1.4	1.6	1.4	1.4	1.6	1.6	1.8	1.6	1.5	1.6	1.4	1.0	1.0	-36.4	89	119.7	96
Fresno, CA	Medium	0.7	0.8	1.4	1.5	1.5	1.7	1.7	1.9	2.0	2.2	2.6	2.9	3.2	2.8	3.0	2.9	2.9	3.1	3.2	3.3	2.6	3.3	3.1	3.1	-3.8	36	341.9	70
Grand Rapids, MI	Medium	0.5	0.8	1.5	1.6	2.1	2.8	2.7	2.5	2.7	2.9	3.5	3.7	3.7	3.7	3.7	3.8	4.1	4.1	4.1	4.0	4.1	4.6	4.5	4.6	10.9	10	856.5	22
Greensboro, NC	Small	0.2	0.2	0.6	0.7	1.0	1.2	1.3	1.4	2.3	2.2	2.4	2.7	2.8	3.3	3.5	3.5	2.9	2.8	2.6	2.5	2.5	2.5	3.0	3.0	13.6	8	1,395.0	12
Hartford, CT	Medium	1.9	2.6	4.1	4.5	7.3	5.9	6.7	7.3	7.7	9.1	10.2	11.2	12.2	11.8	12.0	11.9	13.1	13.4	14.8	14.7	11.6	10.9	11.3	11.3	-23.9	73	506.8	53
Honolulu, HI	Medium	3.9	5.0	9.0	9.0	10.1	10.3	10.3	10.9	10.9	10.1	10.3	9.9	9.5	9.7	9.4	10.5	10.9	12.2	12.4	13.5	11.9	12.6	11.2	11.3	-8.9	45	190.2	88
Houston, TX	Very large	14.3	20.1	23.1	22.3	21.3	21.4	24.1	25.2	28.6	33.2	34.6	37.5	40.6	45.2	47.6	48.2	52.2	56.2	56.5	55.9	63.2	60.1	64.7	65.9	16.6	7	359.6	68
Indianapolis, IN	Large	3.6	4.1	7.0	8.0	9.5	12.2	14.3	15.2	16.0	17.5	15.6	15.3	15.5	15.8	16.2	16.2	16.3	16.2	16.2	16.1	14.9	14.8	16.6	16.7	3.3	21	368.2	65
Indio-Cathedral City-Palm Springs, CA	Medium	1.1	1.4	2.2	2.3	2.2	2.3	2.3	2.3	2.4	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.9	4.8	5.5	5.0	3.8	3.8	2.8	2.8	-49.3	99	148.5	92
Jackson, MS	Small	0.7	0.7	0.9	1.2	1.4	1.4	1.9	2.0	2.1	2.5	2.6	2.9	3.0	3.6	4.2	4.0	4.9	5.4	6.4	6.3	5.7	5.4	4.0	4.0	-37.1	92	506.9	52
Jacksonville, FL	Large	2.7	3.8	6.6	7.0	8.3	8.6	9.2	10.5	11.1	10.7	10.4	10.4	10.6	10.7	12.4	13.8	15.1	15.5	16.2	17.2	12.6	11.7	10.2	10.3	-36.4	90	286.8	79
Kansas City, MO-KS	Large	1.4	2.5	5.5	5.4	6.5	9.9	10.5	10.7	12.3	13.6	13.9	16.5	15.8	15.9	15.8	16.6	14.4	14.1	15.0	13.3	11.8	11.1	12.6	12.7	-15.4	56	777.3	29
Knoxville, TN	Small	1.5	1.6	4.2	4.5	4.9	5.2	5.8	6.4	8.1	8.3	8.4	8.6	8.6	8.4	8.5	8.7	8.7	8.5	8.1	8.8	6.8	6.2	6.3	6.3	-21.8	71	324.6	74
Lancaster-Palmdale, CA	Medium	0.9	0.9	0.8	1.1	1.1	1.1	1.1	1.1	1.3	1.2	1.2	1.2	1.3	1.5	1.8	2.1	2.2	2.3	2.5	2.5	2.4	2.8	2.7	2.7	8.8	12	220.9	83
Laredo, TX	Small	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.9	1.1	1.2	1.3	1.4	1.4	61.5	2	3,134.1	2
Las Vegas, NV	Large	1.2	1.8	5.8	6.9	7.8	9.2	10.9	12.2	13.3	13.7	15.1	16.4	17.4	18.5	20.0	22.4	24.6	26.0	27.0	27.6	25.0	23.9	21.3	21.5	-20.5	68	1,661.6	7
Little Rock, AR	Small	0.3	0.4	0.6	0.7	0.7	0.9	1.0	1.0	1.2	1.2	1.6	1.9	1.7	2.1	1.7	2.0	2.7	2.7	3.2	3.7	3.3	4.0	3.6	3.6	12.9	9	1,051.0	16
Los Angeles-Long Beach-Santa Ana, CA	Very large	90.7	112.7	227.2	223.4	222.4	210.2	201.1	214.0	221.9	227.0	228.5	236.0	238.8	250.0	256.6	253.6	265.3	263.3	269.6	259.0	197.6	210.0	218.0	219.7	-18.5	64	142.1	94
Louisville, KY-IN	Large	2.8	3.0	3.5	4.5	5.5	6.5	7.0	7.0	8.0	8.7	9.3	9.8	10.0	9.1	10.4	11.1	12.1	11.8	11.6	10.7	10.4	11.1	12.4	12.5	8.0	13	340.1	72
Madison, WI	Small	1.1	1.2	1.5	1.3	1.3	1.5	1.6	1.7	1.7	1.6	1.7	2.0	2.0	2.2	2.3	2.4	2.6	2.4	2.6	2.5	2.4	2.7	2.6	2.6	0.3	28	139.8	95
McAllen, TX	Medium	0.2	0.2	0.3	0.3	0.4	0.5	0.8	1.0	1.6	1.7	1.7	2.7	3.3	4.2	4.4	5.0	5.3	5.5	6.0	6.7	5.2	6.1	6.3	6.5	7.7	14	3,954.4	1
Memphis, TN-MS-AR	Large	2.2	2.4	6.8	7.0	7.7	9.2	11.1	12.5	13.2	14.0	14.5	14.5	15.9	16.9	17.6	19.3	19.9	18.9	19.0	17.1	14.7	15.7	14.4	14.4	-24.1	74	560.6	46
Miami, FL	Very large	12.7	16.6	35.3	35.0	40.3	40.2	42.9	47.2	49.2	52.4	55.5	64.7	76.5	82.7	88.0	94.3	98.9	101.8	100.4	98.9	80.2	85.0	92.3	93.9	-6.5	41	641.3	40
Milwaukee, WI	Large	2.3	3.2	6.2	6.6	7.7	7.9	7.5	8.4	8.5	8.7	9.2	10.4	10.9	10.5	10.8	10.7	11.0	10.7	10.0	10.5	10.5	9.8	11.8	11.8	18.1	5	424.3	59
Minneapolis-St. Paul, MN	Large	1.7	3.1	6.8	7.1	8.6	10.4	12.6	13.8	14.4	18.2	19.8	21.2	22.5	24.5	23.1	23.4	23.5	25.5	24.3	23.9	23.6	20.8	21.9	22.1	-9.1	47	1,237.0	14
Nashville-Davidson, TN	Large	4.6	4.8	8.0	7.7	7.6	7.9	10.7	11.8	12.2	14.0	13.3	14.9	16.6	18.0	20.6	22.8	23.4	23.5	22.1	21.6	17.6	18.6	18.4	18.7	-15.4	57	301.2	78
New Haven, CT	Medium	1.1	1.7	2.5	2.6	3.4	3.9	4.0	4.3	4.2	5.1	6.3	7.2	7.5	8.6	8.9	8.8	7.8	8.7	8.6	8.6	7.0	7.5	7.0	7.0	-19.3	66	529.3	49

New Orleans, LA	Large	5.2	7.1	7.6	8.0	7.6	7.5	8.4	8.5	8.0	8.5	8.8	9.2	8.6	8.3	8.4	8.7	8.6	8.9	9.3	8.9	8.6	9.8	9.2	9.4	1.1	26	79.8	100
New York-Newark, NY-NJ-CT	Very large	46.3	58.4	116.0	112.2	112.6	120.2	132.7	147.7	157.2	176.8	183.4	207.1	206.5	206.8	219.5	252.5	283.6	306.8	305.6	300.6	242.1	247.0	254.5	255.8	-16.3	60	451.9	57
Oklahoma City, OK	Medium	1.2	1.8	2.5	3.1	3.3	3.9	3.8	5.6	6.3	7.3	7.6	8.9	8.1	9.4	9.8	9.1	9.1	9.0	10.3	11.9	10.5	11.0	11.9	12.0	16.8	6	936.6	19
Omaha, NE-IA	Medium	0.7	1.0	2.0	2.0	2.6	2.6	2.9	3.0	3.3	3.2	3.7	4.0	4.4	4.9	5.3	5.2	5.4	5.5	6.3	6.0	6.4	5.3	4.7	4.7	-24.6	76	574.8	44
Orlando, FL	Large	2.6	4.8	11.3	13.3	13.8	13.9	15.1	16.5	18.1	20.6	22.1	23.1	24.6	27.0	26.5	26.0	26.1	26.7	27.8	28.2	23.4	24.5	23.0	23.3	-16.2	59	781.9	28
Oxnard-Ventura, CA	Medium	0.3	0.6	1.1	1.1	1.4	1.5	2.1	2.2	2.5	2.3	2.4	2.9	3.0	3.5	3.8	4.1	4.6	5.0	5.1	5.6	3.9	4.2	5.0	5.0	-0.5	30	1,664.6	6
Pensacola, FL-AL	Small	0.3	0.4	0.9	0.9	1.1	1.2	1.3	1.5	1.8	2.1	2.0	2.1	2.2	2.3	2.6	2.9	3.1	3.3	3.8	3.9	3.0	2.8	2.7	2.8	-27.4	80	760.9	31
Philadelphia, PA-NJ-DE-MD	Very large	17.1	20.9	29.7	30.1	33.1	32.1	33.9	35.8	38.3	43.0	49.3	51.2	52.6	60.8	66.3	70.0	72.5	75.4	75.0	75.1	68.0	71.9	75.3	75.6	0.8	27	341.2	71
Phoenix, AZ	Very large	9.3	10.4	14.1	14.5	16.4	16.5	17.2	16.8	20.2	21.7	23.5	27.7	31.0	34.7	32.8	35.2	38.3	46.5	45.1	45.7	42.5	40.5	45.6	46.2	2.3	25	398.1	60
Pittsburgh, PA	Large	10.2	11.5	19.0	18.6	17.6	17.4	17.4	20.5	20.6	20.4	19.5	21.6	20.5	21.4	22.1	21.6	22.3	21.5	20.2	20.3	18.1	26.3	21.4	21.4	6.4	17	109.8	97
Portland, OR-WA	Large	3.4	3.9	7.6	8.2	10.2	11.2	11.7	13.4	15.2	16.8	17.4	19.0	19.8	20.4	19.7	21.1	22.5	23.9	24.2	23.6	22.2	22.9	24.6	24.9	3.1	22	635.3	41
Poughkeepsie-Newburgh, NY	Medium	1.0	1.3	1.8	1.9	1.9	2.0	2.0	2.1	2.3	2.4	2.6	2.8	2.8	3.0	3.3	3.6	4.1	4.3	4.7	4.4	4.4	5.1	5.0	5.0	6.0	18	385.3	61
Providence, RI-MA	Large	1.4	1.7	4.1	4.3	4.8	5.6	5.8	6.2	7.6	7.9	10.3	12.0	13.0	14.3	15.5	17.4	18.0	17.5	16.3	17.6	13.9	13.0	12.2	12.1	-25.6	77	785.4	27
Provo, UT	Small	0.5	0.6	0.9	1.0	1.1	1.1	1.3	1.3	1.4	1.6	1.6	1.8	1.8	2.1	2.2	2.4	2.4	2.6	2.7	2.7	2.4	2.9	3.4	3.5	29.5	4	574.3	45
Raleigh-Durham, NC	Large	0.5	1.0	2.3	2.3	2.4	2.8	3.2	3.5	3.8	4.5	4.5	4.9	5.6	6.1	6.9	7.4	8.0	8.7	8.6	9.4	8.4	8.8	8.2	8.4	-2.2	32	1,538.8	8
Richmond, VA	Medium	1.1	1.3	2.5	2.8	3.3	3.4	4.4	5.4	5.7	5.3	5.1	5.1	4.9	5.4	5.7	6.6	7.3	7.4	7.6	7.6	7.5	8.2	7.9	7.9	4.5	20	599.9	42
Riverside-San Bernardino, CA	Large	0.8	1.5	6.5	7.7	8.1	8.1	7.1	8.0	8.7	8.6	9.9	10.9	12.0	12.4	14.0	16.6	19.5	22.2	23.0	22.8	19.7	19.6	20.9	21.2	-7.8	43	2,651.7	3
Rochester, NY	Medium	1.2	1.6	3.0	3.3	3.5	3.5	3.7	4.3	4.4	4.8	4.2	4.8	5.0	5.1	5.3	5.8	6.2	6.5	7.1	7.1	6.6	6.2	6.7	6.7	-5.5	38	461.8	55
Sacramento, CA	Large	2.2	3.4	9.4	9.7	9.4	9.3	10.5	10.4	11.7	11.1	11.9	12.7	14.1	15.5	16.5	18.5	20.8	22.0	22.9	21.7	15.4	15.8	16.2	16.4	-28.4	83	641.4	39
Salem, OR	Small	0.3	0.4	0.9	1.1	1.3	1.6	1.6	1.7	1.6	1.8	2.0	2.2	2.4	3.0	3.2	2.9	2.8	2.9	3.4	3.4	2.4	2.4	2.1	2.1	-37.9	93	685.8	34
Salt Lake City, UT	Large	1.0	1.7	3.1	3.6	4.3	5.1	6.0	6.6	6.5	6.3	6.0	6.6	7.4	8.0	8.4	8.8	7.7	7.1	6.9	7.2	7.2	8.7	9.1	9.3	34.2	3	788.4	26
San Antonio, TX	Large	1.2	2.5	2.8	2.9	3.4	3.5	4.1	5.6	7.0	8.1	9.3	11.2	12.9	12.9	13.4	14.0	15.8	16.2	15.6	16.4	14.1	15.2	16.5	16.8	7.3	15	1,275.1	13
San Diego, CA	Very large	2.9	5.0	14.1	13.7	15.0	14.5	14.2	14.7	16.0	16.4	17.7	21.2	23.4	26.1	29.4	29.5	32.9	33.5	32.6	31.4	30.7	27.8	29.3	29.7	-9.0	46	938.0	18
San Francisco-Oakland, CA	Very large	21.6	40.9	67.0	62.6	63.5	64.9	61.1	66.4	68.5	64.3	69.0	70.3	77.0	75.4	80.7	82.8	86.3	92.6	94.2	90.3	62.7	62.2	63.8	64.5	-31.5	86	198.9	87
San Jose, CA	Large	7.0	12.1	19.2	19.5	18.1	17.2	18.4	20.2	20.3	19.8	21.6	25.1	27.0	28.1	27.5	28.0	26.1	27.8	29.9	28.8	20.8	19.6	19.8	20.0	-33.0	87	185.0	89
San Juan, PR	Large	2.6	3.7	8.1	8.6	9.6	10.3	12.2	13.4	14.1	15.0	15.3	17.3	19.3	21.1	22.9	25.4	27.9	26.7	26.9	26.7	24.5	26.2	23.9	24.1	-10.3	49	837.9	24
Sarasota-Bradenton, FL	Medium	1.7	2.8	3.0	3.4	3.4	3.9	4.0	3.8	4.6	5.0	5.1	6.0	6.1	6.4	6.8	7.2	7.9	8.2	8.8	8.3	5.2	6.4	5.2	5.3	-40.1	95	206.6	86
Seattle, WA	Very large	6.1	11.8	31.4	34.1	36.3	38.8	39.9	41.5	42.0	45.7	46.5	46.5	44.8	43.7	44.4	48.1	47.9	51.5	51.0	49.6	46.8	45.1	46.5	47.2	-7.5	42	669.5	36
Spokane, WA	Small	0.9	1.3	1.9	2.5	3.0	4.1	4.3	3.4	3.5	3.9	4.1	4.4	4.5	4.0	4.0	4.0	3.9	3.7	3.9	4.2	4.3	5.0	3.4	3.5	-10.6	50	305.3	77
Springfield, MA-CT	Medium	2.5	2.8	3.5	3.7	4.4	4.4	4.4	4.6	4.4	4.6	5.1	5.5	5.6	5.3	5.8	5.7	6.0	6.6	6.8	6.5	6.3	7.1	6.4	6.4	-6.4	40	157.9	91
St. Louis, MO-IL	Large	6.1	8.2	10.1	9.9	11.9	16.4	21.4	25.8	26.4	28.1	28.3	30.0	30.5	27.9	28.2	26.6	25.8	25.7	24.6	22.7	23.5	23.3	21.6	21.6	-12.4	52	254.9	81
Stockton, CA	Small	0.2	0.3	0.7	0.7	0.8	0.8	1.0	1.0	1.1	1.1	1.1	1.3	1.3	1.5	1.7	1.7	1.9	2.2	2.3	2.5	1.3	1.4	1.4	1.4	-39.0	94	534.5	48
Tampa-St. Petersburg, FL	Large	7.0	8.4	12.3	14.3	14.6	15.5	16.0	17.0	17.0	16.7	17.4	18.3	19.0	21.5	23.7	25.3	28.7	28.7	31.6	32.1	31.4	30.7	30.1	30.5	-3.5	33	338.6	73
Toledo, OH-MI	Medium	0.5	0.7	1.3	1.3	1.8	2.1	3.2	4.3	4.7	5.4	6.1	6.6	7.1	7.0	6.7	6.4	7.3	6.5	6.5	6.0	4.4	4.6	4.2	4.2	-36.2	88	685.0	35
Tucson, AZ	Medium	4.0	4.6	5.7	5.6	5.8	6.1	5.8	6.1	6.5	8.5	9.1	9.3	10.3	11.3	12.1	14.0	14.5	16.0	15.9	15.1	18.4	18.5	12.0	12.1	-23.7	72	206.7	85
Tulsa, OK	Medium	1.3	2.5	3.4	3.4	3.4	3.5	3.7	4.1	5.3	5.6	5.8	5.9	6.4	6.9	7.2	7.5	6.7	6.7	7.7	7.4	5.8	6.5	7.2	7.2	-6.1	39	454.5	56
Virginia Beach, VA	Large	4.8	7.0	10.0	9.9	9.8	10.3	12.5	14.4	16.9	18.0	19.0	20.1	17.9	20.1	21.3	21.5	21.0	21.5	21.7	21.0	18.7	16.8	19.6	19.6	-9.4	48	309.9	76
Washington, DC-VA-MD	Very large	12.4	24.7	41.2	46.0	54.4	57.0	59.8	61.8	66.7	66.3	64.9	69.7	70.7	77.5	83.1	88.1	89.0	89.3	88.2	92.2	77.1	79.6	83.7	85.1	-3.5	35	586.4	43
Wichita, KS	Medium	1.2	1.7	2.3	2.4	2.6	3.4	3.5	3.5	3.5	4.4	4.5	4.5	4.6	4.5	4.5	4.6	4.8	4.9	5.8	5.9	2.7	2.9	2.9	2.9	-50.0	100	143.4	93
Winston-Salem, NC	Small	0.3	0.5	0.5	0.6	0.8	0.7	0.8	1.0	1.0	1.2	1.6	1.7	1.9	2.3	2.6	2.7	2.6	3.1	3.0	3.0	2.7	2.8	2.4	2.5	-17.4	61	770.9	30
Worcester, MA	Small	1.5	1.9	2.6	3.0	3.1	3.7	4.3	4.7	5.0	5.1	5.6	5.9	6.2	6.3	6.3	5.9	6.2	6.6	6.5	6.8	6.5	6.0	5.1	5.1	-21.6	70	248.6	82
439 Urban area average	439 Areas	1.1	1.5	2.7	2.8	3.0	3.2	3.3	3.6	3.8	4.0	4.2	4.6	4.8	5.0	5.4	5.7	6.1	6.4	6.4	6.5	5.5	5.6	5.7	5.8	-9.8	NA	441.1	NA
101 Urban area average	101 Areas	4.5	6.3	11.2	11.5	12.2	12.8	13.5	14.6	15.6	16.6	17.4	18.7	19.5	20.4	21.5	22.7	23.9	24.9	25.1	24.7	21.1	21.5	21.8	22.0	-12.3	NA	386.7	NA
Very large urban area average	Very large	20.1	28.1	51.4	51.7	54.3	55.1	56.4	60.6	64.5	68.0	71.3	76.0	78.8	82.6	88.2	92.7	98.6	103.3	103.3	100.9	85.0	86.6	90.1	90.9	-11.9	NA	351.5	NA
Large urban area average	Large	3.1	4.3	7.8	8.2	8.8	9.8	10.9	12.2	13.0	14.0	14.5	15.7	16.5	17.2	18.0	19.0	19.8	20.2	20.3	20.1	17.8	18.0	18.1	18.3	-10.1	NA	494.1	NA
Medium urban area average	Medium	1.4	1.8	2.9	3.0	3.4	3.7	4.0	4.4	4.8	5.2	5.6	6.0	6.3	6.5	6.7	7.0	7.4	7.7	8.1	8.1	6.9	7.0	6.6	6.6	-17.9	NA	386.7	NA
Small urban area average	Small	0.5	0.7	1.0	1.1	1.3	1.4	1.6	1.6	1.8	1.9	2.1	2.3	2.4	2.6	2.7	2.8	2.9	3.1	3.3	3.4	2.9	3.0	2.7	2.7	-19.0	NA	392.2	NA

KEY: NA = not applicable; R = revised.

Very large urban areas - over 3 million population.

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

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

Small urban areas - less than 500,000 population.

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

NOTES

"Wasted" fuel is the difference between the fuel consumed under estimated existing conditions and the fuel consumed under free-flow conditions. Previous editions of this table were calculated on the basis of total fuel consumed during congested trips. Calculations are made for peak period speeds and for free-flow speeds on both the freeway and principal arterial systems. For a more detailed description of the formulas used, see the source document.

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

Methodology and data sources have been changed in 2012 and were applied retroactively to past years; these figures are not comparable to those in the past editions of NTS.

SOURCES

Texas Transportation Institute, *Congestion Data for Your City,* Excel spreadsheet of the base statistics for the 101 urban areas and population group summary statistics (College Station, TX: 2012), available at http://mobility.tamu.edu as of Feb. 6, 2013.

Table 4-29: Annual Wasted Fuel Per Person

		Gallons wasted																									Percent change[a]			
																											Short-term 2006-2011		Long-term 1982-2010	
Urban area	Population group	(R) 1982	(R) 1985	(R) 1990	(R) 1991	(R) 1992	(R) 1993	(R) 1994	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010	2011	Percent	Rank	Percent	Rank
Akron, OH	Medium	0	3	7	7	7	10	10	10	10	13	13	13	13	13	13	10	13	13	13	10	10	7	10	10	-23.1	66	NA	NA
Albany-Schenectady, NY	Medium	3	3	6	9	9	9	9	9	9	9	13	13	13	16	16	19	22	22	22	25	22	22	19	19	-13.6	44	533.3	11
Albuquerque, NM	Medium	4	7	11	11	11	15	15	15	19	19	19	19	19	19	15	15	19	19	19	19	22	19	15	15	-21.1	62	275.0	45
Allentown-Bethlehem, PA-NJ	Medium	3	3	7	7	7	10	10	14	14	14	17	14	14	14	14	14	14	14	14	14	14	14	14	14	0.0	7	366.7	27
Anchorage, AK	Small	12	12	12	12	16	12	12	12	16	12	16	16	16	16	16	16	16	16	16	16	12	12	8	8	-50.0	95	-33.3	92
Atlanta, GA	Very large	6	8	11	12	15	17	19	20	23	24	26	26	27	27	30	31	31	31	31	30	24	23	23	23	-25.8	74	283.3	42
Austin, TX	Large	6	8	10	10	10	12	10	16	17	17	17	19	19	21	23	25	27	29	27	27	21	19	19	20	-25.9	75	233.3	52
Bakersfield, CA	Medium	0	0	3	3	3	3	3	3	3	3	6	6	6	6	6	6	6	9	6	6	6	9	6	6	0.0	7	NA	NA
Baltimore, MD	Large	3	6	11	11	11	12	12	13	13	14	14	14	15	17	20	21	21	21	21	21	18	18	19	19	-9.5	34	533.3	11
Baton Rouge, LA	Medium	9	11	17	17	17	20	23	26	26	26	26	32	32	32	32	37	37	37	37	37	32	29	26	26	-29.7	81	188.9	61
Beaumont, TX	Small	3	3	3	3	6	6	6	6	6	6	9	9	12	12	15	15	15	15	15	18	9	9	12	12	-20.0	59	300.0	36
Birmingham, AL	Medium	5	5	7	9	9	11	13	14	14	16	20	20	22	22	22	23	23	23	23	22	18	20	18	18	-21.7	64	260.0	50
Boise, ID	Small	0	3	3	3	3	5	3	5	5	5	8	8	8	10	10	10	10	10	10	10	10	8	8	8	-20.0	59	NA	NA
Boston, MA-NH-RI	Very large	6	10	17	17	18	20	20	20	20	22	23	23	25	26	30	30	32	32	32	30	27	26	26	26	-18.8	58	333.3	31
Boulder, CO	Small	9	12	14	14	19	21	21	26	26	28	26	28	28	28	26	28	28	28	31	26	21	19	12	12	-61.3	101	33.3	89
Bridgeport-Stamford, CT-NY	Medium	5	8	11	11	13	13	14	16	16	17	20	22	22	24	25	25	24	25	27	28	20	17	19	19	-29.6	79	280.0	43
Brownsville, TX	Small	0	0	0	0	0	0	0	7	7	7	7	7	7	7	7	7	7	7	7	7	15	15	15	15	114.3	1	NA	NA
Buffalo, NY	Large	4	4	7	7	7	7	7	7	7	11	11	14	14	14	18	18	18	18	22	18	14	18	18	18	-18.2	56	350.0	28
Cape Coral, FL	Small	7	7	11	11	15	18	22	26	26	26	22	22	22	26	26	26	26	26	29	29	18	18	15	15	-48.3	94	114.3	74
Charleston-North Charleston, SC	Medium	7	9	12	12	14	14	14	14	14	14	15	15	15	15	15	17	17	17	19	19	14	15	14	14	-26.3	77	100.0	77
Charlotte, NC-SC	Large	5	7	10	10	12	10	10	10	12	15	15	17	20	22	22	25	27	25	27	27	22	22	20	20	-25.9	75	300.0	36
Chicago, IL-IN	Very large	5	9	13	13	13	13	14	16	18	18	19	19	19	19	23	24	25	27	26	25	21	23	24	24	-7.7	31	380.0	26
Cincinnati, OH-KY-IN	Large	3	3	9	9	12	15	18	18	18	21	21	18	21	21	21	21	21	21	21	21	18	15	18	18	-14.3	46	500.0	13
Cleveland, OH	Large	3	3	6	9	9	12	12	15	15	18	18	18	18	15	15	12	15	15	15	15	15	15	15	15	0.0	7	400.0	23
Colorado Springs, CO	Medium	2	2	5	5	6	6	8	10	10	12	14	17	19	20	20	19	18	23	22	19	12	12	11	11	-50.0	95	450.0	20
Columbia, SC	Small	2	3	5	5	7	7	7	7	7	7	7	9	10	10	10	12	12	12	16	17	16	16	14	14	-12.5	42	600.0	7
Columbus, OH	Large	4	4	7	7	11	11	11	14	14	14	14	14	14	14	18	18	21	21	18	18	18	14	18	18	0.0	7	350.0	28
Corpus Christi, TX	Small	3	3	3	3	6	3	3	3	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	0.0	7	100.0	77
Dallas-Fort Worth-Arlington, TX	Very large	3	5	8	10	10	11	12	12	12	12	14	17	17	18	19	20	21	23	24	22	21	21	20	20	-16.7	53	566.7	9
Dayton, OH	Medium	8	8	12	12	16	16	16	16	16	16	16	20	20	16	16	16	16	16	16	16	16	12	12	12	-25.0	70	50.0	87
Denver-Aurora, CO	Large	5	6	7	8	8	11	11	13	15	16	17	19	20	20	19	19	20	21	20	20	19	19	20	20	0.0	7	300.0	36
Detroit, MI	Very large	6	7	14	15	16	18	17	17	18	18	18	20	20	20	22	22	22	22	22	22	19	17	18	18	-18.2	56	200.0	59
El Paso, TX-NM	Medium	4	4	4	8	8	8	12	12	8	12	12	17	17	21	21	21	25	25	25	25	17	17	17	17	-32.0	86	325.0	35
Eugene, OR	Small	3	3	3	3	3	3	3	3	3	6	6	9	9	9	9	9	9	9	9	9	9	6	6	6	-33.3	87	100.0	77
Fresno, CA	Medium	2	2	5	5	5	5	5	5	5	5	7	7	7	7	7	7	7	7	7	7	5	7	7	7	0.0	7	250.0	51
Grand Rapids, MI	Medium	3	3	5	5	8	8	8	8	8	8	11	11	11	11	8	11	11	11	11	11	8	11	11	11	0.0	7	266.7	47
Greensboro, NC	Small	3	3	6	6	6	9	9	9	15	15	15	18	18	18	21	18	15	15	15	12	12	12	12	12	-20.0	59	300.0	36
Hartford, CT	Medium	3	6	6	6	12	9	12	12	12	15	18	18	21	21	21	18	21	21	24	24	18	18	18	18	-25.0	70	500.0	13
Honolulu, HI	Medium	12	12	20	20	24	24	24	24	24	24	24	24	20	20	20	24	24	28	28	28	24	28	24	24	-14.3	46	100.0	77
Houston, TX	Very large	9	13	12	11	11	11	12	13	14	15	16	17	18	19	19	19	21	23	23	22	24	22	23	23	0.0	7	155.6	67
Indianapolis, IN	Large	6	6	13	13	16	19	22	25	25	25	25	25	25	25	25	25	25	25	22	22	19	19	19	19	-13.6	44	216.7	56
Indio-Cathedral City-Palm Springs, CA	Medium	21	17	21	21	17	17	17	17	17	17	14	14	14	10	10	14	14	17	17	14	10	10	7	7	-58.8	100	-66.7	93
Jackson, MS	Small	3	3	3	3	6	6	6	6	6	10	10	10	10	13	13	13	16	16	19	19	16	16	13	13	-31.6	83	333.3	31
Jacksonville, FL	Large	6	9	13	13	17	17	17	18	20	18	18	18	18	18	20	22	22	22	22	24	17	17	13	13	-40.9	93	116.7	70
Kansas City, MO-KS	Large	2	3	7	7	9	10	12	12	14	15	15	17	17	17	15	17	14	14	14	14	10	10	12	12	-14.3	46	500.0	13
Knoxville, TN	Small	7	7	18	18	21	21	25	29	32	32	32	32	29	29	29	29	29	25	25	25	18	18	18	18	-28.0	78	157.1	65
Lancaster-Palmdale, CA	Medium	6	6	4	6	6	4	4	4	4	4	4	2	4	4	4	4	4	4	4	4	4	6	6	6	50.0	2	0.0	91
Laredo, TX	Small	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	8	4	4	8	8	8	8	8	8	0.0	7	NA	NA
Las Vegas, NV	Large	3	6	12	15	15	18	18	21	21	21	21	21	21	24	24	27	30	30	33	33	30	27	21	21	-36.4	90	600.0	7
Little Rock, AR	Small	2	2	2	4	4	4	4	4	6	6	6	8	8	10	6	8	10	10	10	12	10	12	12	12	20.0	3	500.0	13
Los Angeles-Long Beach-Santa Ana, CA	Very large	15	17	32	31	31	28	27	28	29	30	30	31	31	32	33	32	34	34	35	32	24	26	27	27	-22.9	65	80.0	86
Louisville, KY-IN	Large	6	6	6	8	11	11	11	11	14	17	17	17	17	17	17	20	20	20	17	17	14	17	17	17	0.0	7	183.3	62
Madison, WI	Small	5	5	5	5	5	5	5	5	5	5	5	10	10	10	10	10	10	10	10	10	10	10	10	10	0.0	7	100.0	77
McAllen, TX	Medium	0	0	0	0	0	0	0	0	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	0.0	7	NA	NA
Memphis, TN-MS-AR	Large	5	5	11	11	11	13	16	19	19	19	22	22	22	24	24	27	27	24	27	24	19	22	19	19	-29.6	79	280.0	43
Miami, FL	Very large	5	7	14	14	15	15	15	16	16	18	18	20	23	25	26	27	27	29	27	27	22	23	25	25	-7.4	30	400.0	23
Milwaukee, WI	Large	3	3	9	9	10	10	10	10	10	10	12	12	14	12	12	12	12	12	10	12	12	10	12	12	20.0	3	300.0	36
Minneapolis-St. Paul, MN	Large	1	2	5	5	6	7	8	9	10	11	12	13	14	15	14	14	14	15	14	14	13	11	12	12	-14.3	46	1,100.0	2

Nashville-Davidson, TN	Large	13.5	13.7	21.5	20.3	19.5	19.9	26.5	28.0	28.1	30.4	27.4	29.0	31.0	32.2	34.9	37.0	36.9	36.0	33.4	32.2	26.4	37.4	1.4	40	177.0	67
New Haven, CT	Medium	5.2	7.8	11.1	11.4	14.7	16.7	17.0	18.0	16.9	20.5	24.6	28.0	28.3	31.7	32.1	31.6	27.3	30.0	29.6	29.2	25.3	27.6	1.1	41	430.8	41
New Orleans, LA	Large	12.4	16.8	17.4	18.3	17.2	16.9	18.7	18.9	17.7	18.9	19.6	20.4	19.1	18.4	18.9	19.6	19.5	20.5	24.9	22.8	21.0	25.9	32.8	27	108.9	77
New York-Newark, NY-NJ-CT	Very large	6.3	8.0	15.4	14.9	14.9	15.8	17.3	19.2	20.4	22.9	23.5	26.3	25.6	25.4	26.7	30.2	33.6	36.0	35.5	34.5	31.7	22.8	-32.1	69	261.9	55
Oklahoma City, OK	Medium	3.3	5.0	6.6	7.9	8.2	9.6	9.3	13.4	14.9	17.0	17.6	20.2	18.3	20.9	21.4	19.7	19.2	18.4	20.8	23.5	20.6	31.9	66.1	18	866.7	13
Omaha, NE-IA	Medium	2.2	3.1	6.0	5.9	7.6	7.5	8.3	8.4	9.2	8.6	9.8	10.3	11.4	12.5	13.4	13.3	13.7	13.9	15.6	14.9	17.7	20.6	50.4	24	836.4	15
Orlando, FL	Large	7.5	12.4	22.7	25.3	25.6	24.9	26.3	27.5	29.4	32.2	34.2	35.0	35.9	38.0	36.3	34.9	34.2	34.0	35.0	34.8	29.7	16.3	-52.3	85	117.3	75
Oxnard-Ventura, CA	Medium	2.1	4.0	6.5	6.5	7.9	8.8	11.6	12.0	13.9	12.6	12.9	15.8	15.9	17.8	18.7	19.5	21.2	22.3	21.8	24.1	18.2	32.3	52.4	23	1,438.1	7
Pensacola, FL-AL	Small	2.5	2.9	6.3	6.0	7.3	8.0	8.1	9.4	11.5	13.1	12.3	12.8	13.1	13.0	14.2	15.6	16.4	17.2	19.4	19.4	15.1	19.3	17.7	36	672.0	19
Philadelphia, PA-NJ-DE-MD	Very large	8.9	10.7	14.9	15.1	16.5	16.0	16.8	17.6	18.7	20.6	23.3	23.8	24.0	27.3	29.3	30.5	31.5	32.7	32.5	32.6	29.3	15.8	-49.8	82	77.5	83
Phoenix, AZ	Very large	16.0	15.6	18.3	18.6	20.0	19.7	19.9	18.6	21.3	21.8	22.7	25.3	27.0	29.5	27.4	28.9	30.2	35.1	33.2	32.9	30.8	30.4	0.7	42	90.0	80
Pittsburgh, PA	Large	14.3	16.3	27.0	26.5	25.3	25.0	24.9	29.3	29.4	28.9	27.9	31.0	29.4	30.8	31.8	31.1	32.1	30.9	29.0	29.2	25.6	31.4	-2.2	44	119.6	74
Portland, OR-WA	Large	7.4	8.2	15.8	16.6	20.1	21.5	22.0	24.7	27.6	28.6	29.0	30.9	31.4	31.4	30.0	31.0	32.4	34.0	33.4	32.1	29.8	27.4	-15.4	55	270.3	54
Poughkeepsie-Newburgh, NY	Medium	4.3	4.9	5.8	6.2	6.0	6.1	6.0	6.1	6.6	6.8	7.2	7.7	7.7	7.7	8.4	8.7	9.4	9.5	10.1	9.4	9.1	30.1	220.2	4	600.0	24
Providence, RI-MA	Large	1.9	2.3	5.5	5.8	6.3	7.3	7.5	8.0	9.6	9.9	12.8	14.7	15.8	17.4	18.6	20.7	21.2	20.7	19.3	20.8	15.5	10.3	-51.4	83	442.1	38
Provo, UT	Small	3.8	3.7	5.0	5.9	5.8	5.7	6.8	6.8	6.9	7.6	7.7	8.5	8.4	9.5	9.6	10.4	10.5	11.1	11.4	11.4	10.1	14.8	41.0	26	289.5	52
Raleigh-Durham, NC	Large	4.2	7.1	14.0	13.5	13.1	15.1	16.5	17.4	18.0	20.9	19.7	20.9	22.3	23.0	24.8	24.7	25.7	26.7	25.3	27.4	22.0	11.8	-54.1	87	181.0	64
Richmond, VA	Medium	3.6	3.8	7.0	7.6	9.0	9.3	11.7	14.3	15.0	13.6	13.0	12.8	11.8	12.2	12.4	13.6	15.0	15.1	15.5	15.3	14.2	21.6	44.0	25	500.0	33
Riverside-San Bernardino, CA	Large	1.9	3.7	12.2	13.6	14.0	14.0	12.1	13.6	14.6	14.2	16.0	17.2	18.2	18.3	19.5	22.4	25.1	28.4	28.9	28.0	24.9	16.4	-34.7	71	763.2	16
Rochester, NY	Medium	2.5	3.6	6.5	7.1	7.5	7.4	7.9	9.2	9.3	10.2	8.9	10.1	10.4	10.2	10.5	11.2	11.7	12.1	12.8	12.7	11.8	25.5	117.9	11	920.0	12
Sacramento, CA	Large	6.1	8.6	19.5	19.0	18.0	17.6	19.6	19.1	21.2	19.4	20.0	20.8	22.6	24.0	24.1	25.6	28.0	28.8	29.3	27.5	20.8	11.1	-60.4	90	82.0	82
Salem, OR	Small	3.2	4.0	10.2	12.0	14.1	16.7	17.8	18.0	17.0	18.2	19.6	21.5	22.6	26.6	28.0	25.1	23.9	24.4	28.5	28.0	18.3	21.0	-12.1	53	556.3	27
Salt Lake City, UT	Medium	4.1	6.1	10.2	11.9	14.2	16.7	19.5	20.9	20.3	19.3	17.9	19.5	21.8	23.1	24.3	25.1	21.7	19.5	18.8	19.6	19.0	19.7	-9.2	51	380.5	46
San Antonio, TX	Large	3.2	6.1	6.0	6.1	7.2	7.4	8.5	11.4	14.3	16.5	18.8	22.5	25.7	25.5	26.0	26.3	28.8	29.1	27.5	28.1	26.4	22.3	-22.6	62	596.9	25
San Diego, CA	Very large	5.3	8.6	20.2	18.5	19.9	19.0	18.3	19.0	20.5	20.7	22.0	25.9	28.2	30.9	34.3	34.0	37.4	37.8	36.5	34.7	35.2	27.6	-26.2	65	420.8	43
San Francisco-Oakland, CA	Very large	14.9	27.7	41.3	38.1	37.8	38.6	36.3	39.3	40.5	37.9	40.5	41.0	44.7	43.5	46.7	48.1	50.4	54.3	55.3	52.5	38.6	31.1	-38.3	73	108.7	78
San Jose, CA	Large	13.9	23.5	35.1	33.6	31.1	29.0	30.8	33.6	32.8	31.5	33.8	38.8	41.6	43.2	42.3	43.1	40.2	42.8	45.2	43.6	31.0	38.6	-4.0	45	177.7	66
San Juan, PR	Large	5.2	7.0	13.3	13.8	15.1	16.0	18.2	19.6	20.4	21.2	21.5	24.0	26.6	28.8	31.1	34.2	37.4	35.6	35.4	34.9	31.0	29.8	-20.3	61	473.1	35
Sarasota-Bradenton, FL	Medium	6.6	9.7	8.6	9.2	9.1	10.1	10.1	9.5	11.3	12.2	12.4	14.1	14.2	14.4	14.8	15.2	15.7	15.8	16.9	15.5	10.9	33.1	110.8	13	401.5	45
Seattle, WA	Very large	7.6	13.6	32.4	33.6	35.2	37.0	37.2	38.0	37.9	40.9	41.1	40.6	38.7	37.1	36.7	38.5	37.5	39.8	38.8	37.1	36.2	14.1	-62.4	93	85.5	81
Spokane, WA	Small	3.4	5.0	7.1	9.4	10.9	14.6	14.8	11.5	12.0	13.3	13.9	14.7	14.9	13.4	13.3	12.4	11.9	11.2	11.8	12.6	11.6	34.7	191.6	6	920.6	11
Springfield, MA-CT	Medium	6.1	6.5	8.1	8.3	9.8	9.8	9.6	9.9	9.7	9.9	11.0	11.8	11.8	11.1	12.1	11.9	12.4	13.7	14.2	13.4	12.1	10.6	-14.5	54	73.8	85
St. Louis, MO-IL	Large	8.5	11.3	13.5	13.1	15.9	21.6	28.1	33.9	34.6	36.7	37.1	39.2	39.1	35.2	35.1	32.5	31.1	30.4	28.8	26.2	27.6	14.3	-54.0	86	68.2	88
Stockton, CA	Small	1.8	2.3	4.4	4.4	4.5	4.8	5.4	5.8	5.9	6.0	5.9	6.5	6.7	7.2	8.0	7.8	8.5	9.9	10.2	10.8	8.4	27.1	218.8	5	1,405.6	8
Tampa-St. Petersburg, FL	Large	9.6	10.8	14.0	16.3	16.6	17.3	17.7	18.2	18.2	17.7	18.3	19.0	19.2	21.1	22.9	24.2	25.4	25.0	27.0	27.2	26.9	8.8	-65.4	95	-8.3	100
Toledo, OH-MI	Medium	1.1	1.5	2.8	2.8	3.8	4.4	6.9	9.1	10.0	11.3	12.7	13.9	14.7	14.5	13.7	12.9	14.5	12.9	13.1	12.1	7.6	26.9	85.5	15	2,345.5	3
Tucson, AZ	Medium	8.2	9.2	10.0	9.5	9.7	9.6	8.9	9.1	9.7	12.7	13.3	13.6	14.9	16.2	17.2	19.7	20.3	22.1	21.6	20.3	17.1	9.0	-55.7	88	9.8	99
Tulsa, OK	Medium	5.2	8.8	10.5	10.2	10.3	10.6	10.9	12.3	15.6	16.4	17.0	17.4	18.7	19.9	20.7	21.6	19.1	18.9	21.6	20.5	15.6	17.8	-6.8	49	242.3	60
Virginia Beach, VA	Large	10.2	13.9	17.7	17.1	16.8	17.4	20.8	23.8	27.7	29.3	30.6	32.0	28.0	31.0	32.6	32.8	32.0	32.7	33.0	31.8	28.0	17.2	-46.3	80	68.6	87
Washington, DC-VA-MD	Very large	14.6	27.4	42.3	45.0	52.3	53.0	54.5	55.9	59.3	57.6	54.3	57.0	57.6	61.1	63.1	65.8	66.2	66.3	65.1	67.7	56.3	25.5	-61.5	92	74.7	84
Wichita, KS	Medium	6.8	9.5	11.7	12.0	12.6	16.3	16.7	16.2	15.8	19.6	20.2	20.0	19.7	19.0	19.1	19.1	19.9	19.5	22.7	22.7	20.7	56.8	185.4	7	735.3	17
Winston-Salem, NC	Small	3.4	5.5	5.1	5.2	7.0	6.1	6.0	7.6	7.3	8.6	10.8	11.7	12.3	14.4	16.2	16.4	15.8	18.0	16.8	16.6	13.5	20.8	31.6	28	511.8	31
Worcester, MA	Small	5.1	6.3	8.1	9.1	9.5	11.2	12.8	13.8	14.5	14.8	16.1	16.6	17.5	17.6	17.5	16.3	16.9	17.9	17.5	18.3	17.3	14.2	-16.0	56	178.4	65
439 Urban area average	439 Areas	12	14	23	23	23	25	25	26	27	27	27	28	28	30	31	31	32	32	32	31	27	28	-12.5	NA	133.3	NA
101 Urban area average	101 Areas	10	14	22	22	23	24	24	26	27	28	29	31	31	32	34	34	36	36	36	35	31	32	-11.1	NA	220.0	NA
Very large urban area average	Very large	13	18	30	30	31	30	31	32	34	35	36	37	38	39	42	43	44	46	46	44	39	39	-11.4	NA	200.0	NA
Large urban area average	Large	7	9	16	16	17	18	20	22	23	24	25	27	27	28	28	29	30	30	30	29	26	26	-13.3	NA	271.4	NA
Medium urban area average	Medium	5	7	9	10	11	12	13	14	15	16	17	18	18	19	19	19	20	20	21	21	18	18	-10.0	NA	260.0	NA
Small urban area average	Small	4	5	7	8	9	10	10	11	12	12	13	14	14	15	16	16	16	17	17	18	15	16	0.0	NA	300.0	NA

KEY: NA = not applicable; R = revised.

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

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

NOTES

"Wasted" fuel is the difference between the fuel consumed under estimated existing conditions and the fuel consumed under free-flow conditions. Previous editions of this table were calculated on the basis of total fuel consumed during congested trips. Calculations are made for peak period speeds and for free-flow speeds on both the freeway and principal arterial systems. For a more detailed description of the formulas used, see the source document.

The urban areas included are those containing over 500,000 people and several smaller places mostly chosen by previous sponsors of the Texas Transportation Institute study on mobility. Methodology and data sources have been changed in 2010 and were applied retroactively to past years, these figures are not comparable to those in past editions of NTS.

SOURCE

Texas Transportation Institute,*Congestion Data for Your City,* Excel spreadsheet of the base statistics for the 101 urban areas and population group summary statistics (College Station, TX: 2011), available at http://mobility.tamu.edu as of Mar. 10, 2011, and personal communication, Mar. 17, 2011.

Section D
Air Pollution

Table 4-30: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Vehicles[a,b] (Grams per mile)

Engine type and pollutant	Prior to control[d]	1968-1969	1970-1971	1972	1973-1974	1975-1976	1977-1979	1980	1981	1982-1986	1987-1993	Tier 1[i] 1994-2003[b]	Interim Tier 2[i] 2004-2006	Tier 2[i] 2007+
Gasoline														
HC (total)	11	[g]	2.20	3.40		1.50		0.41				0.41 [h]	[h]	
NMHC	[e]	[h]										0.25 (0.31)	[h]	
NMOG	[e]	[h]											0.13 (0.16)	0.10 (0.13)
CO	80	[g]	23.00	39.00		15.00		7.00	3.40			3.40 (4.20)		
Cold-temp. CO[c]	[e]	[h]										10.00 [h]		
NO_x	4	[h]			3.00	3.10	2.00		1.00			0.40 (0.60)		0.14 (0.20)
Particulates	[e]	[h]										0.08 (0.10)	0.08 (0.08)	0.02 (0.02)
Formaldehyde	[e]	[h]											0.02 (0.02)	
Diesel														
HC (total)	11	[h]				1.50		0.41				0.41 [h]	[h]	
NMHC	[e]	[h]										0.25 (0.31)	[h]	
NMOG	[e]	[h]											[h] (0.16)	0.10 (0.13)
CO	80	[h]				15.00		7.00	3.40			3.40 (4.20)	[h] (4.20)	3.40 (4.20)
NO_x	4	[h]				3.10	2.00		1.00			1.00 (1.25)	[h] (0.60)	0.14 (0.20)
Particulates	[e]	[h]								0.60	0.20	0.08 (0.10)	[h] (0.10)	0.02 (0.02)
Formaldehyde	[e]	[h]											[h] (0.02)	0.02 (0.02)
Test procedure		7-mode		CVS-72		CVS-75								
Useful life, intermediate[b,f]		[h]										5 years/50,0[i]		
Useful life, full		5 years/50,0[i]										10 years/100,000 miles		10 years/120,000 miles

KEY: CO = carbon monoxide; CVS = constant volume sampler; HC = hydrocarbons; NMHC = non-methane hydrocarbons; NMOG = nonmethane organic gases; NOx = nitrogen oxides.

[a] The test procedure for measuring exhaust emissions has changed several times over the course of vehicle emissions regulations. The 7-mode procedure was used through model year 1971 and was replaced by the CVS-72 procedure beginning in model year 1972. The CVS-75 procedure became the test procedure as of model year 1975. While it may appear that the total HC and CO standards were relaxed in 1972-74, these standards were actually more stringent due to the more stringent nature of the CVS-72 test procedure. Additional standards for CO and composite standards for NMHC and NOx tested under the new Supplemental Federal Test Procedure will be phased-in beginning with model year 2000; these standards are not shown in this table.

[b] All emissions standards must be met for a useful life of 5 years/50,000 miles. Beginning with model year 1994, a second set of emissions standards must also be met for a full useful life of 10 years/100,000 miles; these standards are shown in parentheses. Tier 1 exhaust standards were phased-in during 1994-96 at a rate of 40%, 80%, and 100%, respectively.

[c] The cold CO emissions standard is measured at 20^{0}F (rather than 75^{0}F) and is applicable for a 5-year/50,000-mile useful life.

[d] The "Prior to control" column reports emissions estimates of a typical newly manufactured car in the years before exhaust emissions certification standards were implemented.

[e] No estimate available.

[f] Manufacturers can opt to certify vehicles for a full useful life of 15 years/150,000 miles and have either 1) intermediate useful life standards waived or 2) receive additional NOx credits.

[g] In 1968-69, exhaust emissions standards were issued in parts per million rather than grams per mile and are, therefore, incompatible with this table.

[h] No standard has been set.

[i] The term "tier" refers to a level of standards and is associated with specific years. Interim Tier 2 refers to an intermediate level of standards that move manufacturers toward compliance with Tier 2 standards. Interim Tier 2 and Tier 2 standards are established as "bins." Each bin is a set of standards for NOx, CO, NMOG, formaldehyde, and particulate matter; HC and NMHC standards are dropped for Tier 2 and Interim Tier 2. Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weight corporate average NOx standard is met for the full useful life of the vehicle. The Tier 2 corporate average NOx standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim sales-weighted average for light-duty vehicles (LDVs) is 9.3 grams/mile. For LDVs, Tier 2 standards will be phased in at a rate of 25% in 2004, 50% in 2005, 75% in 2006, and 100% in 2007. During this period, all LDVs not meeting the Tier 2 standards must meet Interim Tier 2 standards.

SOURCES

40 CFR 86, Subpart A (July 1, 2000).

Federal Register, Vol. 65, No. 28, pp. 6851-6858.

Table 4-31: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Trucks (Category LDT1)[a,b,c] (Grams per mile)

Engine type and pollutant	Prior to control[g]	1968-1969	1970-1971	1972	1973-1974	1975	1976-1978	1979-1981	1982-1983	1984	1985-1986	1987	1988-1993	Tier 1[k] 1994	1995-2003	Interim Tier 2[k] 2004-2006	Tier 2[k] 2007+
Gasoline																	
HC (total)	11	[i]	2.20	3.40		2.00		1.70		0.80				[j] (0.80)		[j]	
NMHC	[h]	[j]												0.25 (0.31)		[j]	
NMOG	[h]	[j]														0.13 (0.16)	0.1 (0.13)
CO	80	[i]	23.00	39.00		20.00		18.00		10.00				3.40 (4.20)			
Cold-temp. CO[d]	[e]	[j]												10.00 [j]			
NO_x	4	[j]			3.00	3.10		2.30					1.20	0.40 (0.60)			0.14 (0.20)
Particulates	[h]	[j]													0.08 (0.10)	0.08 (0.08)	0.02 (0.02)
Formaldehyde	[h]	[j]														0.02 (0.02)	
Diesel																	
HC (total)	11	[j]					2.00	1.70		0.80				[j] (0.80)		[j]	
NMHC	[h]	[j]												0.25 -0.31		[j]	
NMOG	[h]	[j]														[j] (0.16)	0.10 (0.13)
CO	80	[j]					20.00	18.00		10.00				3.40 (4.20)		[j] (4.20)	3.40 (4.20)
NO_x	4	[j]					3.10	2.30					1.20	1.00 (1.25)		[j] (0.60)	0.14 (0.20)
Particulates	[h]	[j]							0.60			0.26			0.08 (0.10)	[j] (0.10)	0.02 (0.02)
Formaldehyde	[h]	[j]														[j] (0.02)	0.02 (0.02)
LDT1 weight critera[e]		GVWR up through 6,000 pounds						GVWR up through 8,500 pounds					GVWR up through 6,000 lbs; LVW up through 3,750 pounds				
Test procedure [b]		7-mode		CVS-72		CVS-75											
Useful life, intermediate[c,f]		[j]												5 years/50,000 miles		5 years/50,000miles	
Useful life, full		5 years/50,000 miles									11 years/120,000 miles			10 years/100,000 miles			miles

KEY: CO=carbon monoxide; CVS = constant volume sampler; GVWR=gross vehicle weight rating; HC=hydrocarbons; LVW=loaded vehicle weight; NMHC=nonmethane hydrocarbons; NMOG= nonmethane organic gases; NOx=nitrogen oxides.

[a] Light-duty truck categories LDT1-LDT4 were not created until 1994. From 1968 to 1978, all trucks with a GVWR up to 6,000 pounds were classified as light-duty trucks and were required to meet the same standards. As of 1979, the maximum weight was raised to 8,500 pounds GVWR. During 1988-93, light duty trucks were divided into two subcategories that coincide with the current LDT1-LDT4 categories. The standards for LDT2, LDT3, and LDT4 are shown in tables 4-32 through 4-34.

[b] The test procedure for measuring exhaust emissions has changed several times over the course of vehicle emissions regulation. The 7-mode procedure was used through model year 1971 and was replaced by the CVS-72 procedure beginning in model year 1972. The CVS-75 procedure became the test procedure as of model year 1975. While it may appear that total HC and CO standards were relaxed in 1972-74, these standards were actually more stringent due to the more stringent nature of the CVS-72 test procedure. Additional standards for CO and composite standards for NMHC and NOx tested over the new Supplemental Federal Test Procedure will be phased-in beginning with model year 2000. These standards are not shown in this table.

[c] Emissions standards had to be met for a useful life of 5 years/50,000 miles through model year 1983, and a full useful life of 11 years/120,000 miles was defined for 1985-93 (several useful life options were available for 1984). Beginning in model year 1994, emissions standards were established for an intermediate useful life of 5 years/50,000 miles as well as a full useful life (full useful life standards are shown in parentheses). HC standards, however, were established only for full useful life. Tier 1 exhaust standards, except particulates standards, were phased in during 1994-96 at a rate of 40%, 80%, and 100%, respectively. Particulate matter standards were phased-in at a rate of 40%, 80%, and 100% during 1995-97.

[d] The cold CO emissions standard is measured at 20 ^{0}F (rather than 75 ^{0}F) and is applicable for a 5-year/50,000-mile useful life.

[e] GVWR is the maximum design loaded weight. LVW is the curb weight (nominal vehicle weight) plus 300 pounds.

[f] Manufacturers can opt to certify vehicles for a full useful life of 15 years/150,000 miles and either have (1) intermediate useful life standards waived or (2) receive additional NOx credits.

[g] The "Prior to controls" column reports emissions estimates of a typical newly manufactured car in the years before exhaust emissions certification standard were implemented.

[h] No estimate available.

[i] In 1968-69, exhaust emissions standards were issued in parts per million rather than grams per mile and are, therefore, incompatible with this table.

[j] No standard has been set.

[k] The term "tier" refers to a level of standards for specific years. Interim Tier 2 refers to an intermediate level of standards that move manufacturers toward compliance with Tier 2 standards. Interim Tier 2 and Tier 2 standards are established as "bins." Each bin is a set of standards for NOx, CO, NMOG, formaldehyde, and particulates (HC and NMHC standards are dropped for Tier 2 and Interim Tier 2). Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weighted corporate average NOx standard is met for the full useful life. The Tier 2 corporate average NOx standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim corporate sales-weighted average for LDT1 vehicles is 0.3 grams/mile. Tier 2 standards will be phased in at a rate of 25% in 2004, 50% in 2005, 75% in 2006, and 100% in 2007. During this period, all LDT1 vehicles not meeting the Tier 2 standards must meet Interim Tier 2 standards.

SOURCES

40 CFR 86, Subpart A (July 1, 2000).

Federal Register, Vol. 65, No. 28, pp. 6851-6858.

Table 4-32: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Trucks (Category LDT2)[a,b,c] (Grams per mile)

Engine type and pollutant	Prior to control[g]	1968-1969	1970-1971	1972	1973-1974	1975	1976-1978	1979-1981	1982-1983	1984	1985-1986	1987	1988-1990	1991-1993	Tier 1k 1994	Tier 1k 1995-2003	Interim Tier 2[k] 2004-2006	Tier 2[k] 2007+
Gasoline																		
HC (total)	11	[e]	2.20	3.40		2.00		1.70		0.80					[j] (0.80)		[j]	
NMHC	[h]	[j]													[j] (0.40)		[j]	
NMOG	[h]	[j]															0.13 (0.16)	0.10 (0.13)
CO	80	[i]	23.00	39.00		20.00		18.00		10.00					4.40 (5.50)		3.4 (4.20)	
Cold-temp. CO[d]	[h]	[j]													12.5 [j]			
NO_x	4	[j]			3.00	3.10		2.30					1.70		0.70 (0.97)		0.40 (0.60)	0.14 (0.20)
Particulates	[h]	[j]														0.08 (0.10)	0.08 (0.08)	0.02 (0.02)
Formaldehyde	[h]	[j]															0.02 (0.02)	
Diesel																		
HC (total)	11	[j]					2.00	1.70		0.80					[j] (0.80)		[j]	
NMHC	[h]	[j]													0.32 (0.40)		[j]	
NMOG	[h]	[j]															[j] (0.16)	0.10 (0.13)
CO	80	[j]					20.00	18.00		10.00					4.40 (5.50)		[j] (4.20)	3.40 (4.20)
NO_x	4	[j]					3.10	2.30					1.70		[j] (0.97)		[j] (0.60)	0.14 (0.20)
Particulates	[h]	[j]							0.60			0.50	0.45	0.13		0.08 (0.10)	[j] (0.10)	0.02 (0.02)
Formaldehyde	[h]	[j]															[j] (0.02)	0.02 (0.02)
LDT2 weight criteria[e]		GVWR up through 6,000 pounds						GVWR up through 8,500 pounds					GVWR up through 6,000 pounds; LVW over 3,750 pounds					
Test procedure[b]		7-mode		CVS-72		CVS-75												
Useful life, intermediate[c, f]		[j]													5 years/50,000 miles		5 years/50,000miles	
Useful life, full		5 years/50,000 miles									11 years/120,000 miles				10 years/100,000 miles			10 years/120,000 miles

KEY: CO=carbon monoxide; GVWR=gross vehicle weight rating; HC=hydrocarbons; LVW=loaded vehicle weight; NMHC=non-methane hydrocarbons; NMHC=nonmethane hydrocarbons; NMOG=nonmethane organic gases; NOx=nitrogen oxides.

[a] Light-duty truck categories LDT1-LDT4 were not created until 1994. From 1968 to 1978 all trucks with a GVWR up to 6,000 pounds were classified as light-duty trucks and were required to meet the same standards. As of 1979, the maximum weight was raised to 8,500 pounds GVWR. During 1988-93, light-duty trucks were divided into two subcategories that coincide with the current LDT1-LDT4 categories. The standards for LDT1, LDT3, and LDT4 are shown in tables 4-31, 4-33, and 4-34.

[b] The test procedure for measuring exhaust emissions has changed several times over the course of vehicle emissions regulation. The 7-mode procedure was used through model year 1971 and was replaced by the CVS-72 procedure beginning in model year 1972. The CVS-75 procedure became the test procedure as of model year 1975. While it may appear that the total HC and CO standards were relaxed in 1972-74, these standards were actually more stringent due to the more stringent nature of the CVS-72 test procedure. Additional standards for CO and composite standards for NMHC and NOx tested over the new Supplemental Federal Test Procedure will be phased-in beginning with model year 2000. These standards are not shown in this table.

[c] Emissions standards had to be met for a useful life of 5 years/50,000 miles through model year 1983, and a full useful life of 11 years/120,000 miles was defined for 1985-93 (several useful life options were available for 1984). Beginning in model year 1994, emissions standards were established for an intermediate useful life of 5 years/50,000 miles as well as a full useful life (full useful life standards are shown in parentheses). HC standards, however, were established only for full useful life. Tier 1 exhaust standards, except particulates standards, were phased-in during 1994-96 at a rate of 40%, 80%, and 100%, respectively. Particulates standards were phased-in at a rate of 40%, 80%, and 100% during 1995-97.

[d] The cold CO emissions standard is measured at 20 ^{0}F (rather than 75 ^{0}F) and is applicable for a 5-year/50,000-mile useful life.

[e] GVWR is the maximum design loaded weight. LVW is the curb weight (nominal vehicle weight) plus 300 pounds.

[f] Manufacturers can opt to certify vehicles for a full useful life of 15 years/150,000 miles and either have (1) intermediate useful life standards waived or (2) receive additional NOx credits.

[g] The "Prior to controls" reports emissions estimates of a typical newly manufactured car in the years before exhaust emissions certification standards were implemented.

[h] No estimate available.

[i] In 1968-69, exhaust emissions standards were issued in parts per million rather than grams per mile and are, therefore, incompatible with this table.

[j] No standard has been set.

[k] The term "tier" refers to a level of standards for specific years. Interim 2 refers to an intermediate level of standards that move manufacturers toward compliance with Tier 2 standards. Interim Tier 2 and Tier 2 standards are established as "bins." Each bin is a set of standards for NOx, CO, NMOG, formaldehyde, and particulates (HC and NMHC standards are dropped for Tier 2 and Interim Tier 2). Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weighted corporate average NOx standard is met for the full useful life. The Tier 2 corporate average NOx standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim corporate sales-weighted average for LDT2 vehicles is 0.3 grams/mile. Tier 2 standards will be phased in at a rate of 25% in 2004, 50% in 2005, 75% in 2006, and 100% in 2007. During this period all LDT2 vehicles not meeting the Tier 2 standards must meet Interim Tier 2 standards.

SOURCES

40 CFR 86, Subpart A (July 1, 2000).

Federal Register, Vol. 65, No. 28, pp. 6851-6858.

Table 4-33: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Trucks (Category LDT3)[a,b,c] (Grams per mile)

Engine type and pollutant	Prior to control[g]	1968-1969	1970-1971	1972	1973-1974	1975	1976-1978	1979-1981	1982-1983	1984	1985-1986	1987	1988-1989	1990	1991-1995	Tier 1[k] 1996-2007	Interim Tier 2[k] 2008	Tier 2[k] 2009+
Gasoline																		
HC (total)	11	i	2.20	3.40		2.00		1.70		0.80						j (0.80)	j	
NMHC	h	j														0.32 (0.46)	j	
NMOG	h	j															0.16 (0.23)	0.125 (0.16)
CO	80	i	23.00	39.00		20.00		18.00		10.00						4.40 (6.40)		3.40 4.20
Cold-temp. CO[d]	h	j														12.50 j		
NO_x	4	j			3.00	3.10		2.30					2.30	1.70		0.70 (0.98)	0.40 (0.60)	0.14 (0.20)
Particulates	h	j														j (0.10)	0.08 (0.08)	0.02 (0.02)
Formaldehyde	h	j															0.02 (0.03)	0.02 (0.02)
Diesel																		
HC (total)	11	j					2.00	1.70		0.80						j (0.80)	j	
NMHC	h	j														0.32 (0.46)	j	
NMOG	h	j															j (0.23)	0.13 (0.16)
CO	80	j					20.00	18.00		10.00						4.40 (6.40)	j	3.40 4.20
NO_x	4	j					3.10	2.30					2.30	1.70		j (0.98)	j (0.60)	0.14 (0.20)
Particulates	h	j							0.60			0.50	0.45		0.13	j (0.10)	j (0.08)	0.02 (0.02)
Formaldehyde	h	j															j (0.03)	0.02 (0.02)
LDT3 weight criteria[e]		GVWR up through 6,000 pounds						GVWR up through 8,500 pounds					Any ALVW			ALVW up through 5,750 pounds		
													GVWR 6,001-8,500 pounds					
Test procedure[b]		7-mode		CVS-72		CVS-75												
Useful life, intermediate[c,f]		j														5 years/50,000 miles		
Useful life, full		5 years/50,000 miles									11 years/120,000 miles							

KEY: ALVW=adjusted loaded vehicle weight; CO = carbon monoxide; GVWR=gross vehicle weight rating; HC = hydrocarbons; NMHC=nonmethane hydrocarbon; NMOG=nonmethane organic gases; NOx=nitrogen oxides.

[a] Light-duty truck categories LDT1-LDT4 were not created until 1994. From 1968 to 1978 all trucks with a GVWR up to 6,000 pounds were classified as light-duty trucks and were required to meet the same standards. As of 1979, the maximum weight was raised to 8,500 pounds GVWR. During 1988-93, light-duty trucks were divided into two subcategories that coincide with the current LDT1-LDT4 categories. The standards for LDT1, LDT2, and LDT4 are given in tables 4-31, 4-32, and 4-34.

[b] The test procedure for measuring exhaust emissions has changed several times over the course of vehicle emissions regulation. The 7-mode procedure was used through model year 1971 and was replaced by the CVS-72 procedure beginning in model year 1972. The CVS-75 procedure became the test procedure as of model year 1975. While it may appear that the total HC and CO standards were relaxed in 1972-74, these standards were actually more stringent due to the more stringent nature of the CVS-72 test procedure. Additional standards for CO and composite standards for NMHC and NOx tested over the new Supplemental Federal Test Procedure will be phased-in beginning with model year 2002. These standards are not shown in this table.

[c] Emissions standards had to be met for a full useful life of 5 years/50,000 miles through model year 1983, and a full useful life of 11 years/120,000 miles was defined for 1985-93 (several useful life options were available for 1984). Beginning in model year 1996, emissions standards were established for an intermediate useful life of 5 years/50,000 miles as well as a full useful life of 11 years/120,000 miles (intermediate and full useful life standards are shown in parentheses). This applied to all pollutants except HC and particulates for all LDT3 vehicles and NOx for diesel-powered LDT3 vehicles, which were only required to meet full useful life standards. Tier 1 exhaust standards were phased-in during 1996-97 at a rate of 50% and 100%, respectively.

[d] The cold CO emissions standard is measured at 20 ^{0}F (rather than 75 ^{0}F) and is applicable for a 5-year/50,000-mile useful life

[e] GVWR is the maximum design loaded weight. ALVW is the numerical average of the GVWR and the curb weight.

[f] Manufacturers can opt to certify vehicles for a full useful life of 15 years/150,000 miles and either have (1) intermediate useful life standards waived or (2) receive additional NO_x credits.

[g] The "Prior to controls" column reports emissions estimates of a typical newly manufactured car in the years before exhaust emissions certifcation standards were implemented

[h] No estimate available.

[i] In 1968-69, exhaust emissions standards were issued in parts per million rather than grams per mile and are, therefore, incompatible with this table

[j] No standard has been set.

[k] The term "tier" refers to a level of standards for specific years. Interim 2 refers to an intermediate level of standards that moves manufacturers toward compliance with Tier 2 standards. Interim Tier 2 and Tier 2 standards are established as "bins." Each bin is a set of standards for NOx, CO, NMOG, formaldehyde, and particulates (HC and NMHC standards are dropped for Tier 2 and Interim Tier 2). Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weighted corporate average NOx standard is met for full useful life. The Tier 2 corporate average NOx standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim corporate sales-weighted average for LDT3 vehicles is 0.6 grams/mile. Tier 2 LDT3 standards will be phased in during 2008 and 2009. In 2008, 50% of LDT3 vehicles must meet Tier 2 standards; the others must meet Interim Tier 2 standards. Beginning in 2009, all LDT3 vehicles must meet Tier 2 standards.

SOURCES

40 CFR 86, Subpart A (July 1, 2000).

Federal Register, Vol. 65, No. 28, pp. 6851-6858.

Table 4-34: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light-Duty Trucks (Category LDT4) [a,b,c] (Grams per mile)

Engine type and pollutant	Prior to control[g]	1968-1969	1970-1971	1972	1973-1974	1975	1976-1978	1979-1981	1982-1983	1984	1985-1986	1987	1988-1989	1990	1991-1995	Tier 1[k] 1996-2007	Interim Tier 2[k] 2008	Tier 2k 2009+
Gasoline																		
HC (total)	11	[i]	2.20	3.40		2.00		1.70		0.80						[j] (0.80)	[j]	
NMHC	[h]	[j]														0.39 (0.56)	[j]	
NMOG	[h]	[j]															0.16 (0.23)	0.13 (0.16)
CO	80	[i]	23.00	39.00		20.00		18.00		10.00						5.00 (7.30)	4.4 (6.40)	3.40 (4.20)
Cold-temp. CO[d]	[h]	[j]														12.50 [j]		
NO_x	4	[i]			3.00	3.10		2.30					2.30	1.70		1.10 (1.53)	0.4 (0.60)	0.14 (0.20)
Particulates	[h]	[j]														[j] (0.12)	0.08 (0.08)	0.02 (0.02)
Formaldehyde	[h]	[j]															0.02 (0.03)	0.02 (0.02)
Diesel																		
HC (total)	11	[i]					2.00	1.70		0.80						[j] (0.80)	[j]	
NMHC	[h]	[j]														0.39 (0.56)	[j]	
NMOG	[h]	[j]															[j] (0.23)	0.13 (0.16)
CO	80	[i]					20.00	18.00		10.00						5.00 (7.30)	[j] (6.40)	3.4 (4.20)
NO_x	4	[i]					3.10	2.30					2.30	1.70		[j] (1.53)	[j] (0.60)	0.14 (0.20)
Particulates	[h]	[j]							0.60			0.50	0.45		0.13	[j] (0.12)	[j] (0.08)	0.02 (0.02)
Formaldehyde	[h]	[j]															[j] (0.03)	0.02 (0.02)
LDT4 weight criteria[e]		GVWR up through 6,000 pounds						GVWR up through 8,500 pounds					Any ALVW			ALVW over 5,750 pounds		
													GVWR 6,001-8,500 pounds					
Test procedure[b]		7-mode		CVS-72		CVS-75												
Useful life, intermediate[c,f]		[j]														5 years/50,000 miles		
Useful life, full		5 years/50,000 miles									11 years/120,000 miles							

KEY: ALVW=adjusted loaded vehicle weight; CO = carbon monoxide; GVWR=gross vehicle weight rating; HC = hydrocarbons; NMHC=nonmethane hydrocarbon; NMOG=nonmethane organic gases; NOx=nitrogen oxides.

[a] Light-duty truck categories LDT1-LDT4 were not created until 1994. From 1968 to 1978 all trucks with a GVWR up to 6,000 pounds were classified as light-duty trucks and were required to meet the same standards. As of 1979, the maximum weight was raised to 8,500 pounds GVWR. During 1988-93, light-duty trucks were divided into two subcategories that coincide with the current LDT1-LDT4 categories. The standards for LDT1, LDT2, and LDT3 are given in tables 4-31, 4-32, and 4-33.

[b] The test procedure for measuring exhaust emissions has changed several times over the course of vehicle emissions regulation. The 7-mode procedure was used through model year 1971 and was replaced by the CVS-72 procedure beginning in model year 1972. The CVS-75 procedure became the test procedure as of model year 1975. While it may appear that the total HC and CO standards were relaxed in 1972-74, these standards were actually more stringent due to the more stringent nature of the CVS-72 test procedure.

Additional standards for CO and composite standards for NMHC and NOx tested over the new Supplemental Federal Test Procedure will be phased-in beginning with model year 2002. These standards are not shown in this table.

[c] Emissions standards had to be met for a full useful life of 5 years/50,000 miles through model year 1983, and a full useful life of 11 years/120,000 miles was defined for 1985-93 (several useful life options were available for 1984). Beginning in model year 1996, emissions standards were established for an intermediate useful life of 5 years/50,000 miles as well as a full useful life of 11 years/120,000 miles (intermediate and full useful life standards are shown in parentheses). This applied to all pollutants except HC and particulates for all LDT4 vehicles and NOx for diesel-powered LDT4 vehicles, which were only required to meet full useful life standards. Tier 1 exhaust standards were phased-in during 1996-97 at a rate of 50% and 100%, respectively.

[d] The cold CO emissions standard is measured at 20 ^{0}F (rather than 75 ^{0}F) and is applicable for a 5-year/50,000-mile useful life.

[e] GVWR is the maximum design loaded weight. ALVW is the numerical average of the GVWR and the curb weight.

[f] Manufacturers can opt to certify vehicles for a full useful life of 15 years/150,000 miles and either have (1) intermediate useful life standards waived or (2) receive additional NOx credits.

[g] The "Prior to control" column reports emissions estimates of a typical newly manufactured car in the years before exhaust emissions certification standards were implemented.

[h] No estimate available.

[i] In 1968-69, exhaust emissions standards were issued in parts per million rather than grams per mile and are, therefore, incompatible with this table.

[j] No standard has been set.

[k] The term "tier" refers to a level of standards for specific years. Interim 2 refers to an intermediate level of standards that moves manufacturers toward compliance with Tier 2 standards. Interim Tier 2 and Tier 2 standards are established as "bins." Each bin is a set of standards for NOx, CO, NMOG, formaldehyde, and particulate matter (HC and non-methane HC standards are dropped for Tier 2 and interim Tier 2). Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weighted corporate average NOx standard is met for full useful life. The Tier 2 corporate average NOx standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim corporate sales-weighted average for LDT4 vehicles is 0.6 grams/mile. Tier 2 standards will be phased in during 2008 and 2009. In 2008, 50% of LDT4 vehicles must meet Tier 2 standards; the others must meet Interim Tier 2 standards. Beginning in 2009, all LDT4 vehicles must meet Tier 2 standards.

SOURCES

40 CFR 86, Subpart A (July 1, 2000).

Federal Register, Vol. 65, No. 28, pp. 6851-6858.

Table 4-35: Federal Exhaust Emission Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Medium-Duty Passenger Vehicles (MDPV)[a,b]
(Grams per mile)

	Interim Tier 2[f]		Tier 2[f]	
Engine type and pollutant	2004	2008	2009+	
Gasoline				
NMOG	0.195	-0.280	0.125	-0.156
CO	5.000	-7.300	3.400	-4.200
Cold-temp. CO[c]	12.500			
NO_x	0.600	-0.900	0.140	-0.200
Particulates	0.120	-0.120	0.020	-0.020
Formaldehyde	0.022	-0.032	0.015	-0.018
Diesel				
HC	1.3 g/bhp-hr			
NMHC + NO_x	2.4 g/bhp-hr			
NMOG		[g] (0.280)	0.125	(0.156)
CO	15.5 g/bhp-hr	[g] (7.300)	3.400	(4.200)
NO_x	4.0 g/bhp-hr	[g] (0.900)	0.140	(0.200)
Particulates	0.10 g/bhp-hr	[g] (0.120)	0.020	(0.020)
Formaldehyde		[g] (0.032)	0.015	(0.018)
Smoke opacity (acceleration / lugging / peak)[d]	20/15/50			
Weight Criteria	Greater than 8,500 pounds GVWR; less than 10,000 pounds GVWR			
Test procedure, gasoline	CVS-75			
Test procedure, diesel	EPA Transient	CVS-75		
Useful life-gasoline, intermediate[b,e]	5 years/50,000 miles			
Useful life-gasoline, full	11 years/120,000 miles			
Useful life-diesel, intermediate[b,e]	[g]		5 years/50,000 miles	
Useful life-diesel, full	8 years/110,000 miles	11 years/120,000 miles		

KEY: CO = carbon monoxide; g/bhp-hr = grams per brake horsepower/hour; GVWR = gross vehicle weight rating; HC = hydrocarbons; NMHC=nonmethane hydrocarbon; NMOG = nonmethane organic gases; NOx = nitrogen oxides.

[a] The MDPV category was created for the Interim Tier 2 and Tier 2 vehicle emissions standards. This category was specifically designed to help bring passenger vehicles (such as large sport utility vehicles and passenger vans) over 8,500 pounds GVWR into the Tier 2 program. MDPVs are defined as any complete heavy-duty vehicle less than 10,000 pounds GVWR designed primarily for transportation of persons, including conversion vans (i.e., vans which are intended to be converted to vans used primarily for transporting people). This does not include vehicles that have 1) a capacity of more than 12 persons total, or 2) are designed to accommodate more than 9 persons seated rearward of the driver's seat, or 3) have a cargo box (i.e., a pickup-bed or box) of six feet or more in interior length. Prior to Tier 2 standards, these vehicles would have been regulated as light heavy-duty trucks.

[b] Diesel MDPVs can continue to use light heavy-duty truck standards for new vehicle certification until 2008. Note that these standards are measured in grams per brake horsepower-hour (g/bhp-hr). Beginning in 2008, MDPVs must use the same on-chassis testing procedure as heavy light-duty trucks (catgories LDT3 and LDT4) and must meet standards for MDPVs. Beginning in 2009, MDPVs must meet the same standards as light heavy-duty trucks, except MDPVs are not required to meet Supplemental Federal Test Procedure standards.

[c]The cold CO emissions standard is measured at 20 ^{0}F (rather than 75 ^{0}F) and is applicable for a full useful life of 5-years/50,000-miles.

[d] Smoke opacity is expressed as a percentage for acceleration, lugging, and peak operation modes. Lugging occurs when a vehicle is carrying a load.
[e]Manufacturers can opt to certify vehicles for a useful life of 15 years/150,000 miles and have either 1) intermediate useful life standards waived or 2) receive additional NO_x credits.

[f]The term "tier" refers to a level of standards for specific years. Interim 2 refers to an intermediate level of stndards that moves manufacturers toward compliance with Tier 2 standards. Tier 2 and interim Tier 2 standards are established as "bins." Each bin is a set of standards for NO_x, CO, NMOG, formaldehyde, and particulates (HC and NMHC standards are dropped for Tier 2 and Interim Tier 2). Manufacturers may certify any given vehicle family to any of the bins available for that vehicle class as long as the resulting sales-weighted corporate average NO_x standard is met for full useful life. The Tier 2 corporate average NO_x standard is 0.07 grams/mile. Interim corporate-based average NOx standards are based on vehicle type. The interim corporate sales-weighted average for MDPVs is 0.6 grams/mile. Tier 2 MDPV standards will be phased in during 2008 and 2009. In 2008, 50% of MDPVs must meet Tier 2 standards; the other 50% of MDPVs must meet interim Tier 2 standards. Beginning in 2009, all MDPVs must meet Tier 2 standards.

[g]Diesel MDPVs are not required to meet intermediate life standards during this time period

SOURCE
40 CFR 86, Subpart A (July 1, 2000) Federal Register, Vol. 65, No. 28, pp. 6851-6858.

Table 4-36: Federal Exhaust Emissions Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Light Heavy-Duty Trucks (Grams per brake horsepower-hour)

Engine type and pollutant	1970-73	1974-78	1979-83	1984	1985-86	1987	1988-89	1990	1991-93	1994-97	1998-2003	2004	2005-06	2007	2008+
Gasoline															
HC + NO_x	j	16	10		j										
NO_x + NMHC	j												1.0		j
NMHC	j														0.14
HC	k	j	1.5		1.9	1.1							j		
NO_x	j				10.6			6.0	5.0		4.0		j		0.20
CO	k	40	25		37.1	14.4									
Particulates	j														0.01
Diesel															
HC + NO_x	j	16	10	j											
HC	k	j	1.5	1.3								j			
NO_x	j			10.7				6.0	5.0		4.0	j		0.20	
NO_x + NMHC	j											2.4[l]		j	
NMHC	j													0.14	
CO	k	40	25	15.5											
Particulates	j						0.60		0.25	0.10				0.01	
Smoke opacity (acceleration / lugging / peak)[a]	40/20/[j]	20/15/50													
Weight criteria for light heavy-duty trucks[b]	GVWR over 6,000 lbs		GVWR over 8,500 lbs			GVWR 8,501 through 14,000 lbs									
Test procedure, gasoline[c]	9-mode steady-state				MVMA transient										
Test procedure, diesel[c]	13-mode steady-state			EPA transient											
Useful life (gasoline)[d]	5 years/50,000 miles				8 years/110,000 miles							10 years/110,000 miles			

Complete Vehicles - (Grams per mile)[e,f]

Weight range and pollutant	2005-06	2007	2008+
GVWR 8,500 through 10,000 lbs			
NMOG[g]	0.28		e
NMHC[h]	e		0.195
CO	7.3		
NO_x	0.9		0.2
Particulates	e		0.02
HCHO	e		0.032
GVWR 10,001 lbs through 14,000 lbs			
NMOG[i]	0.33		e
NMHC[j]	e		0.230
CO	8.1		
NO_x	1.0		0.4
Particulates	e		0.02
HCHO	e		0.040
Test procedure[l]	EPA HD-UDDS		

KEY: CO = carbon monoxide; HC = hydrocarbon; NO_x = nitrogen oxides; NMHC = nonmethane hydrocarbons; NMOG = nonmethane organic gas; HCHO = formaldeyhyde.

[a] Smoke opacity is expressed in percentage for acceleration, lugging, and peak modes (acceleration/lugging/peak). Lugging is when a vehicle is carrying a load.
[b] Gross vehicle weight rating (GVWR) is the maximum design loaded weight.

[c] Several testing procedures have been used during the course of exhaust emissions control. A steady-state 9-mode test procedure (13-mode for diesel) was used for 1970-83 standards. For 1984, either the steady-state tests or the U.S. Environmental Protection Agency (EPA) transient test procedure could be used. For diesels, the EPA transient test was required from 1985 to the present. For gasoline-powered vehicles, either the EPA or the Motor Vehicle Manufacturers Association (MVMA) transient test procedure could be used during 1985-86, and the MVMA procedure was required thereafter.

[d] Emissions standards apply to the useful life of the vehicle. Useful life was 5 years/50,000 miles through 1983 and became 8 years/110,000 miles beginning in model year 1985. 1984 was a transitional year in which vehicles could meet the older standard (and test procedure) or the newer one. Useful life requirement for gasoline-powered trucks meeting NOx standards for 1998 and after is 10 years/110,000 miles. Starting in 2004, the useful life will be 10 years/110,000 miles. The useful life requirements for heavy-duty diesel truck standards are more complex and vary by vehicle weight, pollutant, test procedure, and year. Consult the U.S. Code of Federal Regulations for further information.
[e] No standard set.

[f] Although emissions standards for HC and CO were in effect for these years, they were not measured in grams per brake horsepower-hour and are, therefore, incompatible with the engine certification section of this table.
[g] Vehicles can meet a NMHC + NO_x standard of 2.5 g/bhp-h, given they meet a NMHC standard of no more than 0.5 g/bhp-h.
[h] Starting in 2005, complete gasoline heavy-duty vehicles of 14,000 lbs GVWR or below will have to be chassis certified.
[i] The manufacturer has the option of satisfying this standard by measurement of nonmethane hydrocarbons or total hydrocarbons.
[j] The manufacturer has the option of satisfying this standard by measurement of nonmethane organic gas or total hydrocarbons.
[k] This test procedure currently exists to test complete vehicles that have been optionally chassis certified. However, chassis certification is not required until 2005.
[l] Required for complete gasoline heavy-duty vehicles only.

NOTE
Tables 4-32a and 4-32b are identical for heavy-duty diesel engines.

SOURCES
40 CFR 86, Electronic Code of Federal Regulations, Internet site at http://www.access.gpo.gov/nara/cfr/cfrhtml_00/Title_40/40cfr86_00.html as of Oct. 9, 2001.
U.S. Environmental Protection Agency, Office of Transportation and Air Quality, personal communication, October 2001.

Table 4-37: Federal Exhaust Emissions Certification Standards for Newly Manufactured Gasoline- and Diesel-Powered Heavy-Duty Trucks (Grams per brake horsepower-hour)

Engine type and pollutant	1970-73	1974-78	1979-83	1984	1985-86	1987	1988-89	1990	1991-93	1994-97	1998-2003	2004	2005-06	2007	2008+
Gasoline															
HC + NO_x	e	16	10		e										
NOx + NMHC	e												1.0		e
NMHC	e														0.14
HC	f	e	1.5		1.9								e		
NO_x	e				10.6			6.0	5.0		4.0		e		0.20
CO	f	40	25		37.1										14.4
Particulates	e														0.01
Diesel															
HC + NO_x	e	16	10	e											
HC	f	e	1.5	1.3								e			
NO_x	e			10.7				6.0	5.0		4.0	e		0.20	
NOx + NMHC	e											2.4[g]		e	
NMHC														0.14	
CO	f	40	25	15.5											
Particulates	e						0.60		0.25	0.10				0.01	
Smoke opacity (acceleration / lugging / peak)[a]	40/20[e]	20/15/50													
Weight criteria for heavy heavy-duty trucks[b]	GVWR over 6,000 lbs		GVWR over 8,500 lbs			GVWR over 14,000 lbs									
Test procedure, gasoline[c]	13-mode steady-state				MVMA transient										
Test procedure, diesel[c]	13-mode steady-state			EPA transient											
Useful life (gasoline)[d]	5 years/50,000 miles				8 years/110,000 miles							10 years/110,000 miles			

KEY: CO = carbon monoxide; HC = hydrocarbon; NO_x = nitrogen oxides; NMHC = nonmethane hydrocarbons.

[a] Smoke opacity is expressed in percentage for acceleration, lugging, and peak modes (acceleration/lugging/peak). Lugging is when a vehicle is carrying a load.

[b] Gross vehicle weight rating (GVWR) is the maximum design loaded weight.

[c] Several testing procedures have been used during the course of exhaust emissions control. A steady-state 9-mode test procedure (13-mode for diesel) was used for 1970-83 standards. For 1984, either the steady-state tests or the U.S. Environmental Protection Agency (EPA) transient test procedure could be used. For diesels, the EPA transient test was required from 1985 to the present. For gasoline-powered vehicles, either the EPA or the Motor Vehicle Manufacturers Association (MVMA) transient test procedure could be used during 1985-86, and the MVMA procedure was required thereafter.

[d] Emissions standards apply to the useful life of the vehicle. Useful life was 5 years/50,000 miles through 1983 and became 8 years/110,000 miles beginning in model year 1985. 1984 was a transitional year in which vehicles could meet the older standard (and test procedure) or the newer one. Useful life requirement for gasoline-powered trucks meeting NOx standards for 1998 and after is 10 years/110,000 miles. Starting in 2004, the useful life will be 10 years/110,000 miles. The useful life requirements for heavy-duty diesel truck standards are more complex and vary by vehicle weight, pollutant, test procedure, and year. Consult the U.S. Code of Federal Regulations for further information.

[e] No standard set.

[f] Although emissions standards for HC and CO were in effect for these years, they were not measured in grams per brake horsepower-hour and are, therefore, incompatible with this table.

[g] Vehicles can meet a NMHC + NO_x standard of 2.5 g/bhp-h, given they meet a NMHC standard of no more than 0.5 g/bhp-h.

NOTE

Tables 4-32a and 4-32b are identical for heavy-duty diesel engines.

SOURCES

40 CFR 86, Electronic Code of Federal Regulations, internet site at http://www.access.gpo.gov/nara/cfr/cfrhtml_00/Title_40/40cfr86_00.html as of Oct. 9, 2001.
U.S. Environmental Protection Agency, Office of Transportation and Air Quality, personnal communication, Oct. 2001.

Table 4-38: Federal Exhaust Emissions Standards for Newly Manufactured Motorcycles[a] (g/km)[b]

Pollutant		Engine displacement	Emissions prior to controls[c]	1978-79	1980-89	1990-96	1997+
Gasoline-powered							
HC		50-169 cc	1.0-13.8	5			
		170-749 cc		5 + 0.0155(D-170)[d]	5.0		
		750 cc and greater		14	5.0		
CO		50 cc and greater	11.0-31.0	17	12		
Methanol-powered							
Total HC equivalent		50 cc and greater				5.0	
CO		50 cc and greater				12	
Natural gas and LPG-powered							
HC		50 cc and greater					5.0
CO		50 cc and greater					12
Useful life	(Class I)	50-169 cc		5 years or 12,000 km (7,456 mi), whichever comes first			
	(Class II)	170-279 cc		5 years or 18,000 km (11,185 mi), whichever comes first			
	(Class III)	280 cc and greater		5 years or 30,000 km (18,641 mi), whichever comes first			

KEY: cc = cubic centimeters; D = engine displacement; g = gram; HC = hydrocarbon; h = hour; kg = kilogram; km = kilometer; lb = pound; LPG = liquefied petroleum gas; mi = miles; mph = miles per hour.

[a] A motorcycle is any motor vehicle with a headlight, taillight, and stoplight, and having two or three wheels and a curb mass less than or equal to 793 kg (1,749 lb). (The limit was 680 kg, or 1,499 lb prior to the 1998 model year.) A motorcycle is excluded from the standards if it has a displacement of less than 50 cc (3.1 cubic inches) or if with a 80 kg (176 lb) driver it cannot start from a dead stop using only the engine or exceed a speed of 40 km/h (25 mph) on a level, paved surface.

[b] Readers who wish to compare motorcycle regulations with passenger car and truck regulations should note that 5.0 g/km = 8.0 g/mi and 12 g/km = 19 g/mi. The formula for 1978-79 HC emissions by motorcycles 170-749 cc becomes, in g/mi., approximately 8.0 + 0.025(D-170).

[c] Estimates of emissions rates prior to controls are ranges of emissions for all engine displacements. Not available for motorcycles powered by fuels other than gasoline.

[d] D = engine displacement in cubic centimeters (cc). For example, the standard for a 300 cc engine would be 5.0 + 0.0155(300-170) = 7.0 g/km.

SOURCE:
40 CFR 86 Subpart E (July 1, 2000). U.S. Environmental Protection Agency, Office of Air and Radiation, personal communication, Aug. 28, 2001.

Table 4-39: Federal Exhaust Emissions Standards for Newly Manufactured and In-Use Aircraft Engines[a,b]

Engine type[c]	Pollutant	Year of engine manufacture						
		1974-75	1976-77	1978-82	1983	1984-96	1997-99	2000+
Turboprop								
	Smoke					[g]$187(rO)^{-0.168}$		
Class T3 turbojet								
	CO (g/kN)[d]						118	
	HC (g/kN)[d]					19.6		
	NO_x (g/kN)[d]						[e]40 + 2(rPR)	[f]32 + 1.6(rPR)
	Smoke			25		[h]$83.6(rO)^{-0.274}$		
Class T8 turbojet								
	CO (g/kN)[d]						118	
	HC (g/kN)[d]					19.6		
	NO_x (g/kN)[d]						[e]40 + 2(rPR)	[f]32 + 1.6(rPR)
	Smoke	30				[h]$83.6(rO)^{-0.274}$		
Turbofan and turbojet engines other than Classes T3, T8, and TSS								
	CO (g/kN)[d]						118	
	HC (g/kN)[d]					19.6		
	NO_x (g/kN)[d]						[e]40 + 2(rPR)	[f]32 + 1.6(rPR)
	Smoke		[i]$83.6(rO)^{-0.274}$		[j]$83.6(rO)^{-0.274}$	[h]$83.6(rO)^{-0.274}$		
TSS engines (supersonic aircraft engines)								
	HC (g/kN)					$140(0.92)^{rPR}$		
	Smoke					[h]$83.6(rO)^{-0.274}$		

KEY: CO = carbon monoxide; g = gram; g/kN = grams of pollutant per kilonewtons of thrust; HC = hydrocarbon, kN = kilonewtons; kW = kilowatt; NOx = nitrogen oxides; rO = rated output, which is the maximum power or thrust available for takeoff; rPR = rated pressure ratio.

[a] Federal standards apply to all planes operating in the United States, regardless of where they were manufactured. This table primarily displays exhaust emissions standards for newly manufactured aircraft engines. Only two standards (smoke standards) have been set for in-use aircraft engines (see footnotes i and k). Therefore, unless otherwised noted, emissions in this table apply to new aircraft engines only.

[b] HC, CO, and NOx are measured using the International Civil Aviation Organization (ICAO) Gaseous Emissions Test Procedure. Smoke is measured using the ICAO Smoke Emission Test Procedure. There is no useful life or warranty period for purposes of compliance with emissions standards.

[c] Examples of commercial aircraft that use each engine type include the following:

Class T3 turbojet–Boeing 707-320s (Class T3 engines are currently out of production, though some are still in use).
Class T8 turbojet–Boeing 727s and 737-200s, and McDonnell-Douglas MD-80s and DC-9s.
Turbofans and turbojets other than T3, T8, and TSS–Boeing 747-400s, 757s, 767-200s and 777s, and McDonnell-Douglas MD-11s; Canadair Regional Jets.
Turboprops–Used mostly in regional airliners such as ATR 72, Dornier 328, and Saab SF 340.

TSS–British Aircraft Corp./Aerospatiale Concorde (the only supersonic aircraft currently used in commercial civil aviation).

[d] Applies to engines with rO>26.7 kN.

[e] Effective as of July 7, 1997. This standard applies only to those engines of a type or model for which the date of manufacture of the first individual production model was on or before Dec. 31, 1995 and for which the date of manufacture of the individual engine was on or before Dec. 31, 1999.

[f] Effective as of July 7, 1997. This standard also applies to engines of a type or model for which the date of manufacture of the first individual production model was after Dec. 31, 1995 and for which the date of manufacture of the individual engine was after Dec. 31, 1999.

[g] Engines with rO>=1,000 kW.

[h] Engines manufactured on or after Jan. 1, 1984 and with rO>=26.7 kN. Smoke number may not exceed 50.

[i] Engines with rated output rO>=129 kN. This is also the in-use standard for all such aircraft engines.

[j] Engines with rO<26.7 kN. Smoke number may not exceed 50.

[k] Class T8 turbojet engines shall not exceed a smoke number of 30 beginning Feb. 1, 1974.

SOURCE:

40 CFR 87, Subparts A-D (July 1, 2000), and U.S. Environmental Protection Agency, Office of Air and Radiation, personal communication, Aug. 28, 2001.

Table 4-40: Federal Exhaust Emissions Standards for Locomotives[a] (g/bhph except where noted)

Pollutant	Duty-cycle [f]	Tier 0 1973-2001[h]	Tier 1 2002-2004	Tier 2 2005+
Total HC[b]	Line-haul	1.00	0.55	0.30
	Switch	2.10	1.20	0.60
Nonmethane HC[c]	Line-haul	1.00	0.55	0.30
	Switch	2.10	1.20	0.60
Total HC equivalent[d]	Line-haul	1.00	0.55	0.30
	Switch	2.10	1.20	0.60
CO	Line-haul	5.0	2.2	1.5
	Switch	8.0	2.5	2.4
	Line-haul (optional standard) [g]	10.0	10.0	10.0
	Switch (optional standard) [g]	12.0	12.0	12.0
NO_x	Line-haul	9.5	7.4	5.5
	Switch	14.0	11.0	8.1
Particulates	Line-haul	0.60	0.45	0.20
	Switch	0.72	0.54	0.24
	Line-haul (optional standard) [g]	0.30	0.22	0.10
	Switch (optional standard) [g]	0.36	0.27	0.12
Smoke opacity (% opacity-normalized) [h]	Steady-state	30%	25%	20%
	30-second peak	40%	40%	40%
	3-second peak	50%	50%	50%
Useful life		7.5 MWh per hp or 10 years [i, j]		

KEY: bhp = brake horsepower; bhph = brake horsepower hour; CO = carbon monoxide; g = gram; h = hour; MW = megawatt; MWh = megawatt hour; NOx = nitrogen oxides; PM = particulate matter.

[a] Locomotive standards apply to both new and remanufactured locomotives, except as noted.

[b] The line-haul duty-cycle is weighted toward operation in the higher power notches and is typical of line-haul applications. The switch duty-cycle is typical of switch operations, with more emphasis on idle and low power notch emissions. Locomotives generally are required to meet the standards for both duty-cycles. However, Tier 0 dedicated switch locomotives rated at 2,300 hp or less are only required to meet the switch duty-cycle standard.

[c] Tier 0 standards apply to all new production locomotives in the 2001 model year, as well as for any 1994 through 2001 model year freight locomotives remanufactured on or after Jan. 1, 2001. They also apply to all other 1973 through 2001 model year locomotives remanufactured on or after Jan. 1, 2002. Other phase-in options are also available for manufacturers (see 40 CFR 92 for more detail on phase-in options).

[d] Total HC standards apply to locomotives powered by any fuel except alcohol or natural gas or fuels primarily composed of alcohol or natural gas.

[e] Nonmethane HC standards apply to locomotives powered by natural gas or fuels that are primarily composed of natural gas.

[f] Total HC equivalent standards apply to locomotives powered by alcohol or fuels that are primarily composed of alcohol.

[g] Manufacturers and remanufacturers can elect to comply with the alternate CO and PM standards. However, a manufacturer or remanufacturer using the alternate standards must meet both the CO and the PM standards. This allows locomotives to have higher CO emissions in exchange for meeting more stringent PM standards.

[h] Smoke opacity values are normalized to be equivalent to a 1 meter path length.

[i] For Tier 0 locomotives not equipped with MW/h meters, the minimum useful life is 750,000 miles or 10 years, whichever comes first.

[j] This is a minimum standard. The certifying manufacturer or remanufacturer must specify a longer useful life if the locomotive or locomotive engine is designed to last longer than the applicable minimum useful life.

SOURCE: 40 CFR 92, Jul. 1, 2000, and U.S. Environmental Protection Agency, Office of Air and Radiation, personal communication, Aug. 28, 2001.

Table 4-41: Federal Exhaust Emissions Standards for Newly Manufactured Marine Spark-Ignition Outboard, Personal Watercraft[e], and Jet-Boat Engines[a] (g/kWh)

Year	HC + NOx (g/kWh)		Warranty period	Useful life[d]
	Rated power < 4.3 kW	Rated power >= 4.3 kW [c,d]		
1998[b]	278.00	$(0.917 \times (151 + 557/P^{0.9})) + 2.44$	1 yr for all emissions-related components	Outboard engines: 350 hr/10 yr; Personal watercraft: 350 hr/5 yr
1999	253.00	$(0.833 \times (151 + 557/P^{0.9})) + 2.89$		
2000	228.00	$(0.750 \times (151 + 557/P^{0.9})) + 3.33$		
2001	204.00	$(0.667 \times (151 + 557/P^{0.9})) + 3.78$	1 yr for all emission-related components; 3 yr/200 hr for specified major emissions control components	
2002	179.00	$(0.583 \times (151 + 557/P^{0.9})) + 4.22$		
2003	155.00	$(0.500 \times (151 + 557/P^{0.9})) + 4.67$		
2004	130.00	$(0.417 \times (151 + 557/P^{0.9})) + 5.11$	2 yr/200 hr for all emissions-related components; 3 yr/200 hr for specified major emissions control components	
2005	105.00	$(0.333 \times (151 + 557/P^{0.9})) + 5.56$		
2006+	81.00	$(0.250 \times (151 + 557/P^{0.9})) + 6.00$		

KEY: g = gram; hr = hour; HC = hydrocarbon; hp = horsepower; kW = kilowatt; kWh = kilowatt hour; NOx = nitrogen oxide; yr = year.

[a] The standards apply to marine spark-ignition outboard, personal watercraft, and jet-boat engines only. There are currently no federal standards for marine spark-ignition sterndrive/inboard engines (previously proposed standards have not been finalized). Marine compression-ignition engines under 50 hp are covered under the proposed nonroad compression-ignition engine standards. Federal standards are in development for marine compression-ignition engines over 50 hp.

[b] P = the average power of the engine family in kilowatts (sales-weighted).

[c] As an example, the standards for an outboard engine of 125 hp (just over 93 kW) would be 149.53 g/kWh in 1998, 123.63 g/kWh in 2000, 97.74 g/kWh in 2002, 72.00 g/kWh in 2004, and 46.10 g/kWh in 2006.

[d] All emissions standards must be met for the useful life of the engine.

[e] The standards for personal watercraft did not go into effect until 1999, although the standard went into effect for outboard engines in 1998.

SOURCE:
40 CFR 91 July 1, 2000 edition, pp. 301-302, 398, and U.S. Environmental Protection Agency, Office of Air and Radiation, personal communication, Aug. 28, 2001.

Table 4-42: Tier 2 Federal Exhaust Emissions Standards for Newly Manufactured Commercial Marine Compression-Ignition Engines[a,b]

Engine category[c]	Displacement (liters/cylinder)	Rated power (kW)	Year	NOx + THC (g/kW-hr)	PM (g/kW-hr)	CO (g/kW-hr)	Useful Life[d]	Warranty Period
1	< 0.9	37 kW and above	2005	7.5	0.40	5.0	10 yrs or 10,000 hrs operation	5 yrs or 5,000 hrs operation
	0.9 to < 1.2		2004	7.2	0.30			
	1.2 to < 2.5		2004	7.2	0.20			
	2.5 to < 5.0		2007	7.2	0.20			
2	5.0 to < 15.0	37 kW and above	2007	7.8	0.27	5.0	10 yrs or 20,000 hrs operation	5 yrs or 10,000 hrs operation
	15.0 to < 20.0	37 kW to < 3,300 kW		8.7	0.50			
	15.0 to < 20.0	3,300 kW and above		9.8	0.50			
	20.0 to < 25.0	37 kW and above		9.8	0.50			
	25.0 to < 30.0	37 kW and above		11.0	0.50			
3	30 and above	37 kW and above	No Tier 2 emissions standards have been set for Category 3 commercial marine vessels.					

KEY: CO=carbon monoxide; disp=displacement; g/kW-hr=gram per kilowatt-hour; hrs=hours;kW=kilowatt; NOx=nitrogen oxides; PM=particulate matter; THC=total hydrocarbons; yrs=years.

[a] Tier 2 emissions standards established by Congress apply to commercial compression-ignition (diesel) engines with a power rating of at least 37 kW. Both propulsion and auxiliary engines are covered under these standards, but land-based engines used in portable auxiliary equipment must meet standards for land-based engines. Smaller compression-ignition engines are covered under a separate rule. The U.S. Environmental Protection Agency (EPA) also intends to regulate recreational marine diesel engine emissions under a separate rule and is establishing provisions to allow exemptions for category 1 and 2 engines used as auxiliary engines in U.S.-flagged vessels engaged in foreign trade or overseas operations at least 75 percent of the time (i.e., operation will occur more than 320 nautical kilometers outside the United States, not including trips between U.S. ports in Alaska, Hawaii, the continental United States, or its territories).

[b] MARPOL Annex VI nitrogen oxide (NOx) standards (international standards adopted by the International Maritime Convention on the Prevention of Pollution from Ships) are referred to as Tier 1 emissions standards. These standards apply to any diesel engine over 130 kW installed on a vessel constructed on or after Jan. 1, 2000 and to any engine that undergoes major conversion after that date. MARPOL standards are currently voluntary for ships engaged in domestic travel but will be required for ships engaged in foreign trade with countries that ratify MARPOL standards. Although they have not yet been ratified by the United States, the EPA encourages engine manufacturers to make compliant engines and encourages owners to purchase them. If ratified by the United States, MARPOL Annex VI NOx standards will be retroactively effective Jan. 1, 2000.

[c] Emissions standards are based on displacement/cylinder and rated power. The three standards categories are as follows:

Category 1 (< 5 liters displacement/cylinder and rated power >=37 kW): These engines are typically used as propulsion engines on relatively small commercial vessels (fishing vessels, tugboats, crewboats, etc.). They are also used as auxiliary engines on vessels of all sizes and applications.

Category 2 (>= 5 liters displacement/cylinder to < 30 liters displacement/cylinder and rated power >=37 kW): The largest engines that are widely used as propulsion engines in harbor and coastal vessels in U.S. waters. These engines also provide auxiliary power on very large vessels. Many of these engines are of similar size and configuration as locomotive engines or use comparable emissions control technologies.

Category 3 (>= 30 liters displacement/cylinder and rated power .=37kW): These are very large high-power engines that are used almost exclusively for propulsion on vessels engaged in international trade.

[d] Manufacturers must demonstrate that the engine or engine family will meet all standards for its useful life. Certification for useful life is accomplished by testing a sample of engines. The warranty period applies to each engine manufactured. The manufacturer of each engine must provide a warranty to the ultimate purchaser or owner (and each subsequent purchaser or owner) that the engine is designed, built, and equipped so as to conform at the time of sale with Tier 2 standards and is free from defects in materials and workmanship that would cause the engine to fail to conform to these standards for the warranty period. Furthermore, this warranty cannot be shorter than any mechanical warranty on the engine and must be at least one half of the useful life period.

SOURCE:

Federal Register, Vol. 64, No. 249, Dec. 29, 1999, pp 73,299 to 73,373, and U.S. Environmental Protection Agency, Office of Air and Radiation, personal communication, Aug. 28, 2001.

Table 4-43: Estimated National Average Vehicle Emissions Rates per Vehicle by Vehicle Type using Gasoline and Diesel (Grams per mile)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
GASOLINE (assuming zero RFG)																					
Light-duty vehicles																					
Exhaust HC	2.79	2.50	2.23	1.98	1.77	1.57	1.39	1.25	1.14	1.05	0.97	0.89	0.81	0.74	0.61	0.52	0.46	0.42	0.39	0.36	0.33
Nonexhaust HC	1.21	1.17	1.12	1.09	1.07	1.05	1.03	1.01	0.98	0.95	0.91	0.88	0.84	0.81	0.77	0.72	0.68	0.62	0.57	0.51	0.46
Total HC	4.00	3.67	3.35	3.07	2.84	2.62	2.41	2.26	2.12	2.00	1.88	1.77	1.65	1.54	1.37	1.25	1.13	1.04	0.95	0.87	0.79
Exhaust CO	42.89	39.15	35.54	32.23	29.32	26.60	24.18	22.38	20.86	19.54	18.53	17.80	16.98	16.14	13.79	12.57	10.87	10.28	9.68	9.20	8.73
Exhaust NO_x	2.70	2.47	2.27	2.09	1.94	1.78	1.64	1.55	1.46	1.35	1.29	1.25	1.20	1.14	1.00	0.92	0.79	0.73	0.67	0.61	0.56
Light-duty trucks																					
Exhaust HC	3.68	3.33	3.00	2.71	2.45	2.21	1.96	1.80	1.65	1.54	1.45	1.35	1.24	1.13	0.96	0.78	0.69	0.64	0.55	0.51	0.48
Nonexhaust HC	1.37	1.30	1.21	1.17	1.13	1.11	1.08	1.05	1.02	1.00	0.98	0.95	0.90	0.84	0.80	0.76	0.71	0.66	0.62	0.58	0.53
Total HC	5.05	4.63	4.21	3.88	3.59	3.32	3.04	2.85	2.68	2.54	2.43	2.30	2.14	1.98	1.76	1.54	1.40	1.31	1.17	1.09	1.01
Exhaust CO	56.23	51.99	47.93	44.34	40.77	37.51	34.47	32.20	30.23	28.28	26.81	25.43	23.85	21.51	18.76	16.23	14.33	13.52	12.49	11.76	11.02
Exhaust NO_x	2.62	2.42	2.26	2.11	1.98	1.84	1.73	1.65	1.59	1.55	1.54	1.53	1.50	1.45	1.32	1.21	1.09	1.02	0.94	0.88	0.81
Heavy-duty vehicles																					
Exhaust HC	3.66	3.34	3.03	2.76	2.39	2.16	1.94	1.73	1.51	1.35	1.22	1.09	0.98	0.82	0.73	0.64	0.53	0.48	0.42	0.32	0.28
Nonexhaust HC	2.74	2.60	2.34	2.25	2.16	2.07	1.97	1.87	1.79	1.69	1.62	1.54	1.48	1.41	1.35	1.24	1.14	1.07	0.99	0.92	0.86
Total HC	6.40	5.94	5.37	5.00	4.55	4.24	3.91	3.60	3.29	3.04	2.84	2.63	2.46	2.24	2.08	1.88	1.67	1.54	1.41	1.24	1.14
Exhaust CO	85.61	78.64	72.12	65.92	60.01	54.16	48.52	43.26	38.82	34.54	31.08	27.59	24.73	20.60	18.46	16.73	14.51	13.55	12.38	9.96	9.42
Exhaust NO_x	7.19	6.96	6.72	6.52	6.35	6.11	5.89	5.73	5.56	5.40	5.26	5.13	5.01	4.91	4.62	4.28	3.73	3.33	2.94	2.58	2.25
Motorcycles																					
Exhaust HC	2.01	1.88	1.82	1.75	1.72	1.69	1.63	1.63	1.62	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61
Nonexhaust HC	0.74	0.73	0.72	0.72	0.71	0.71	0.70	0.69	0.70	0.70	0.70	0.70	0.70	0.70	0.69	0.69	0.69	0.68	0.68	0.68	0.68
Total HC	2.74	2.60	2.54	2.46	2.43	2.40	2.34	2.32	2.32	2.31	2.31	2.31	2.31	2.31	2.31	2.30	2.30	2.29	2.29	2.29	2.29
Exhaust CO	15.15	14.78	14.77	14.76	14.76	14.67	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.59	14.58	14.59	14.59	14.59	14.59	14.59
Exhaust NO_x	1.26	1.28	1.28	1.28	1.28	1.26	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
DIESEL																					
Light-duty vehicles																					
Exhaust HC	0.68	0.69	0.71	0.73	0.75	0.77	0.79	0.81	0.81	0.82	0.80	0.76	0.73	0.73	0.60	0.58	0.48	0.36	0.29	0.23	0.18
Exhaust CO	1.49	1.52	1.56	1.60	1.64	1.69	1.73	1.76	1.78	1.79	1.78	1.75	1.73	1.74	1.59	1.57	1.41	1.21	1.09	0.99	0.90
Exhaust NO_x	1.83	1.85	1.86	1.87	1.89	1.89	1.89	1.88	1.86	1.85	1.81	1.72	1.62	1.54	1.43	1.32	1.11	0.85	0.69	0.53	0.42
Light-duty trucks																					
Exhaust HC	1.59	1.60	1.64	1.64	1.68	1.67	1.69	1.63	1.51	1.42	1.02	0.88	0.96	0.97	0.98	0.80	0.79	0.63	0.55	0.48	0.44
Exhaust CO	2.67	2.70	2.76	2.77	2.85	2.85	2.89	2.79	2.60	2.44	1.77	1.54	1.66	1.68	1.68	1.37	1.34	1.06	0.93	0.82	0.76
Exhaust NO_x	2.71	2.66	2.62	2.56	2.53	2.46	2.42	2.31	2.17	2.07	1.76	1.64	1.67	1.66	1.59	1.37	1.30	1.09	0.94	0.82	0.72
Heavy-duty vehicles																					
Exhaust HC	2.21	1.97	1.74	1.55	1.38	1.23	1.10	1.00	0.92	0.85	0.79	0.74	0.69	0.61	0.58	0.54	0.51	0.48	0.45	0.42	0.39
Exhaust CO	10.06	9.22	8.43	7.71	7.00	6.32	5.73	5.23	4.80	4.43	4.10	3.82	3.58	3.37	3.19	3.05	2.90	2.66	2.31	2.01	1.75
Exhaust NO_x	23.34	22.14	21.47	21.10	20.75	20.49	20.24	20.04	19.84	19.14	18.05	16.68	15.52	13.92	12.50	11.45	10.55	9.60	8.61	7.77	6.87
Average Emissions Per Vehicle, Gasoline and Diesel Fleet																					
Exhaust HC	2.98	2.70	2.42	2.18	1.96	1.76	1.56	1.43	1.32	1.23	1.16	1.08	0.99	0.91	0.77	0.65	0.58	0.54	0.48	0.45	0.42
Nonexhaust HC	1.21	1.16	1.10	1.06	1.04	1.01	0.99	0.97	0.94	0.91	0.89	0.86	0.82	0.77	0.74	0.69	0.65	0.60	0.56	0.51	0.47
Total HC	4.20	3.86	3.52	3.24	3.00	2.77	2.55	2.40	2.26	2.14	2.04	1.93	1.81	1.68	1.51	1.35	1.23	1.15	1.04	0.96	0.89
Exhaust CO	45.07	41.43	37.93	34.76	31.84	29.12	26.65	24.90	23.40	22.00	20.94	20.02	18.94	17.49	15.24	13.56	11.95	11.32	10.55	9.93	9.37
Exhaust NO_x	4.15	3.92	3.75	3.61	3.49	3.36	3.24	3.18	3.12	3.02	2.91	2.78	2.65	2.48	2.25	2.07	1.87	1.73	1.57	1.44	1.30

KEY: CO = carbon monoxide; HC = hydrocarbon; NQ = nitrogen oxide; RFG = reformulated gasoline.

NOTES

Data are as of July 1 of each year. Vehicles types are defined as follows: light-duty vehicles (passenger cars up to 6,000 lb GVWR); light-duty trucks (pickups and minivans up to 8,500 lb GVWR); heavy-duty vehicles (8,501 lbs or more GVWR); motorcycle (highway only). This table is based on MOBILE6, the U.S. Environmental Protection Agency's (EPA) latest highway vehicle emissions factor model. Interested readers can learn more about the MOBILE6 model at the following USEPA Internet site http://www.epa.gov/otaq/m6.htm.

Emissions factors are national averages based on the following assumptions: ambient temperature 75 ºF, daily temperature range 60-84 ºF, average traffic speed 27.6 mph (representative of overall traffic in urban areas), standard operating mode (cold-start, hot-start, stabilized), vehicle-miles traveled fractions, no inspection/maintenance or antitampering programs, and gasoline volatility 9.0 per square inch RVP (Reid vapor pressure).

See table 4-44 for emissions from vehicles operating on reformulated gasoline.

Data for nonexhaust HC is negligible for diesel light-duty vehicles, light-duty trucks, and heavy-duty vehicles.

Average emissions per vehicle rates assume a fleet comprised exclusively of gasoline and diesel vehicles. For emissions estimates of a fleet using RFG and diesel, see table 4-44.

SOURCE

U.S. Environmental Protection Agency, National Vehicle and Fuel Emissions Laboratory, personal communication, June 28, 2010.

Table 4-44: Estimated National Average Vehicle Emissions Rates per Vehicle by Vehicle Type using Reformulated Gasoline and Diesel (Grams per mile)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
RFG (assuming 100% RFG)														
Light-duty vehicles														
Exhaust HC	1.45	1.28	1.15	1.04	0.97	0.84	0.76	0.68	0.62	0.55	0.47	0.41	0.38	0.35
Nonexhaust HC	0.89	0.87	0.86	0.84	0.82	0.64	0.63	0.61	0.59	0.57	0.54	0.51	0.47	0.43
Total HC	2.34	2.15	2.01	1.88	1.78	1.48	1.39	1.29	1.21	1.12	1.02	0.92	0.85	0.78
Exhaust CO	22.78	20.84	19.43	18.25	17.21	15.36	14.68	13.88	13.17	12.49	11.44	9.81	9.29	8.84
Exhaust NO_x	1.78	1.64	1.55	1.46	1.35	1.24	1.19	1.12	1.06	1.00	0.90	0.77	0.72	0.66
Light-duty trucks														
Exhaust HC	2.09	1.85	1.69	1.55	1.44	1.27	1.18	1.07	0.97	0.89	0.71	0.63	0.59	0.50
Nonexhaust HC	0.93	0.91	0.89	0.87	0.85	0.68	0.67	0.64	0.62	0.59	0.56	0.53	0.50	0.47
Total HC	3.02	2.75	2.58	2.42	2.29	1.96	1.84	1.71	1.59	1.48	1.28	(R) 1.16	1.09	0.97
Exhaust CO	31.86	29.46	27.70	26.19	24.63	22.25	21.09	19.71	17.78	16.66	14.47	15.79	12.03	11.22
Exhaust NO_x	1.84	1.73	1.65	1.59	1.55	1.47	1.45	1.41	1.36	1.31	1.20	1.07	1.01	0.93
Heavy-duty vehicles														
Exhaust HC	2.14	1.91	1.70	1.48	1.32	1.16	1.03	0.92	0.77	0.70	0.62	0.51	0.45	0.40
Nonexhaust HC	1.72	1.64	1.56	1.50	1.43	1.12	1.07	1.03	1.01	0.97	0.90	0.83	0.78	0.73
Total HC	3.86	3.55	3.26	2.98	2.75	2.28	2.10	1.96	1.78	1.67	1.51	1.34	1.23	1.13
Exhaust CO	46.02	41.15	36.62	32.80	29.12	25.87	22.88	20.41	16.87	15.33	13.89	12.01	11.25	10.41
Exhaust NO_x	6.13	5.90	5.74	5.57	5.41	5.18	5.01	4.86	4.75	4.63	4.36	3.79	3.39	3.00
Motorcycles														
Exhaust HC	1.69	1.63	1.63	1.62	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61
Nonexhaust HC	0.55	0.54	0.53	0.53	0.53	0.43	0.43	0.43	0.44	0.44	0.43	0.43	0.42	0.41
Total HC	2.24	2.17	2.16	2.16	2.14	2.04	2.04	2.04	2.05	2.05	2.04	2.04	2.03	2.02
Exhaust CO	12.64	12.56	12.56	12.56	12.56	12.56	12.56	12.56	12.56	12.56	12.56	12.56	12.56	12.56
Exhaust NO_x	1.26	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
DIESEL														
Light-duty vehicles														
Exhaust HC	0.77	0.79	0.81	0.81	0.82	0.80	0.76	0.73	0.73	0.60	0.58	0.48	0.36	0.29
Exhaust CO	1.69	1.73	1.76	1.78	1.79	1.78	1.75	1.73	1.74	1.59	1.57	1.41	1.21	1.09
Exhaust NO_x	1.89	1.89	1.88	1.86	1.85	1.81	1.72	1.62	1.54	1.43	1.32	1.11	0.85	0.69
Light-duty trucks														
Exhaust HC	1.67	1.69	1.63	1.51	1.42	1.02	0.88	0.96	0.97	0.98	0.80	0.79	0.63	0.55
Exhaust CO	2.85	2.89	2.79	2.60	2.44	1.77	1.54	1.66	1.68	1.68	1.37	1.34	1.06	0.93
Exhaust NO_x	2.46	2.42	2.31	2.17	2.07	1.76	1.64	1.67	1.66	1.59	1.37	1.30	1.09	0.94
Heavy-duty vehicles														
Exhaust HC	1.23	1.10	1.00	0.92	0.85	0.79	0.74	0.69	0.61	0.58	0.54	0.51	0.48	0.45
Exhaust CO	6.32	5.73	5.23	4.80	4.43	4.10	3.82	3.58	3.37	3.19	3.05	2.90	2.66	2.31
Exhaust NO_x	20.49	20.24	20.04	19.84	19.14	18.05	16.68	15.52	13.92	12.50	11.45	10.55	9.60	8.61
Average Emissions Per Vehicle, RFG and Diesel Fleet														
Exhaust HC	1.65	1.46	1.34	1.23	1.15	1.02	0.94	0.86	0.78	0.71	0.60	0.53	0.50	0.44
Nonexhaust HC	0.86	0.84	0.82	0.80	0.78	0.62	0.60	0.58	0.57	0.54	0.52	0.49	0.46	0.42
Total HC	2.51	2.30	2.16	2.03	1.93	1.64	1.55	1.44	1.35	1.26	1.12	1.02	0.95	0.87
Exhaust CO	24.92	22.93	21.56	20.38	19.27	17.44	16.62	15.64	14.43	13.62	12.18	10.66	10.12	9.52
Exhaust NO_x	3.36	3.24	3.18	3.12	3.02	2.85	2.71	2.58	2.40	2.24	2.06	1.86	1.71	1.57

KEY: CO = carbon monoxide; HC = hydrocarbon; NOx = nitrogen oxide; RFG = reformulated gasoline; R = revised.

NOTES

As of July 1 of each year. Vehicle types are defined as follows: light-duty vehicles (passenger cars up to 6,000 lb gross vehicle weight rating GVWR) ; light-duty trucks (pickups and minivans up to 8,500 lb GVWR); heavy-duty vehicles (8,501 lb or more GVWR); motorcycle (on-highway only). The data in this table are based on MOBILE6, and reflect the introduction of RFG starting in 1995. Interested readers can learn more about the MOBILE6 model at the following USEPA Internet site http://www.epa.gov/otaq/m6.htm.

Emissions factors are national averages based on the following assumptions: ambient temperature 75 ºF, daily temperature range 60 -84 ºF, average traffic speed 27.6 mph (representative of overall traffic in urban areas), standard operating mode (cold-start, hot-start, stabilized), vehicle-miles traveled fractions and no inspection/maintenance or antitampering programs.
Emissions estimates in this table assume 100% RFG.
Average emissions per vehicle rates assume a fleet comprised exclusively of reformulated gasoline and diesel vehicles. For emissions estimates of a fleet using gasoline and diesel, see table 4-38.

SOURCE

U.S. Environmental Protection Agency, National Vehicle and Fuel Emissions Laboratory, personal communication, Nov. 23, 2009.

Table 4-45: Estimated National Emissions of Carbon Monoxide (Million short tons)

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010	2011
TOTAL all sources	204.04	188.40	185.41	176.84	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	105.05	99.04	93.03	88.20	83.37	78.54	73.16	67.79	62.42
Highway vehicles	163.23	153.56	143.83	134.19	110.26	104.98	99.71	94.43	89.16	83.88	78.61	75.85	73.24	68.71	68.06	63.48	60.60	56.58	52.56	48.54	45.91	43.27	40.63	38.12	35.61	33.09
Off-Highway	11.37	14.33	16.69	19.03	21.45	21.93	22.42	22.90	23.39	23.87	24.36	23.67	23.69	23.32	24.18	24.68	22.66	22.00	21.34	20.67	19.84	19.01	18.19	13.95	9.71	5.47
Fuel combustion	4.63	4.48	7.30	8.49	5.51	5.86	6.15	5.59	5.52	5.93	4.34	4.33	4.33	5.54	4.78	4.83	5.47	5.36	5.24	5.12	4.90	4.68	4.46	4.56	4.67	4.77
Industrial processes[a]	9.84	7.54	6.95	5.28	4.77	4.62	4.55	4.65	4.61	4.61	3.64	3.80	3.81	2.55	2.63	2.76	2.24	2.17	2.10	2.03	1.93	1.83	1.74	1.80	1.86	1.93
Waste disposal and recycling	7.06	3.23	2.30	1.94	1.08	1.12	1.14	1.25	1.23	1.19	2.90	2.95	3.12	3.02	1.85	1.85	1.59	1.58	1.57	1.55	1.56	1.57	1.58	1.57	1.56	1.56
Miscellaneous	7.91	5.26	8.34	7.93	11.12	8.62	6.93	7.08	9.66	7.30	15.02	7.32	7.18	11.41	12.96	8.68	18.49	17.36	16.23	15.11	14.05	13.00	11.94	13.16	14.38	15.60

KEY: R = revised.

[a] *Industrial processes* consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, other industrial processes; and solvent utilization, storage, and transport.

NOTE

Details may not add up to totals due to rounding in the source.

SOURCE

U.S. Environmental Protection Agency, Clearinghouse for Inventories and Emissions Factors (CHIEF)*Current Emission Trends Summaries*, available at http://www.epa.gov/ttn/chief/trends/index.html as of Nov. 14, 2011.

Table 4-46: Estimated National Emissions of Nitrogen Oxides (Million short tons)

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010	2011
TOTAL	26.88	26.38	27.08	25.76	25.53	25.18	25.26	25.36	25.35	24.96	24.79	24.70	24.35	22.84	22.60	21.55	21.14	20.39	19.65	18.91	17.83	16.74	15.66	13.75	12.91	12.01
Highway vehicles	12.62	12.06	11.49	10.93	9.59	9.45	9.31	9.16	9.02	8.88	8.73	8.79	8.62	8.37	8.39	7.77	7.87	7.41	6.95	6.49	6.11	5.72	5.33	4.81	4.28	3.76
Off-Highway	2.65	2.97	3.35	3.58	3.78	3.85	3.92	3.98	4.05	4.11	4.18	4.18	4.16	4.08	4.17	4.16	4.51	4.63	4.76	4.89	4.56	4.24	3.92	3.40	2.87	2.35
Fuel combustion	10.06	10.49	11.32	10.05	10.89	10.78	10.93	11.11	11.02	10.83	10.51	10.55	10.38	9.20	8.82	8.45	7.49	7.04	6.59	6.14	5.78	5.41	5.05	4.13	4.30	4.39
Industrial processes[a]	0.78	0.54	0.56	0.80	0.80	0.72	0.76	0.74	0.77	0.77	0.80	0.84	0.85	0.78	0.81	0.85	0.95	0.96	0.97	0.98	0.98	0.99	0.99	1.00	1.01	1.02
Waste disposal and recycling	0.44	0.16	0.11	0.09	0.09	0.10	0.10	0.12	0.11	0.10	0.15	0.16	0.16	0.16	0.13	0.13	0.11	0.12	0.13	0.15	0.13	0.12	0.11	0.12	0.12	0.13
Miscellaneous	0.33	0.17	0.25	0.31	0.37	0.29	0.26	0.24	0.39	0.27	0.41	0.19	0.18	0.25	0.28	0.18	0.21	0.23	0.25	0.27	0.27	0.27	0.26	0.29	0.32	0.35

KEY: R = revised.

[a] *Industrial processes* consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, and other industrial processes; and solvent utilization, storage, and transport.

NOTE

Details may not add up to totals due to rounding in the source.

SOURCE

U.S. Environmental Protection Agency, Clearinghouse for Inventories and Emissions Factors (CHIEF)*Current Emission Trends Summaries*, available at http://www.epa.gov/ttn/chief/trends/index.html as of Nov. 15, 2011.

Table 4-47: 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	2002	2003	2004	2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010	2011
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	21.17	20.48	19.79	18.42	17.64	16.85	16.07	14.76	13.44	12.13
Highway vehicles	16.91	15.39	13.87	12.35	9.39	8.86	8.33	7.80	7.28	6.75	6.22	5.99	5.86	5.68	5.33	4.95	4.92	4.65	4.38	4.11	3.93	3.74	3.56	3.35	3.15	2.94
Off-Highway	1.62	1.92	2.19	2.44	2.66	2.71	2.75	2.80	2.85	2.89	2.93	2.75	2.67	2.68	2.64	2.62	3.06	2.99	2.93	2.87	2.78	2.69	2.60	1.95	1.31	0.67
Fuel combustion	0.72	0.66	1.05	1.57	1.01	1.08	1.12	0.99	0.99	1.07	1.12	1.12	1.12	1.14	1.18	1.19	1.72	1.41	1.09	0.77	0.69	0.62	0.55	0.46	0.38	0.29
Industrial processes[a]	12.33	11.10	12.10	9.50	9.01	9.18	9.37	9.53	9.69	9.71	8.14	8.34	7.88	7.48	7.21	7.40	7.10	7.06	7.03	6.99	6.86	6.73	6.60	5.85	5.11	4.37
Waste disposal and recycling	1.98	0.98	0.76	0.98	0.99	1.00	1.01	1.05	1.05	1.07	0.51	0.52	0.54	0.49	0.42	0.42	0.40	0.39	0.39	0.39	0.33	0.27	0.20	0.19	0.18	0.17
Miscellaneous	1.10	0.72	1.13	0.57	1.06	0.76	0.49	0.56	0.72	0.55	1.94	0.82	0.72	0.79	0.73	0.53	3.97	3.97	3.97	3.29	3.05	2.81	2.57	2.94	3.32	3.69

KEY: R = revised.

[a] *Industrial processes* consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, and other industrial processes; and solvent utilization, storage, and transport.

NOTE

Details may not add up to totals due to rounding in the source.

SOURCE

U.S. Environmental Protection Agency, Clearinghouse for Inventories and Emissions Factors (CHIEF), *Current Emission Trends Summaries*, available at http://www.epa.gov/ttn/chief/trends/index.html as of Nov. 15, 2011.

Table 4-48: Estimated National Emissions of Particulate Matter (PM-10)[a] (Million short tons)

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	2009	2010
Total all sources	(R) 13.02	(R) 7.56	7.01	(R) 41.32	(R) 27.75	27.35	(R) 27.10	27.36	(R) 28.61	(R) 25.82	22.86	22.91	22.89	22.57	22.96	22.93	18.43	18.37	18.32	18.26	15.79	13.33	10.86	8.39	5.92
Highway vehicles	0.48	0.46	0.43	0.41	0.39	0.37	0.35	0.34	0.32	0.30	0.29	0.27	0.26	0.24	0.23	0.21	0.20	0.20	0.20	0.19	0.18	0.18	0.17	0.16	0.15
Off-Highway	0.16	0.21	0.26	0.30	0.33	0.33	0.33	0.34	0.34	0.34	0.34	0.34	0.33	0.34	0.32	0.32	0.31	0.32	0.33	0.34	0.30	0.25	0.20	0.15	0.10
Fuel combustion	2.87	2.25	2.45	1.54	1.20	1.15	1.18	1.12	1.11	1.18	0.91	0.91	0.84	0.85	0.89	0.94	0.54	0.52	0.51	0.49	0.43	0.36	0.29	0.22	0.16
Industrial processes[b]	7.67	3.70	2.75	1.06	1.04	0.99	0.99	0.91	0.91	0.95	0.65	0.67	0.67	0.50	0.51	0.53	1.05	1.00	0.95	0.90	0.80	0.70	0.60	0.50	0.40
Waste disposal and recycling	1.00	0.37	0.27	0.28	0.27	0.28	0.28	0.33	0.31	0.29	0.45	0.47	0.49	0.47	0.36	0.36	0.23	0.23	0.23	0.23	0.23	0.22	0.22	0.22	0.21
Miscellaneous[c]	0.84	0.57	0.85	37.74	24.54	24.23	23.96	24.33	25.62	22.77	20.22	20.25	20.31	20.18	20.64	20.57	16.09	16.09	16.09	16.09	13.86	11.62	9.38	7.14	4.90

KEY: R = revised.

[a] Fine particulate matter less than 10 microns. Data include PM without condensible

[b] *Industrial processes* consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, other industrial processes; solvent utilization; and storage and transport.

[c] In 1985 there appears to be a spike in *Miscellaneous* emissions. This is likely due to a methodological change, and the EPA does not change historical data when it changes its methodology.

NOTE

Details may not add up to totals due to rounding in the source.

SOURCE

U.S. Environmental Protection Agency, Clearinghouse for Inventories and Emissions Factors (CHIEF), *Current Emission Trends Summaries*, available at http://www.epa.gov/ttn/chief/trends/index.html as of October 2009, and personal communication, February 2011.

Table 4-49: Estimated National Emissions of Particulate Matter (PM-2.5)[a] (Million short tons)

	1990	1991	1992	1993	1994	1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	2009	2010
Total	(R) 7.56	7.32	7.20	(R) 7.15	(R) 7.54	6.93	6.72	6.26	6.26	6.40	6.50	6.22	3.10	3.07	3.04	3.01	2.79	2.57	2.34	2.12	1.89
Highway vehicles	0.32	0.31	0.29	0.28	0.26	0.25	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.14	0.14	0.13	0.12	0.11	0.10	0.09
Off-Highway	0.30	0.30	0.31	0.31	0.31	0.31	0.31	0.31	0.30	0.31	0.30	0.29	0.29	0.30	0.31	0.32	0.29	0.25	0.21	0.18	0.14
Fuel combustion	0.91	0.89	0.93	0.85	0.84	0.90	0.66	0.66	0.63	0.67	0.72	0.74	0.29	0.28	0.27	0.26	0.24	0.22	0.19	0.17	0.15
Industrial processes[b]	0.56	0.57	0.58	0.50	0.50	0.50	0.37	0.38	0.39	0.30	0.31	0.32	0.36	0.33	0.31	0.28	0.28	0.28	0.28	0.28	0.27
Waste disposal and recycling	0.23	0.24	0.24	0.29	0.27	0.25	0.43	0.44	0.46	0.44	0.33	0.33	0.22	0.22	0.22	0.22	0.21	0.21	0.21	0.21	0.21
Miscellaneous	5.23	5.00	4.85	4.93	5.36	4.73	4.72	4.24	4.28	4.50	4.68	4.38	1.79	1.79	1.79	1.79	1.64	1.49	1.33	1.18	1.02

KEY: R = revised.

[a] Particulate matter less than 2.5 microns in size. Data include PM without condensibles.
[b] *Industrial processes* consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, and other industrial processes; solvent utilization; and storage and transportation.

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

SOURCE
U.S. Environmental Protection Agency, Clearinghouse for Inventories and Emissions Factors (CHIEF),*Current Emission Trends Summaries* , available at http://www.epa.gov/ttn/chief/trends/index.html as of Jan. 19, 2010, and personal communication, Feb. 3, 2011.

Table 4-50: Estimated National Emissions of Sulfur Dioxide (Million short tons)

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010	2011
TOTAL all sources	31.22	28.04	25.93	23.31	23.08	22.38	22.08	21.77	21.35	18.62	18.39	18.84	18.94	17.55	16.35	15.93	14.77	14.71	14.65	14.59	13.12	11.65	10.18	8.42	7.94	8.06
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	0.11	0.08	0.04	0.04	0.04	0.03
Off-Highway	0.28	0.30	0.32	0.35	0.37	0.38	0.39	0.39	0.40	0.41	0.41	0.42	0.43	0.48	0.44	0.44	0.51	0.62	0.73	0.83	0.63	0.42	0.22	0.19	0.17	0.14
Fuel combustion	23.46	22.66	21.39	20.02	20.29	19.80	19.49	19.25	18.89	16.23	16.25	16.65	16.74	15.34	14.16	13.74	12.80	12.69	12.58	12.47	11.34	10.20	9.06	7.32	6.87	7.01
Industrial processes[a]	7.09	4.68	3.77	2.43	1.86	1.68	1.72	1.65	1.62	1.59	1.37	1.43	1.43	1.33	1.38	1.43	1.06	1.04	1.01	0.99	0.91	0.84	0.76	0.77	0.77	0.77
Waste disposal and recycling	0.01	0.05	0.03	0.03	0.04	0.04	0.04	0.07	0.06	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	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	(R) 0.13	0.13	0.13	0.13	0.11	0.09	0.07	0.07	0.08	0.08

KEY: R = revised.

[a] *Industrial processes* consists of chemical and allied product manufacturing, metals processing, petroleum and related industries, and other industrial processes; solvent utilization; and storage and transport.

NOTE

Details may not add up to totals due to rounding in the source.

SOURCE

U.S. Environmental Protection Agency, Clearinghouse for Inventories and Emissions Factors (CHIEF), *Current Emission Trends Summaries*, available at http://www.epa.gov/ttn/chief/trends/index.html as of Nov. 15, 2011.

Table 4-51: Air Pollution Trends in Selected Metropolitan Statistical Areas
(Number of days with AQI values greater than 100 at trend sites and all monitoring sites)

	All sites		Trend sites																	
				Number of days with AQI > 100																
Metropolitan Statistical Area	(R) Total number of sites in 2010	(R) Number of days with AQI > 100 (2010)	(R) Number of trend sites	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Akron, OH	18	4	7	69	49	66	72	73	83	52	71	82	57	60	62	34	23	8	0	4
Albany-Schenectady-Troy, NY	26	4	7	13	12	9	8	9	15	(R) 4	18	(R) 18	(R) 10	5	(R) 9	(R) 3	(R) 15	(R) 8	1	4
Albuquerque, NM	77	2	15	5	4	5	2	3	6	8	2	11	15	5	9	3	1	0	0	1
Allentown-Bethlehem-Easton, PA	28	18	5	17	18	19	23	39	32	16	34	38	14	13	18	10	12	10	1	12
Atlanta-Sandy Springs-Marietta, GA	64	27	17	35	57	50	61	84	97	72	42	44	24	22	32	46	40	25	11	14
Austin-Round Rock, TX	25	3	1	8	28	5	2	9	14	14	5	8	9	8	9	13	4	2	4	2
Bakersfield, CA	57	84	14	129	133	127	94	104	(R) 158	(R) 162	158	(R) 185	(R) 165	(R) 159	(R) 119	137	(R) 129	(R) 145	123	84
Baltimore-Towson, MD	73	33	16	62	57	43	46	70	55	37	50	59	30	31	36	33	45	23	11	33
Baton Rouge, LA	53	33	18	50	60	44	56	52	61	72	39	49	43	54	90	48	44	31	28	25
Bergen-Passaic, NJ	20	22	6	0	0	0	0	1	2	1	1	1	2	1	4	2	1	U	U	U
Birmingham-Hoover, AL	60	15	21	37	50	26	30	40	71	89	44	28	31	17	37	36	41	12	5	13
Boston-Cambridge-Quincy, MA-NH	125	5	15	10	1	2	1	3	(R) 8	0	4	(R) 11	8	1	4	1	3	0	0	1
Bradenton-Sarasota-Venice, FL	29	2	3	7	6	3	14	15	(R) 10	16	14	3	10	18	11	5	4	5	1	1
Bridgeport-Stamford-Norwalk, CT	38	17	10	39	28	22	31	37	29	22	33	41	19	11	25	21	27	19	5	17
Buffalo-Niagara Falls, NY	41	3	9	(R) 14	(R) 13	(R) 10	(R) 7	(R) 27	(R) 22	(R) 11	(R) 27	(R) 29	(R) 13	(R) 8	(R) 23	(R) 7	(R) 27	4	1	2
Charleston-North Charleston, SC	28	0	8	10	1	7	7	12	13	9	0	4	3	3	8	9	5	1	0	0
Charlotte-Gastonia-Concord, NC-SC	52	14	7	15	32	40	41	67	62	38	31	41	12	16	25	21	33	16	2	14
Chicago-Naperville-Joliet, IL-IN-WI	231	28	59	69	80	47	57	84	81	51	86	46	37	28	53	28	52	46	24	28
Cincinnati-Middletown, OH-KY-IN	109	27	20	(R) 37	(R) 39	(R) 36	(R) 31	(R) 44	(R) 52	(R) 28	(R) 39	(R) 47	(R) 28	(R) 16	(R) 41	(R) 19	(R) 42	14	5	16
Cleveland-Elyria-Mentor, OH	91	73	24	153	116	109	80	94	120	61	62	86	72	62	89	64	60	54	3	16
Columbia, SC	43	9	7	11	15	23	28	45	37	26	24	23	14	17	22	18	14	14	3	9
Columbus, OH	32	6	7	23	27	26	17	40	37	16	20	38	12	3	20	5	13	4	1	2
Dallas-Fort Worth-Arlington, TX	135	18	10	56	60	35	47	58	41	54	43	40	40	32	56	39	16	20	19	11
Dayton, OH	23	13	4	12	10	17	11	9	17	3	8	19	2	0	10	1	3	0	1	1
Denver-Aurora, CO	88	11	17	31	17	24	20	22	11	15	19	15	23	4	10	21	16	4	4	4
Detroit-Warren-Livonia, MI	75	23	22	31	37	43	29	50	72	38	58	54	37	37	62	38	35	24	9	23
El Paso, TX	63	9	13	49	72	61	27	33	8	16	14	15	13	5	10	10	8	8	2	3
Fort Lauderdale, FL	36	7	12	3	3	2	3	9	7	5	5	3	0	1	1	4	7	U	U	U
Fort Worth-Arlington, TX	37	21	6	53	52	28	27	32	33	38	31	37	38	25	43	34	12	U	U	U
Fresno, CA	41	62	20	90	91	105	118	86	164	164	186	204	167	84	95	97	93	89	80	62
Gary, IN	63	16	16	12	30	17	15	22	33	18	45	27	15	8	19	3	11	U	U	U
Grand Rapids-Wyoming, MI	13	2	6	14	15	11	9	4	(R) 11	6	(R) 16	17	10	3	16	(R) 8	8	1	1	1
Greensboro-Winston Salem-High Point, NC	62	39	5	20	25	18	30	48	38	29	22	42	13	5	14	8	21	U	U	U
Greenville-Mauldin-Easley, SC	26	3	5	3	15	17	13	18	36	20	24	28	7	2	11	10	8	6	0	1
Harrisburg-Carlisle, PA	16	5	8	33	33	18	23	38	33	19	42	37	16	10	22	14	20	13	0	4
Hartford-West Hartford-East Hartford, CT	35	9	6	25	28	14	19	26	26	14	27	34	13	11	19	15	24	10	3	9
Honolulu, HI	31	0	9	0	0	0	0	1	1	2	2	1	2	2	2	1	0	0	0	0
Houston-Sugarland-Baytown, TX	128	34	25	66	92	56	67	65	74	69	50	44	55	42	58	35	28	18	18	21
Indianapolis-Carmel, IN	90	15	19	(R) 60	(R) 48	(R) 36	(R) 30	(R) 40	(R) 45	(R) 25	(R) 33	(R) 48	(R) 32	(R) 20	(R) 48	(R) 25	(R) 33	7	6	8
Jacksonville, FL	33	16	12	53	25	26	26	41	34	59	38	57	8	15	20	34	15	10	3	15
Jersey City, NJ	17	14	8	19	21	15	20	16	28	9	17	22	10	5	13	13	12	U	U	U
Kansas City, MO-KS	86	25	13	19	36	15	20	23	13	21	9	26	45	33	42	65	34	36	41	18
Knoxville, TN	53	16	17	53	82	87	82	109	126	97	86	118	96	98	101	84	107	80	20	15
Las Vegas-Paradise, NV	100	10	3	(R) 7	(R) 3	(R) 12	(R) 2	(R) 7	8	(R) 4	(R) 1	(R) 8	10	4	8	(R) 9	(R) 5	0	0	1
Little Rock-North Little Rock-Conway, AR	30	2	8	8	24	9	10	13	16	29	17	18	3	0	19	11	11	2	2	2
Los Angeles-Long Beach-Santa Ana, CA	169	79	50	200	178	141	117	93	(R) 140	119	(R) 130	110	120	106	65	(R) 62	60	68	54	37
Louisville/Jefferson County, KY-IN	62	54	14	89	69	58	59	79	110	73	79	62	58	54	71	51	75	44	25	29
Madison, WI	18	2	3	1	15	7	5	8	12	3	7	10	8	1	9	1	10	1	0	2
McAllen-Edinburg-Mission, TX	8	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Memphis, TN-AR-MS	49	14	9	37	56	(R) 38	35	55	56	52	33	34	29	11	(R) 36	30	(R) 33	10	4	13
Miami-Fort Lauderdale-Pompano Beach, FL	91	4	24	16	16	9	9	14	20	18	8	5	4	11	4	11	10	5	2	3
Middlesex-Somerset-Hunterdon, NJ	15	30	4	19	31	19	28	39	35	19	29	36	11	15	22	9	21	U	U	U
Milwaukee-Waukesha-West Allis, WI	58	9	12	17	23	15	6	16	25	8	25	21	17	6	21	6	11	3	5	8
Minneapolis-St. Paul-Bloomington, MN-WI	132	4	18	18	22	6	7	5	5	9	12	5	15	11	11	1	5	1	2	1

Monmouth-Ocean, NJ	5	21	4	41	34	31	32	46	35	19	35	46	25	22	27	19	21	U	U	U
Nashville-Davidson-Murfreesboro-Franklin, TN	51	10	17	(R) 32	(R) 49	(R) 46	(R) 50	(R) 46	(R) 73	(R) 48	(R) 24	(R) 34	20	7	(R) 29	17	34	9	1	9
Nassau-Suffolk, NY	22	16	5	28	20	14	23	27	28	12	14	22	15	6	19	11	14	U	U	U
New Haven-Milford, CT	50	10	7	19	23	15	25	15	22	18	22	32	17	6	19	8	13	9	1	8
New Orleans-Metairie-Kenner, LA	61	66	7	12	33	11	15	17	35	29	18	4	15	12	13	13	17	2	6	8
New York-Northern New Jersey-Long Island, NY-NJ-PA	268	37	53	(R) 68	(R) 48	(R) 51	(R) 52	(R) 62	(R) 57	(R) 39	(R) 56	(R) 62	(R) 37	(R) 38	(R) 46	(R) 39	39	29	11	31
Newark, NJ	44	21	16	33	33	24	23	35	36	17	34	43	14	8	18	25	21	U	U	U
Oakland, CA	86	7	19	5	13	9	2	11	20	12	15	23	13	8	6	13	5	U	U	U
Oklahoma City, OK	36	3	8	21	29	10	15	36	17	16	24	10	13	6	12	31	4	4	5	2
Omaha-Council Bluffs, NE-IA	41	3	11	1	3	0	1	3	5	3	2	0	1	1	1	0	1	0	1	1
Orange County, CA	30	19	8	30	20	13	8	7	7	11	6	6	15	10	0	7	9	U	U	U
Orlando-Kissimmee, FL	28	2	13	7	9	6	6	23	13	15	13	5	4	5	8	8	8	1	0	1
Oxnard-Thousands Oaks-Ventura, CA	38	13	14	100	103	98	76	54	54	57	52	26	48	41	36	31	22	30	24	10
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	143	32	47	117	125	(R) 100	105	101	99	60	90	97	(R) 76	38	59	53	45	29	7	30
Phoenix-Mesa-Scottsdale, AZ	165	43	23	33	41	47	33	49	52	46	25	22	26	9	23	25	11	11	6	10
Pittsburgh, PA	128	64	38	(R) 175	(R) 117	(R) 118	(R) 143	(R) 151	(R) 150	(R) 121	(R) 111	131	(R) 115	94	(R) 94	(R) 67	(R) 77	60	43	42
Portland-Vancouver-Beaverton, OR-WA	70	1	9	4	4	12	0	9	5	5	4	7	2	4	4	2	5	3	5	1
Poughkeepsie-Newburgh-Middleton, NY	8	4	2	12	14	14	10	16	18	7	17	16	5	4	6	1	11	5	1	4
Providence-New Bedford-Fall River, RI-MA	63	14	5	28	20	22	24	21	23	24	34	38	18	10	20	15	14	4	1	13
Raleigh-Cary, NC	41	3	3	11	10	13	29	46	43	15	11	39	8	3	12	7	17	5	0	2
Richmond, VA	38	11	9	39	33	37	45	54	41	20	27	46	19	12	29	17	24	17	1	7
Riverside-San Bernardino-Ontario, CA	169	116	44	183	190	169	145	131	166	176	188	177	160	148	141	128	135	124	110	109
Rochester, NY	17	0	1	8	10	1	10	11	17	2	14	16	5	0	0	1	5	2	0	0
Sacramento-Arden-Arcade-Roseville, CA	112	24	22	71	61	70	39	56	94	65	72	90	67	56	58	74	40	45	29	14
St, Louis, MO-IL	164	86	28	(R) 138	(R) 146	(R) 121	(R) 99	(R) 92	(R) 106	(R) 77	(R) 81	(R) 85	(R) 65	(R) 33	(R) 72	(R) 28	(R) 35	21	9	19
Salt Lake City, UT	49	17	9	30	8	18	4	21	18	(R) 21	30	(R) 32	(R) 19	36	26	20	27	17	16	17
San Antonio, TX	41	4	2	7	32	7	10	12	20	5	4	26	18	6	10	8	3	7	3	3
San Diego-Carlsbad-San Marcos, CA	65	15	23	97	103	62	44	53	53	58	53	35	41	27	26	39	33	35	25	14
San Francisco-Oakland-Fremont, CA	115	4	33	8	14	13	4	15	21	17	19	26	13	10	6	19	5	12	4	4
San Jose-Sunnyvale-Santa Clara, CA	44	8	5	13	21	37	7	21	14	9	9	24	14	7	4	13	3	13	6	6
San Juan-Caguas-Guaynabo, PR	51	2	6	89	6	2	2	1	4	0	2	1	1	1	1	0	1	0	0	0
Scranton-Wilkes Barre, PA	19	3	10	22	26	25	19	26	25	7	23	30	6	4	12	4	7	5	0	3
Seattle-Tacoma-Bellevue, WA	120	1	10	3	3	5	0	6	6	17	12	13	10	4	6	10	9	7	8	0
Springfield, MA	43	6	10	40	18	8	22	24	20	9	29	24	13	9	17	12	21	10	6	6
Stockton, CA	16	5	5	10	12	7	2	19	23	14	11	13	6	3	5	16	11	10	4	2
Syracuse, NY	19	3	5	8	10	3	6	10	12	2	13	19	4	0	8	3	8	3	1	3
Tacoma, WA	25	14	4	3	3	4	0	6	2	15	11	9	8	4	4	9	7	U	U	U
Tampa-St. Petersburg-Clearwater, FL	80	12	21	(R) 160	(R) 100	115	(R) 118	(R) 129	(R) 125	(R) 100	(R) 93	(R) 80	(R) 68	(R) 36	30	(R) 19	(R) 26	10	6	1
Toledo, OH	20	4	3	(R) 11	(R) 14	(R) 14	(R) 7	(R) 8	(R) 16	(R) 9	(R) 21	(R) 21	(R) 14	(R) 6	(R) 19	(R) 2	(R) 4	1	2	4
Tucson, AZ	52	0	20	10	14	8	8	7	8	5	0	7	7	0	8	9	1	2	2	0
Tulsa, OK	40	3	8	27	40	27	15	27	30	23	31	22	16	9	22	24	4	13	2	3
Ventura, CA	38	23	14	97	100	95	75	54	54	57	52	26	47	41	36	31	22	U	U	U
Virginia Beach-Norfolk-Newport News, VA-NC	42	7	7	22	26	15	43	36	35	25	14	33	10	6	12	13	11	16	0	4
Washington-Arlington-Alexandria, DC-MD-VA-WV	127	35	36	50	57	41	56	72	66	38	46	58	29	25	40	32	37	16	4	22
West Palm Beach-Boca Raton, FL	24	3	4	0	0	0	0	0	0	1	0	0	0	0	0	0	2	U	U	U
Wichita, KS	22	4	9	1	7	3	8	12	9	9	20	10	7	1	4	2	0	1	2	2
Wilmington-Newark, DE-MD	41	27	9	46	47	22	31	42	40	24	36	34	24	10	22	20	25	U	U	U
Worcester, MA	22	3	2	20	15	2	8	14	14	4	9	15	9	3	8	5	20	8	4	3
Youngstown-Warren-Boardman, OH	26	6	11	27	19	23	19	46	24	12	45	35	16	7	26	8	18	8	2	4

KEY: AQI = Air Quality Index; R = revised.

NOTES

The Air Quality Index (AQI) integrates information on 6 major pollutants (particulate matter less than 10 microns in diameter, particulate matter less than 2.5 microns in diameter, sulfur dioxide, carbon monoxide, ozone, and nitrogen dioxide) across an entire monitoring network into a single number that represents the worst daily air quality experienced in an urban area. An AQI greater than 100 indicates that at least 1 criteria pollutant exceeded air quality standards on a given day; therefore, air quality would be in the unhealthful range on that day. Air quality monitoring sites are selected as "trend sites" if they have complete data for at least 8 of the 10 last years.

The major reason for revisions to the historical data for the AQI is that changes in the National Ambient Air Quality Standards (NAAQS) are retroactively applied to the data for previous years to provide consistent comparisons over time. In addition, data from monitoring stations that have fallen below/surpassed the criterion to qualify as a 'trend site' is excluded/included in the latest calculation of the index.

Data for 1999 to 2009 include particulate matter 2.5 micron in diameter (PM 2.5).

Particulate matter is the term for solid or liquid particles found in the air.

SOURCE

U.S. Environmental Protection Agency, Office of Air and Radiation, *Air Trends*, *Air Quality Index Information*, available at http://www.epa.gov/air/airtrends/aqi_info.html as of Dec. 21, 2011.

Table 4-52: Areas in Nonattainment of National Ambient Air Quality Standards for Criteria Pollutants (Condensed nonattainment area list as of September 2003)

			Number of areas in nonattainment [d]						Area population, in 1,000s [h]					
Ref. no.	States	Consolidated nonattainment area name [a]	O_3 [e]	CO	SO_2	PM-10	Pb	NO_2	O_3	CO	SO_2	PM-10	Pb	Total exposed
1	AK	Anchorage	.	1	.	1	.	.		255		195		255
2	AK	Fairbanks	.	1	.	.	.	.		39				39
3	AK	Juneau	.	.	.	1	.	.				13		13
4	AL	Birmingham	1	.	.	.	.	.	805					805
5	AZ	Ajo	.	.	1	1	.	.			7	7		7
6	AZ	Douglas	.	.	1	1	.	.			15	15		15
7	AZ	Miami-Hayden	.	.	2	1	.	.			4	4		4
8	AZ	Morenci	.	.	1	.	.	.			8			8
9	AZ	Nogales	.	.	.	1	.	.				24		24
10	AZ	Paul Spur	.	.	.	1	.	.				1		1
11	AZ	Phoenix	1	1	.	1	.	.	3,028	3,028		3,111		3,111
12	AZ	Rillito	.	.	.	1	.	.				0		0
13	AZ	San Manuel	.	.	1	.	.	.			7			7
14	AZ	Yuma	.	.	.	1	.	.				82		82
15	CA	Imperial Valley	.	.	.	1	.	.				119		119
16	CA	Los Angeles-South Coast Air Basin	1	1	.	1	.	.	14,550	14,550		14,550		14,550
17	CA	Mono Basin (in Mono Co.)	.	.	.	1	.	.				0		0
18	CA	Owens Valley	.	.	.	1	.	.				7		7
19	CA	Sacramento Metro	1	.	.	1	.	.	1,978			1,223		1,978
20	CA	San Diego	1	.	.	.	.	.	2,813					2,813
21	CA	San Francisco-Oakland-San Jose	1	.	.	.	.	.	6,541					6,541
22	CA	San Joaquin Valley	2	.	.	1	.	.	3,302			3,080		3,302
23	CA	Santa Barbara-Santa Maria-Lompoc	1	.	.	.	.	.	399					399
24	CA	Searles Valley	.	.	.	3	.	.				22		22
25	CA	Southeast Desert Modified AQMA	1	.	.	2	.	.	1,024			424		1,024
26	CA	Ventura Co.	1	.	.	.	.	.	753					753
27	CO	Aspen	.	.	.	1	.	.				5		5
28	CO	Denver-Boulder	.	.	.	1	.	.				2,389		2,389
29	CO	Fort Collins	.	1	.	.	.	.		143				143
30	CO	Lamar	.	.	.	1	.	.				8		8
31	CO	Steamboat Springs	.	.	.	1	.	.				9		9
32	CT	Greater Connecticut	1	.	.	1	.	.	2,532			123		2,532
33	DC-MD-VA	Washington	1	.	.	.	.	.	4,544					4,544
34	DE	Sussex County	1	.	.	.	.	.	156					156
35	GA	Atlanta	1	.	.	.	.	.	3,698					3,698
36	GU[b]	Piti Power Plant	.	.	1	.	.	.			1			1
37	GU[b]	Tanguisson Power Plant	.	.	1	.	.	.			1			1
38	ID	Boise	.	1	.	.	.	.		197				197
39	ID	Bonner Co. (Sandpoint)	.	.	.	1	.	.				36		36
40	ID	Pocatello Area	.	.	.	2	.	.				66		66
41	ID	Shoshone Co.	.	.	.	2	.	.				12		12
42	IL-IN	Chicago-Gary-Lake County	1	.	1	3	.	.	8,757		484	322		8,757
43	KY-WV	Ashland-Huntington	.	.	1	.	.	.			49			49
44	LA	Baton Rouge	1	.	.	.	.	.	636					636
45	MA	Boston-Lawrence	1	.	.	.	.	.	5,883					5,883
46	MA	Springfield (W. Mass)	1	.	.	.	.	.	814					814
47	MD	Baltimore	1	.	.	.	.	.	2,512					2,512
48	MD	Kent and Queen Anne Cos.	1	.	.	.	.	.	59					59
49	ME	Knox/Lincoln County	1	.	.	.	.	.	73					73
50	ME	Lewiston-Auburn	1	.	.	.	.	.	220					220
51	ME	Portland	1	.	.	.	.	.	487					487
52	MO	Liberty-Arcadia	.	.	.	.	1	.					6	6
53	MO-IL	St. Louis	1	.	.	.	[g]1	.	2,482				2	2,482
54	MT	Billings/Laurel (Yellowstone Co.)	.	.	1	.	.	.			6			6
55	MT	Butte	.	.	.	1	.	.				34		34
56	MT	Columbia Falls	.	.	.	.	.	1				3		3
57	MT	East Helena (Lewis & Clark Co.)	.	.	1	.	1	.			2		2	2
58	MT	Kalispell	.	.	.	1	.	.				15		15
59	MT	Lame Deer	.	.	.	.	1	.				0		0
60	MT	Libby	.	.	.	1	.	.				3		3
61	MT	Missoula	.	1	.	1	.	.		52		52		52
62	MT	Polson	.	.	.	1	.	.				3		3
63	MT	Ronan	.	.	.	1	.	.				2		2
64	MT	Thompson Falls	.	.	.	1	.	.				1		1
65	MT	Whitefish	.	.	.	1	.	.				5		5
66	NH	Manchester	1	.	.	.	.	.	364					364
67	NH	Portsmouth-Dover-Rochester	1	.	.	.	.	.	192					192
68	NJ	Atlantic City	1	.	.	.	.	.	354					354
69	NM	Anthony	.	.	.	1	.	.				2		2
70	NM	Grant Co.	.	.	1	.	.	.			31			31
71	NM	Sunland Park	[f]1	.	.	.	.	.	10					10

Table 4-52: Areas in Nonattainment of National Ambient Air Quality Standards for Criteria Pollutants (Condensed nonattainment area list as of September 2003)

			Number of areas in nonattainment [d]						Area population, in 1,000s [h]					
Ref. no.	States	Consolidated nonattainment area name [a]	O_3 [e]	CO	SO_2	PM-10	Pb	NO_2	O_3	CO	SO_2	PM-10	Pb	Total exposed
72	NV	Lake Tahoe	.	1	.	.	.	.		29				29
73	NV	Las Vegas	.	1	.	1	.	.		478		1,375		1,375
74	NV	Reno	1	1	.	1	.	.	339	178		339		339
75	NY	Albany-Schenectady	1	.	.	.	.	.	892					892
76	NY	Buffalo-Niagara Falls	1	.	.	.	.	.	1,170					1,170
77	NY	Essex City, Whiteface	1	.	.	.	.	.	0					0
78	NY	Jefferson Co.	1	.	.	.	.	.	111					111
79	NY	Poughkeepsie	1	.	.	.	.	.	600					600
80	NY-NJ-CT	New York-N. New Jersey-Long Island	1	.	.	1	.	.	19,171			1,537		19,171
81	OH	Cleveland-Akron-Lorain	.	.	1		.	.			1,095			1,095
82	OH	Lucas Co. (Toledo)	.	.	1	.	.	.			455			455
83	OH-KY	Cincinnati-Hamilton	1	.	.	.	.	.	1,514					1,514
84	OH-PA	Youngstown-Warren	1	.	.	.	.	.	120					120
85	OR	Grants Pass	.	.	.	1	.	.				20		20
86	OR	Klamath Falls	.	.	.	1	.	.				19		19
87	OR	LaGrande	.	.	.	1	.	.				12		12
88	OR	Lakeview	.	.	.	1	.	.				3		3
89	OR	Medford	.	.	.	1	.	.				78		78
90	OR	Oakridge	.	.	.	1	.	.				3		3
91	OR	Springfield-Eugene	.	.	.	1	.	.				179		179
92	OR	Salem	.	1	.	.	.	.		135				135
93	PA	Altoona	1	.	.	.	.	.	129					129
94	PA	Erie	1	.	.	.	.	.	280					280
95	PA	Harrisburg-Lebanon	1	.	.	.	.	.	629					629
96	PA	Johnstown	1	.	.	.	.	.	232					232
97	PA	Lancaster	1	.	.	.	.	.	470					470
98	PA	Pittsburgh-Beaver Valley	.	1	2	1	.	.		335	410	21		410
99	PA	Scranton-Wilkes-Barre	1	.	.	.	.	.	763					763
100	PA	Warren Co	.	.	2	.	.	.			20			20
101	PA	York	1	.	.	.	.	.	473					473
102	PA-DE-NJ-MD	Philadelphia-Wilmington-Trenton	1	.	.	.	.	.	6,311					6,311
103	PA-NJ	Allentown-Bethlehem	1	.	1				740		102			740
104	PR	Guaynabo Co.	.	.	.	1	.	.				92		92
105	RI	Providence (all of RI)	1	.	.	.	.	.	1,048					1,048
106	TX	Beaumont-Port Arthur	1	.	.	.	.	.	385					385
107	TX	Dallas-Fort Worth	1	.	.	.	.	.	4,589					4,589
108	TX	El Paso	1	1	.	1	.	.	679	62		563		679
109	TX	Houston-Galveston-Brazoria	1	.	.	.	.	.	4,669					4,669
110	UT	Ogden	.	.	.	1	.	.				77		77
111	UT	Salt Lake City	.	.	1	1	.	.			898	898		898
112	UT	Tooele Co.	.	.	1	.	.	.			40			40
113	UT	Utah Co. (Provo)	.	1	.	1	.	.		118		368		368
114	VA	Smyth Co., White Top	1	.	.	.	.	.		0				0
115	WA	Spokane	.	1	.	1	.	.		322		204		322
116	WA	Wallula	.	.	.	1	.	.				0		0
117	WA	Yakima	.	1	.	1	.	.				63		63
118	WI	Door Co.	1	.	.	.	.	.	27					27
119	WI	Manitowoc Co.	1	.	.	.	.	.	82					82
120	WI	Milwaukee-Racine	1	.	.	.	.	.	1,839					1,839
121	WV	Follansbee	.	.	.	1	.	.				2		2
122	WV	New Manchester Gr. (in Hancock Co)	.	.	1	.	.	.			9			9
123	WV	Wier.-Butler-Clay (in Hancock Co)	.	.	1	1	.	.			16	15		16
124	WY	Sheridan	.	.	.	1	.	.				15		15
		National Totals (130 areas) [b]	38	20	33	78	10	0	99,824	34,047	4,664	29,919	1,375	113,090
	State(s)	Consolidated Nonattainment Area Name [a, b]	O_3 [m]	CO	SO_2	PM10	Pb	NO_2	O_3 [m]	CO	SO_2	PM10	Pb	All Pollutants
			Number of Areas in Nonattainment [c]						Area Population, in 1000's [o]					
National totals (124 areas) [k]			56	16	24	67	3	0	116,228	19,921	3,660	31,850	10	125,730

KEY: CO = carbon monoxide; NO_2 = nitrogen dioxide; O_3 = ozone; Pb = lead; PM-10 = particulate matter smaller than 10 microns; SO_2 = sulfur dioxide; . = all areas in attainment for a particle or pollutant.

[a] This is a simplified listing of classified nonattainment areas. Unclassified and Section 185a (transitional) nonattainment areas are not included. Names of nonattainment areas are listed alphabetically within each state. Note that several smaller nonattainment areas may be inside one larger nonattainment area. In these cases, the smaller nonattainment areas are listed on the same line as the larger one, and the number of nonattainment areas are indicated under each pollutant.

[b] Guam (U.S. territory)

[c] National total includes Guam (U.S. territory).

[d] The number of nonattainment areas for each of the criteria pollutants is listed. A dot (.) indicates that all areas are in attainment for that pollutant.

[e] 1-hour ozone standard.

[f] Ozone nonattainment area is a portion of Dona Ana County, New Mexico.

[g] Lead nonattainment area is Herculaneum, Missouri in Jefferson County.

[h] Population figures were obtained from the 2000 census data. For nonattainment areas defined as only partial counties, population figures for just the nonattainment area were used when these were available. Otherwise, whole county population figures were used. When a larger nonattainment area encompasses a smaller one, double counting the population in the "Total exposed" column is avoided by only counting the population of the larger nonattainment area.
The "Total exposed" values represent estimated population living in areas that are in nonattainment for at least one pollutant.

NOTE

Reference numbers 1-124 do not indicate ranking.

SOURCE

U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *National Air Quality and Emissions Trends Report, 2003* (Research Triangle Park, NC: 2003), table A-19. Internet website http://www.epa.gov/airtrends/ as of Nov. 17, 2006.

Table 4-53: U.S. Carbon Dioxide Emissions from Energy Use by Sector (Million metric tons of carbon)

Sector	(R) 1990	1991	1992	1993	1994	(R) 1995	1996	1997	1998	1999	(R) 2000	2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	2008	(P) 2009
Total U.S. CO_2 Emissions from energy use by sector	**1,374.1**	**1,355.6**	**1,382.6**	**1,411.3**	**1,432.8**	**1,449.2**	**1,498.5**	**1,520.9**	**1,531.2**	**1,548.2**	**1,600.0**	**1,569.4**	**1,578.8**	**1,597.2**	**1,629.3**	**1,635.2**	**1,614.0**	**1,642.2**	**1,592.0**	**1,286.4**
Transportation	**432.9**	**425.8**	**431.5**	**439.2**	**450.4**	**458.4**	**470.5**	**475.6**	**485.3**	**498.6**	**510.5**	**504.7**	**515.6**	**517.9**	**535.1**	**542.9**	**551.4**	**556.2**	**528.5**	**505.7**
Natural gas	9.8	9.0	8.8	9.3	10.3	10.5	10.7	11.4	9.6	9.8	9.7	9.5	10.1	9.1	8.7	9.0	9.1	9.6	10.0	9.3
Electricity	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.2	1.3	1.4	1.3	1.4	1.3	1.3
Petroleum	422.2	415.9	421.8	429.0	439.3	447.0	458.9	463.3	474.7	487.9	499.8	494.3	504.4	507.6	525.1	532.5	541.0	545.1	517.1	495.1
Motor gasoline	263.6	260.6	264.4	272.6	275.9	280.5	285.6	288.2	296.6	304.1	305.8	307.4	315.3	316.7	323.0	323.5	325.7	327.6	312.5	310.2
Liquid petroleum gas	0.4	0.3	0.3	0.3	0.5	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.5	0.5	0.4	0.7	0.7
Jet fuel	60.7	58.7	58.2	58.7	61.0	60.6	63.3	63.9	64.9	66.9	69.2	66.2	64.6	63.1	65.4	67.2	65.3	64.9	61.7	55.7
Distillate fuel	73.0	71.8	73.5	75.7	80.4	83.7	89.2	93.2	96.0	99.8	103.0	105.6	107.6	113.0	118.3	121.2	128.0	128.8	120.5	110.4
Residual fuel	21.8	22.0	23.0	19.4	19.0	19.6	18.3	15.3	14.5	14.3	19.1	12.6	14.5	12.3	15.9	18.0	19.5	21.4	19.8	16.3
Lubricants	1.8	1.6	1.6	1.7	1.7	1.7	1.6	1.7	1.8	1.8	1.8	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.4	1.3
Aviation gas	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.7	0.6	0.6	0.5	0.5
Industrial	**462.3**	**448.3**	**468.8**	**466.2**	**474.4**	**475.3**	**488.7**	**496.4**	**489.5**	**483.6**	**487.6**	**467.9**	**459.0**	**461.4**	**472.1**	**456.8**	**453.0**	**453.1**	**435.7**	**383.3**
Residential	**262.7**	**266.5**	**266.9**	**283.4**	**281.5**	**283.4**	**299.6**	**297.2**	**299.1**	**305.5**	**323.2**	**318.6**	**326.6**	**335.5**	**334.8**	**344.0**	**325.1**	**338.7**	**335.2**	**316.9**
Commercial	**216.1**	**215.0**	**215.5**	**222.5**	**226.4**	**232.2**	**239.7**	**251.7**	**257.3**	**260.6**	**278.7**	**278.2**	**277.6**	**282.5**	**287.3**	**291.5**	**284.5**	**294.1**	**292.7**	**273.7**
Total U.S. CO_2 Emissions (Incl. adj. and other sources)[a]	**1,374.7**	**1,356.3**	**1,386.4**	**1,420.1**	**1,443.6**	**1,459.9**	**1,509.2**	**1,530.1**	**1,537.5**	**1,556.6**	**1,609.0**	**1,583.6**	**1,595.0**	**1,615.3**	**1,644.8**	**1,651.3**	**1,625.7**	**1,652.5**	**1,599.5**	**1,485.4**

KEY: CO_2 = carbon dioxide; P = preliminary; R = revised.

[a] "Adjustments" comprise the addition of U.S. territories and the subtraction of military bunker fuels and international bunker fuels. "Other sources" comprise the addition of gas flaring, CO_2 in natural gas, cement production, other industrial, and limestone consumption.

NOTES

Electric utility emissions are distributed across end-use sectors.

Numbers may not add to totals due to independent rounding.

Tons of carbon can be converted to tons of carbon dioxide gas by multiplying by 3.667. One ton of carbon equals 3.667 tons of carbon dioxide gas.

Numbers in this table may not be comparable to the numbers in the previous edition of the report due to changes in methodology of estimation by the Energy Information Administration.

SOURCE

U.S. Department of Energy, Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2009,* (Washington, DC: 2009), tables 7, 11, 15 and 16, available at ftp://ftp.eia.doe.gov/environment/057309.pdf as of Mar. 22, 2012.

Section E
Water Pollution, Noise, and Solid Waste

Table 4-54: Petroleum Oil Spills Impacting Navigable U.S. Waterways

	1985		1990		1995		1996		1997		1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009	
Source	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled	Incidents	Gallons spilled
TOTAL all spills	6,169	8,436,248	8,177	7,915,007	9,038	2,638,229	9,335	3,117,831	8,624	942,574	8,315	885,303	8,539	1,172,449	8,354	1,431,370	7,559	854,520	4,497	638,883	4,192	401,139	3,897	1,416,713	3,881	9,926,580	4,184	2,836,307	3,808	705,342	3,400	760,230	3,304	211,600
Vessel sources, total	1,662	4,862,911	2,485	6,387,158	5,478	1,624,153	5,586	1,681,020	5,347	380,879	5,172	621,235	5,680	576,475	5,560	1,033,643	5,021	569,856	1,816	247,382	1,715	210,805	1,705	1,306,557	1,835	2,124,808	1,993	416,987	1,928	235,340	1,644	536,141	1,645	126,657
Tankship	164	732,397	249	4,977,251	148	125,491	122	219,311	124	22,429	104	56,673	92	8,414	111	608,176	95	125,217	55	4,753	38	4,450	35	636,834	37	2,976	38	4,292	42	46,731	34	1,337	28	14,417
Tank barge	385	3,683,548	457	992,025	353	1,101,938	313	1,163,258	252	165,649	220	248,089	227	158,977	229	133,540	246	212,298	126	30,219	156	102,874	143	215,822	126	2,006,774	134	287,343	113	4,516	106	286,637	98	4,424
Other vessels[a]	1,113	446,966	1,779	417,882	4,977	396,724	5,151	298,451	4,971	192,801	4,848	316,473	5,361	409,084	5,220	291,927	4,680	232,341	1,635	212,410	1,521	103,481	1,527	453,901	1,672	115,058	1,821	125,352	1,773	184,093	1,504	248,167	1,519	107,816
Nonvessel sources, total	2,802	3,250,229	2,584	1,408,472	1,116	958,222	1,078	1,408,303	1,356	501,265	1,553	246,716	1,615	551,381	1,645	373,761	1,465	270,523	1,286	200,871	1,140	93,515	1,137	70,456	1,146	7,771,646	1,258	2,290,803	1,233	439,723	1,148	197,525	979	54,275
Offshore pipelines	23	17,977	73	46,228	7	1,143	4	386	13	810	10	843	5	35,707	4	17	13	1,241	0	0	1	14,952	0	0	23	26,465	20	1,719	36	295,165	36	14,809	16	1,657
Onshore pipelines	362	759,040	76	270,700	23	10,751	13	978,006	19	223,312	35	47,020	20	433	21	17,004	21	12,336	0	0	0	0	1	15,000	1	110,000	1	510	0	0	0	0	0	0
Other[b]	2,417	2,473,212	2,435	1,091,544	1,086	946,328	1,061	429,911	1,324	277,143	1,508	198,853	1,590	515,241	1,620	356,740	1,431	256,946	1,286	200,871	1,139	78,563	1,136	55,456	1,122	7,635,181	1,237	2,288,574	1,197	144,558	(R) 1,112	182,716	963	52,619
Mystery[c]	1,705	323,108	3,108	119,377	2,444	55,854	2,671	28,508	1,921	60,430	1,590	17,352	1,244	44,593	1,149	23,966	1,073	14,141	1,395	190,630	1,337	96,819	1,055	39,700	900	30,126	933	128,517	647	30,279	608	26,564	680	30,667

[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 deepwater ports, designated waterfront facilities, nonmarine land facilities, fixed offshore and inshore platforms, mobile facility, municipal facility, aircraft, land vehicles, railroad equipment, bridges, factories, fleeting areas, industrial facilities, intakes, locks, marinas, MARPOL reception facilities, nonvessel common carrier facilities, outfalls, sewers, drains, permanently moored facilities, shipyards, ship repair facilities.

[c] *Mystery* spills are spills from unknown or unidentified sources. U.S. Coast Guard investigators are unable to identify the vessel or facility that spilled the oil into U.S. navigable waters.

NOTE: The spike in *Gallons spilled* for 2005 can be attributed to the passage of Hurricane Katrina in Louisiana and Mississippi on Aug. 29, 2005, which caused numerous spills approximating 8 million gallons of oil in U.S. waters. The totals in this table may be different from those that appear in the source, due to rounding by the source.

SOURCE

U.S. Coast Guard, *Polluting Incidents In and Around U.S. Waters, A Spill/Release Compendium: 1969-2009* (Washington, DC: February 2010), pp. 22, 23, 160, 176-77, 193-94, 208-09, 221, 234, available at https://homeport.uscg.mil/ as of Oct. 14, 2011.

Table 4-55: Leaking Underground Storage Tank Releases and Cleanups

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Total confirmed releases	87,528	126,816	184,457	237,022	270,567	303,635	317,488	341,773	371,387	397,821	412,392	418,918	427,307	439,385	447,233	452,041	464,728	474,127	479,817	488,496	494,997	501,723	507,540
Cleanups initiated	51,770	79,506	129,074	171,082	209,797	238,671	252,615	292,446	314,965	346,300	367,603	379,243	384,029	403,558	412,657	421,924	435,631	446,940	455,096	463,060	470,460	473,314	481,614
Cleanups not initiated	35,758	47,310	55,383	65,940	60,770	64,964	64,873	49,327	56,422	51,521	44,789	39,675	43,278	35,827	34,576	30,117	29,097	27,187	24,721	25,436	24,537	28,409	25,926
Cleanups completed	16,905	26,666	55,444	87,065	107,448	131,272	152,683	178,297	203,247	228,925	249,759	268,833	284,602	303,120	317,405	332,799	350,813	365,361	377,019	388,331	401,874	413,740	424,637
Releases not cleaned up	70,623	100,150	129,013	149,957	163,119	172,363	164,805	163,476	168,140	168,896	162,633	150,085	142,705	136,265	129,828	119,242	113,915	108,766	102,798	100,165	93,123	87,983	82,903

NOTES

All data are cumulative from the start of the U.S. Environmental Protection Agency's Underground Storage Tank program, which began in 1984.

Data represent fiscal year, October 1 through September 30.

SOURCES

1990: U.S. Environmental Protection Agency, Office of Underground Storage Tanks, personal communications, Nov. 17 and 18, 1998.

1991-2012: Ibid., *UST Performance Measures,* available at http://www.epa.gov/swerust1/cat/camarchv.htm as of Feb. 5, 2013.

Table 4-56: Highway Noise Barrier Construction (Miles)

	Unknown	1963-1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total 1963-2004
TOTAL length	6	328	54	45	65	54	106	103	64	99	(R) 143	88	89	(R) 133	54	(R) 102	(R) 140	(R) 54	(R) 82	(R) 132	78	89	105	2,205
Type I barriers[a]	[d]6	210	39	30	40	35	83	88	44	78	114	63	47	(R) 95	37	(R) 70	(R) 116	(R) 31	(R) 67	(R) 95	63	78	88	1,613
Type II barriers[b]	0	114	14	14	24	16	8	8	19	18	18	21	16	32	15	31	23	(R) 18	(R) 11	(R) 18	13	4	14	471
All other types[c]	N	4	1	1	1	3	15	7	1	3	(R) 11	4	26	(R) 6	2	(R) 1	1	(R) 5	(R) 4	(R) 19	2	7	3	121
Cost (2004 $ millions)	0	329	67	57	106	72	168	163	108	176	228	144	135	203	79	180	242	110	147	207	190	171	159	3,442

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

[a] A Type I barrier is built on a new highway project or a physically altered existing highway.

[b] A Type II barrier is built to abate noise along an existing highway (often referred to as retrofit abatement) and is not mandatory.

[c] All other types of barriers are nonfederally funded.

[d] Have not been assigned a year of construction or a cost.

NOTES

Forty-five miles of barriers, while assigned a year of construction, cannot be assigned a cost.

California did not provide data for the years 1999 - 2004 and therefore these years may not be comparable with previous years.

SOURCE

U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, *Highway Traffic Noise Barrier Construction Trends* (Washington, DC: May 2006), tables 1 and 3.

Table 4-57: Number of People Residing in High Noise Areas Around U.S. Airports[a,b,c]
(Within 65 dB DNL noise-level contours)

	1975	1980	1985	1990	1995	1996	1997	1998	1999	2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010	2011
Exposure																					
People (thousands)	7,000	5,200	3,400	2,700	1,700	1,500	1,300	1,100	680	874	874	867	570	505	491	498	480	466	383	292	318
Percent of U.S. resident population	3.25	2.29	1.43	1.08	0.65	0.57	0.49	0.41	0.25	0.31	0.31	0.30	0.20	0.17	0.17	0.17	0.16	0.15	0.13	0.09	0.10
U.S. resident population (millions)	215.5	227.2	237.9	249.5	262.8	265.2	267.8	270.2	272.7	282.2	285.0	287.6	290.1	292.8	295.5	298.4	301.2	304.1	306.8	309.3	311.6

KEY: dB = decibels; DNL = day-night sound level; R = revised.

[a] Noise-level contours are graphical representations of noise levels on a map, similar to elevation contours on a topographic map. Noise-level contours are lines that join points of equal sound levels. Areas between given noise-level contour lines would have a noise level between the two contour values. The U.S. Department of Transportation, Federal Aviation Administration (FAA) has identified DNL 65 dB as the highest threshold of airport noise *Exposure* that is normally compatible with indoor and outdoor activity associated with a variety of land uses, including residential, recreational, schools, and hospitals.

[b] Estimates are for areas surrounding airport property of 250 of the largest civil airports with jet operations in the United States. They exclude *Exposure* to aircraft noise within an airport boundary.

[c] 1975 *Exposure* estimates were made by the U.S. Environmental Protection Agency. 1980–2011 estimates were made by Federal Aviation Administration.

NOTES

Noise *Exposure* people data for 2000 and forward was re-estimated using an enhanced version of U.S. MAGENTA (Model for Assessing the Global Exposure of Noise because of Transport Airplanes). The enhanced version of the model uses radar-based traffic data to account for unscheduled operations including freight, General Aviation and military operations. The enhanced U.S. MAGENTA also includes improvements to the acoustical model to account for differences in the sound attenuation characteristics between wing-mounted and tail-mounted aircraft engines. These enhancements result in computed population noise*Exposure* estimates that are more accurate and larger than previous versions of the model. Therefore, it is important to note that the "growth" in the number of people exposed from 1999 to 2000 resulted from improvements in measurement, not deterioration in aviation noise trends. In 2013, Federal Aviation Administration has revised the reporting of noise exposure from calendar year to fiscal year going back to 2000 to align with other agency performance metrics.

SOURCES

Exposure:

1975-2011: U.S. Department of Transportation, Federal Aviation Administration, Office of Environment and Energy, personal communications, June 3, 2010, Feb. 15, 2011, Oct. 18, 2011, and Feb. 11, 2013.

Population:

U.S. Census Bureau, Population Division, *Population Estimates*, available at http://www.census.gov/popest/ as of Nov. 29, 2012.

Table 4-58: Motor Vehicles Scrapped (Thousands)

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TOTAL motor vehicles	**8,298**	**6,576**	**10,137**	**9,829**	**11,073**	**10,850**	**12,781**	**8,413**	**12,369**	**10,332**	**10,811**	**12,509**	**11,665**	**11,664**	**14,299**	**14,122**	**13,296**	**12,085**	**11,134**	**10,071**	**12,074**	**12,707**	**14,016**	**(R) 10,430**	**10,629**	**11,998**
Passenger cars	7,461	5,669	8,405	7,729	8,897	8,565	11,194	7,366	7,824	7,414	7,527	8,244	6,819	7,216	8,085	7,650	U	U	U	U	U	U	U	U	U	U
Trucks	837	908	1,732	2,100	2,177	2,284	1,587	1,048	4,545	2,918	3,284	4,265	4,846	4,447	6,214	6,472	U	U	U	U	U	U	U	U	U	U

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

NOTES

Figures represent vehicles that are not re-registered.

Numbers may not add to totals due to rounding.

SOURCES

1970-2001: The Polk Co., personal communication, July 31, 2002.

2002-09: National Automobile Dealers Association, NADA Data: *Vehicles in Operation and Scrappage* , available at http://www.nada.org/Publications/NADADATA/ as of Jul. 13, 2012.

Metric Conversion Tables

Table 1-1M: System Kilometers Within the United States

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Highway[a]	5,706,240	5,937,942	6,002,985	6,176,897	6,211,806	6,218,364	6,223,214	6,250,563	6,278,181	6,284,828	6,287,055	6,296,117	6,308,068	6,350,265	6,286,564	6,304,192	6,334,735	6,354,229	6,383,439	6,395,705	6,407,622	6,430,351	6,464,318	6,489,078	(R) 6,506,221	6,518,997
Class I rail[b,c]	333,672	321,544	316,202	308,222	265,255	234,584	192,732	187,691	181,946	177,712	175,953	174,234	170,235	164,359	161,852	160,017	159,727	157,421	161,136	159,528	157,172	153,956	152,567	151,782	151,410	151,151
Amtrak[c]	N	N	N	N	38,624	38,624	38,624	40,234	40,234	40,234	40,234	38,624	40,234	40,234	35,406	37,015	37,015	37,015	37,015	36,492	35,818	35,417	34,936	34,936	34,083	34,083
Transit[d]																										
Commuter rail[c]	N	N	N	N	N	5,752	6,649	6,498	6,457	6,583	6,583	6,695	5,926	7,109	8,324	8,354	8,383	8,382	10,993	10,959	11,065	11,455	11,220	11,483	11,685	12,169
Heavy rail	N	N	N	N	N	2,081	2,174	2,203	2,258	2,336	2,342	2,346	2,379	2,457	2,457	2,478	2,507	2,530	2,530	2,571	2,569	2,610	2,613	2,613	2,613	2,613
Light rail	N	N	N	N	N	618	777	887	898	865	904	913	1,027	1,060	1,087	1,290	1,343	1,444	1,544	1,603	1,910	1,912	2,060	2,158	2,249	2,377
Navigable channels[e]	40,234	40,234	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	41,843	40,749	40,749	40,749
Oil pipeline[f]	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	254,675	259,088	257,316	(R) 263,078	(R) 262,193	(R) 262,141	(R) 267,563	(R) 272,922	276,884
Gas pipeline[g]	1,015,416	1,235,204	1,469,761	1,575,971	1,692,666	1,787,635	2,044,469	1,959,297	1,957,093	2,055,243	2,149,327	2,143,125	2,115,745	2,143,284	2,209,056	2,195,686	2,216,582	2,274,896	2,353,793	2,304,812	2,389,575	(R) 2,388,868	(R) 2,420,117	(R) 2,451,692	(R) 2,466,662	2,478,247

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

[a] All public road and street kilometers in the 50 states and the District of Columbia. For years prior to 1980, some kilometers of nonpublic roadways are included. No consistent data on privat road kilometers are available. Beginning in 1998, approximately 70,000 kilometers of Bureau of Land Management Roads are excluded.

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

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

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

[e] These are estimated sums of all domestic waterways which include rivers, bays, channels, and the inner route of the Southeast Alaskan Islands, but does not include the Great Lakes or deep ocean traffic. The Waterborne Commerce Statistics Center monitored 20,297 kilometers as commercially significant inland shallow-draft waterways in 2001. Beginning in 2007, waterways connecting lakes and the St. Lawrence seaway inside the U.S. are included.

[f] Includes trunk and gathering lines for crude-oil pipeline. CO2 or other is excluded for 2004 to 2008. The large drop in kilometer between 2000 and 2001 is due to a change in the source of the data.

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

NOTE

1 mile = 1.609344 kilometers

Eno Transportation Foundation has discontinued its oil pipeline data for years prior to 2001

SOURCES

Highway:

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

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

Class I rail:

1960-09: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), page 3, and similar tables in earlier editions.

Amtrak:

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

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

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

Transit:

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

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

Navigable channels:

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

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

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

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

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

Oil pipeline:

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

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

Gas pipeline:

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

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

Table 1-4M: Kilometers of Public Roads and Streets in the United States by Type of Surface[a] (Thousands of Kilometers)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	(R)1994	1995	1996	1997	1998	1999	2000	(R)2001	2002	2003	2004	2005	2006	2007	2008
TOTAL paved and unpaved	5,706	5,938	6,003	6,177	6,212	6,218	6,223	6,251	6,278	6,285	6,287	6,296	6,331	6,370	6,355	6,325	6,357	6,377	6,406	6,419	6,430	6,454	6,488	6,513	6,531
Paved[b], total	1,980	2,341	2,669	2,986	3,336	3,402	3,629	3,669	3,706	3,666	3,769	3,827	3,831	3,878	3,895	3,945	4,031	4,061	4,148	4,204	4,149	4,187	4,232	4,241	4,400
Low and intermediate type[c]	1,082	1,220	1,443	1,556	1,676	1,634	1,649	1,657	1,651	1,625	1,678	1,709	1,716	N	N	N	N	N	N	N	N	N	N	N	N
High-type[c]	899	1,121	1,226	1,430	1,660	1,769	1,980	2,012	2,055	2,041	2,091	2,118	2,115	N	N	N	N	N	N	N	N	N	N	N	N
Unpaved[d], total	3,726	3,597	3,334	3,191	2,876	2,816	2,594	2,582	2,572	2,619	2,518	2,469	2,500	2,492	2,460	2,380	2,326	2,315	2,258	2,215	2,281	2,267	2,256	2,272	2,131

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

[a] 1960-95 data include the 50 states and the District of Columbia; 1996-2008 data include the 50 states, District of Columbia, and Puerto Rico

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

[c] Beginning in 1997, data no longer available for paved minor collectors and local public roads

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

NOTES

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

Numbers may not add to totals due to rounding.

1 mile = 1.609344 kilometers

SOURCES

1960-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* (Washington, DC), table HM-212, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Jan. 7, 2010.

1996-2008: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table HM-12, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Jan. 7, 2010.

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

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TOTAL lane-kilometers	12,749,503	12,903,711	12,956,959	13,016,041	13,074,455	13,087,501	13,104,911	13,129,436	13,162,268	13,264,917	13,133,628	13,161,188	13,235,639	13,280,089	13,349,784	13,381,890	13,420,032	13,472,974	13,551,624	13,610,790	13,653,625	13,747,278	13,810,035	13,788,245
Urban, total	2,245,429	2,482,154	2,688,403	2,708,127	2,830,403	2,902,894	2,938,464	2,961,365	2,989,596	3,029,873	3,044,248	3,051,294	3,082,703	3,165,650	3,229,046	3,393,543	3,539,197	3,642,525	3,715,335	3,772,074	3,849,593	3,931,200	3,964,415	3,959,806
Interstate	77,986	92,207	100,124	101,109	108,254	111,341	113,993	114,870	115,535	116,286	117,492	117,954	118,950	119,867	120,873	128,089	133,456	138,381	141,532	143,666	146,069	146,368	148,546	149,208
Other arterial[b]	536,995	598,111	642,733	647,536	673,041	700,686	712,093	717,491	723,368	730,035	730,739	724,866	734,152	736,347	744,893	779,198	813,247	843,036	857,673	869,350	888,965	915,059	918,165	903,600
Collector[c]	233,561	261,320	270,000	266,005	283,465	289,123	295,078	297,780	300,823	303,925	301,805	299,876	303,474	305,032	307,132	333,707	350,274	362,984	373,131	376,350	390,612	406,331	414,060	405,620
Local	1,396,888	1,530,515	1,675,546	1,693,477	1,765,643	1,801,744	1,817,300	1,831,224	1,849,870	1,879,627	1,894,212	1,908,598	1,926,127	2,004,404	2,056,148	2,152,549	2,242,220	2,298,124	2,342,999	2,382,708	2,423,947	2,463,442	2,483,644	2,501,377
Rural, total	10,504,074	10,421,557	10,268,556	10,307,914	10,244,052	10,184,606	10,166,447	10,168,070	10,172,671	10,235,043	10,089,380	10,109,894	10,152,936	10,114,439	10,120,738	9,988,347	9,880,835	9,830,449	9,836,290	9,838,716	9,804,032	9,816,078	9,845,621	9,828,439
Interstate	210,792	212,284	218,663	219,680	214,794	212,655	211,252	212,298	213,983	214,308	214,415	215,971	216,597	216,713	216,569	209,833	205,817	202,076	200,170	198,773	197,668	196,144	198,916	199,293
Other arterial[b]	816,095	820,773	832,581	833,339	847,664	846,364	852,659	854,089	857,549	864,200	865,816	867,908	869,781	872,807	875,501	859,837	856,243	852,236	853,147	853,718	853,928	864,848	872,507	866,282
Collector[c]	2,303,401	2,360,568	2,361,876	2,361,810	2,319,815	2,308,561	2,304,885	2,281,129	2,279,896	2,283,075	2,278,467	2,275,537	2,276,686	2,275,862	2,267,167	2,234,598	2,222,041	2,210,189	2,202,341	2,203,997	2,198,491	2,219,178	2,225,165	2,203,875
Local	7,173,786	7,027,931	6,855,435	6,893,084	6,861,779	6,817,027	6,797,650	6,820,554	6,821,243	6,873,460	6,730,682	6,750,479	6,789,872	6,749,058	6,761,501	6,684,079	6,596,733	6,565,948	6,580,632	6,582,228	6,553,946	6,535,908	6,549,033	6,558,989

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

[b] *Urban other arterial* includes other freeways and expressways, other principal arterial, and minor arterial. *Rural other arterial* includes other principal arterial and minor arterial prior to 2009 and other freeways and expressways, other principal arterial and minor arterial for 2009 and later.

[c] *Collector* is the sum of major and minor collectors.

NOTES

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

1.609344 kilometer = 1 mile.

2009 data exclude 1,325 kilometers of federal agency owned roads and 114 kilometers of other non federal agency owned roads. 2008 data exclude 1,268 kilometers of federal agency owned roads. 2007 data exclude 1,268 kilometers of federal owned roads and 703 kilometers of local government owned roads. 2006 data exclude 1,268 kilometers of federal owned roads and include 441 kilometers of miscoded roads. 2005 data exclude 1,239 kilometers of federal agency owned roads.

SOURCES

1980-95: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Information Management, *Highway Statistics Summary to 1995* (Washington, DC), table HM-260, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 11, 2011.

1996-2011: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table HM-60, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 12, 2013.

Table 1-35M: 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	2007	2008	2009	2010
Air																											
Air carrier, domestic, all services	1,381	1,825	3,328	2,635	3,663	4,869	6,378	6,203	6,429	6,689	7,046	7,448	7,736	7,897	8,095	8,572	9,112	8,923	(R) 9,033	(R) 9,826	(R) 10,625	(R) 10,809	(R) 10,631	(R) 10,835	(R) 10,374	(R) 9,552	9,618
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	N	N	N	N
Highway[b], total	1,156,737	1,428,793	1,785,928	2,136,668	2,457,943	2,856,307	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	4,499,098	4,595,495	4,651,360	4,771,364	4,811,021	4,851,160	4,878,121	4,790,257	(R) 4,758,450	4,774,110
Light duty vehicle, short wheel-base[b,c,d]	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	2,618,991	2,669,055	2,690,770	2,735,708	2,749,437	2,720,651	3,386,729	3,258,531	(R) 3,243,977	3,259,559
Motorcycle[d]	U	U	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	15,502	15,372	15,411	16,290	16,825	19,392	34,434	33,492	(R) 33,510	29,712
Light duty vehicle, long wheel-base[b,c,d]	U	U	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	1,516,991	1,554,681	1,583,627	1,653,060	1,675,410	1,742,099	944,071	974,388	(R) 993,824	1,001,435
Truck, single-unit 2-axle 6-tire or more[d]	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	116,506	122,094	125,124	126,239	126,327	129,301	193,087	204,153	(R) 193,454	178,112
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	219,730	223,276	225,514	229,122	231,790	228,799	296,440	295,839	(R) 270,530	283,102
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	11,378	11,016	10,914	10,945	11,234	10,917	23,361	23,856	(R) 23,154	22,191
Transit[e], total	3,449	3,232	3,031	3,502	3,680	4,491	5,217	5,321	5,399	5,528	5,580	(R) 5,713	4,959	5,151	5,386	5,632	5,801	6,012	6,203	6,300	6,392	6,525	6,641	6,820	7,041	7,201	7,081
Motor bus[f]	2,537	2,460	2,268	2,456	2,699	2,998	3,428	3,487	3,505	3,556	3,479	3,514	2,917	2,976	3,064	3,195	3,284	3,386	3,470	3,504	3,491	3,528	3,563	3,607	3,656	3,678	3,586
Light rail	120	67	54	38	28	27	39	44	46	45	55	56	60	66	70	77	84	87	98	104	108	111	120	134	141	145	150
Heavy rail	629	636	655	681	619	725	864	848	846	840	856	865	874	897	910	930	958	979	999	1,014	1,034	1,040	1,049	1,058	1,085	1,102	1,072
Trolley bus	162	69	53	25	21	25	22	22	22	21	22	22	22	22	22	23	23	21	22	22	22	21	20	18	19	21	19
Commuter rail	N	N	N	278	288	294	342	346	352	360	371	383	389	403	417	428	436	446	456	460	474	488	506	523	543	543	551
Demand responsive[f]	N	N	N	N	N	398	492	539	585	653	746	815	584	659	755	795	856	930	986	1,030	1,047	1,100	1,139	1,211	1,292	1,363	1,299
Ferry boat[g]	N	N	N	N	U	U	4	4	4	4	3	(R) 4	3	3	4	4	4	4	4	5	5	5	4	6	5	5	5
Other[g]	N	N	N	24	25	24	26	31	39	48	47	55	109	124	145	181	156	160	167	162	210	232	240	263	300	344	399
Rail																											
Class I freight, train-kilometers	651	677	687	648	690	559	611	603	628	653	710	738	754	764	764	789	811	804	804	830	861	881	905	875	844	702	766
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	61,454	59,909	51,684	57,198
Intercity/Amtrak[h], 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	60	61	62	60
Intercity/Amtrak[h], car-kilometers	3,554	2,857	1,110	407	378	404	484	504	494	488	489	470	444	463	502	550	592.238592	608	609	534	496	426	425	429	437	455	474
Total train-kilometers[i]	987	954	837	(R) 696	(R) 738	607	(R) 664	658	(R) 683	709	764	789	803	816	(R) 817	(R) 844	867	862	865	891	920	939	963	935	904	764	826

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

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

[b] 1960-99 data are for Passenger Cars and Other 2-axle, 4-tire vehicles, respectively. Data for 1960-99 are not comparable to data for 2000-09.

[c] U.S. Department of Transportation, Federal Highway Administration (FHWA), provides data separately for *Light duty vehicle, short wheel base* (formerly *Passenger car*) and *Motorcycle* in its annual *Highway Statistics* series. However, the 1995 summary report provides updated data for *Light duty vehicle, short wheel base* (formerly *Passenger car*) and *Motorcycle* combined. *Light duty vehicle, short wheel base* (formerly *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 *Light duty vehicle, short wheel base* (formerly *Passenger car*) and *Motorcycle* figures.

[d] 1960–65, *Motorcycle* data are included in *Light duty vehicle, short wheel base* (formerly *Passenger car*), and *Long duty vehicle, long wheel base* (formerly *Other 2-axle 4-tire vehicle*) data included in *Single-unit 2-axle 6-tire* or more *Truck*.

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

[g] *Ferry boat* included with *Other* under *Transit* for 1980 and 1985.

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

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

NOTES

Data for 2007-09 were calculated using a new methodology developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category *Light duty vehicle, short wheel base* includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. The new category *Light duty vehicle, long wheel base* includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches. This edition of 1-35M is not comparable to previous editions.

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.

Numbers may not add to totals due to rounding.

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

1 mile = 1.609344 kilometers.

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.

1975-2010: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class, Revenue Aircraft Miles Flown by Carrier Group (1-6) and Carrier Region (D for domestic) for all services (Z for all services), 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 Jan. 30, 2012.

General aviation:

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

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

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

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

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

Highway:

Passenger car and motorcycle:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

1995-2006: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

Light duty vehicle, short wheel base:

2007-10: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

Motorcycle:

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

1985-2010: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

Other 2-axle 4-tire vehicle:

1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

1995-2010: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

Light duty vehicle, long wheel base:

2007-10: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

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

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

1995-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

Transit:

1960-95: American Public Transportation Association, *Public Transportation Fact Book* (Washington, DC: Annual Issues), tables 6, 51, and similar tables in earlier editions.

1996-2010: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database*, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Mar. 6, 2012.

Rail:

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

Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), pp. 33 and 34.

Intercity/Amtrak train-miles:

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

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

2002-10: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77.

Intercity/Amtrak car-miles:

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

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

2001-10: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77.

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

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Urban VKT, total (millions)	1,376,416	1,680,313	2,052,693	2,073,635	2,193,623	2,268,647	2,332,337	2,397,173	2,452,457	2,499,240	2,567,901	2,619,397	2,677,583	2,714,387	2,780,296	2,905,683	3,045,305	3,141,230	3,181,749	3,209,867	3,191,476	3,177,784	3,190,295	3,173,777
Interstate	259,494	347,921	448,848	459,186	488,058	510,804	532,012	549,636	565,812	581,670	602,896	616,796	633,221	643,715	657,607	696,255	731,262	754,895	768,113	777,820	766,194	764,114	768,771	767,181
Other arterial[b]	779,227	930,635	1,125,306	1,138,640	1,199,956	1,245,597	1,284,094	1,311,889	1,343,196	1,362,514	1,388,857	1,413,250	1,449,040	1,470,837	1,508,530	1,567,398	1,641,674	1,686,945	1,706,062	1,718,989	1,709,487	1,695,490	1,693,950	1,680,322
Collector[c]	133,645	144,162	171,068	172,652	186,789	189,721	193,263	204,272	208,104	209,450	212,281	211,794	217,860	221,962	228,324	247,438	260,888	270,431	278,754	281,090	282,261	289,670	290,592	287,716
Local	204,050	257,595	307,470	303,157	318,821	322,525	322,968	331,375	335,345	345,607	363,868	377,557	377,462	377,872	385,835	394,592	411,482	428,959	428,819	431,969	433,533	428,510	436,982	438,558
Rural VKT, total (millions)	1,081,527	1,175,993	1,398,324	1,421,941	1,422,816	1,427,015	1,461,833	1,501,983	1,545,282	1,608,180	1,661,693	1,710,126	1,743,164	1,787,494	1,815,598	1,746,758	1,722,397	1,670,398	1,669,001	1,666,159	1,593,923	1,580,666	1,583,833	1,567,562
Interstate	217,397	248,414	322,147	329,933	330,812	335,239	346,923	359,498	374,277	386,653	404,782	418,697	431,594	440,347	450,555	434,434	429,688	416,482	415,071	412,697	391,537	389,748	395,331	392,016
Other arterial[b]	422,894	455,127	532,477	538,736	553,714	562,574	575,065	593,196	609,695	630,955	649,345	665,174	676,888	687,966	698,141	670,446	659,741	642,019	634,885	633,221	602,334	600,060	605,778	600,445
Collector[c]	304,919	332,602	386,983	395,303	378,051	364,188	371,000	380,043	387,900	408,934	414,998	425,596	430,067	437,917	442,581	424,323	419,928	404,890	404,549	404,773	388,106	372,300	369,115	366,535
Local	136,318	139,850	156,716	157,968	160,239	165,014	168,844	169,245	173,410	181,639	192,568	200,659	204,615	221,264	224,320	217,554	213,040	207,007	214,497	215,469	211,946	218,557	213,609	208,565
Urban VKT per lane-kilometer, total (thousands)	613	677	764	766	775	782	794	809	820	825	844	858	869	857	861	856	860	862	856	851	829	808	805	801
Interstate	3,327	3,773	4,483	4,542	4,508	4,588	4,667	4,785	4,897	5,002	5,131	5,229	5,323	5,370	5,440	5,436	5,479	5,455	5,427	5,414	5,245	5,221	5,175	5,142
Other arterial[b]	1,451	1,556	1,751	1,758	1,783	1,778	1,803	1,828	1,857	1,866	1,901	1,950	1,974	1,997	2,025	2,012	2,019	2,001	1,989	1,977	1,923	1,853	1,845	1,860
Collector[c]	572	552	634	649	659	656	655	686	692	689	703	706	718	728	743	741	745	745	747	747	723	713	702	709
Local	146	168	184	179	181	179	178	181	181	184	192	198	196	189	188	183	184	187	183	181	179	174	176	175
Rural VKT per lane-kilometer, total (thousands)	103	113	136	138	139	140	144	148	152	157	165	169	172	177	179	175	174	170	170	169	163	161	161	159
Interstate	1,031	1,170	1,473	1,502	1,540	1,576	1,642	1,693	1,749	1,804	1,888	1,939	1,993	2,032	2,080	2,070	2,088	2,061	2,074	2,076	1,981	1,987	1,987	1,967
Other arterial[b]	518	555	640	646	653	665	674	695	711	730	750	766	778	788	797	(R) 780	771	753	744	742	705	694	694	693
Collector[c]	132	141	164	167	163	158	161	167	170	179	182	187	189	192	195	190	189	183	184	184	177	168	166	166
Local	19	20	23	23	23	24	25	25	25	26	29	30	30	33	33	33	32	32	33	33	32	33	33	32

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

[b] *Urban other arterial* includes other freeways and expressways, other principal arterial, and minor arterial. *Rural other arterial* includes other principal arterial and minor arterial prior to 2009, and includes other freeways and expressways, other principal arterial and minor arterial for 2009.

[b] *Collector* is the sum of major and minor collectors.

NOTES

See table 1-6M for estimated highway *Lane-kilometers* by functional class.

1 mile=1.609344 kilometers.

Component values may not add to totals due to rounding.

2009 data exclude 1,325 kilometers of federal agency owned roads and 114 kilometers of other non federal agency owned roads. 2008 data exclude 1,268 kilometers of federal agency owned roads. 2007 data exclude 1,268 kilometers of federal owned roads and 703 kilometers of local government owned roads. 2006 data exclude 1,268 kilometers of federal owned roads and included 441 kilometers of miscoded roads. 2005 data exclude 1,239 kilometers of federal agency owned roads.

SOURCES

Vehicle-Kilometers Traveled (VMT):

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

1995-2011: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-2, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 13, 2013.

Lane-kilometers:

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

1996-2011: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table HM-60, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 13, 2013.

Table 1-38M: 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	2004	2005	2006	2007	2008	2009	2010
Freight																											
Air carrier	U	U	U	U	U	U	U	2,104	2,408	2,379	2,542	2,502	2,319	1,795	1,778	1,697	1,733	1,158	1,938	(R) 1,927	(R) 1,997	(R) 1,961	(R) 1,960	(R) 1,963	(R) 2,005	(R) 1,869	1,862
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	1,451	1,438	1,457	1,469	1,479	1,478	1,470
Coastwise (water)	2,408	2,416	2,429	2,192	3,082	3,174	2,582	2,744	2,835	2,656	2,659	2,658	2,456	2,140	2,030	2,059	2,013	1,976	1,961	2,008	2,042	1,984	1,812	1,783	1,796	1,884	1,882
Lakewise (water)	840	795	814	853	863	843	890	861	836	827	817	828	817	815	812	806	814	818	851	852	867	869	882	874	895	853	907
Internal (water)	454	478	531	576	652	700	756	777	771	752	775	795	768	750	759	785	775	766	777	735	730	708	717	703	714	755	749
Intraport (water)	U	U	U	26	27	24	20	21	20	20	25	26	27	25	25	25	25	24	24	25	26	27	28	27	26	38	26
Crude (oil pipeline)	523	515	483	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Petroleum products (oil pipeline)	433	539	575	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	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	1,342	1,359	(R) 1,370	(R) 1,359	1,387	(R) 1,394	(R) 1,404	(R) 1,404	(R) 1,403	1,403	1,413
Commuter rail	U	U	U	U	37	38	35	37	37	35	38	39	38	36	37	36	37	37	37	38	38	36	38	39	38	39	38
Amtrak[a]	N	N	N	380	348	372	439	459	460	451	449	431	412	412	404	399	393	381	376	372	352	345	355	351	346	349	355

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

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

NOTES

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

Eno Transportation Foundation has discontinued some data series years prior to 1990.

1.609344 kilometers = 1 mile.

SOURCES

Freight:

Air carrier:

1991-2001: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Air Freight Summary Data (U.S. Carriers)*, special tabulation, available at http://www.transtats.bts.gov/rtm91_02.htm as of Aug. 18, 2011.

2002: Ibid., *TranStats Database, T-100 Market Data*, special tabulation, Mar. 18, 2010.

2003-10: Ibid., *Air Cargo Summary Data (All U.S. Carriers)*, special tabulation, available at http://www.transtats.bts.gov/freight.asp as of July 17, 2012.

Class I rail:

Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), pp. 27, 28, 36, and similar pages in previous editions.

Water:

U.S. Army Corps of Engineers, *Waterborne Commerce of the United States, Part 5* (New Orleans, LA: Annual Issues), section 1, table 1-4, available at http://www.iwr.usace.army.mil/ndc/wcsc/wcsc.htm as of July 17, 2012.

Oil pipeline:

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

Passenger:

Air carrier:

1960-99: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics, T-100 Segment Data* (Washington, DC: Annual Issues), p. 3 and similar pages in previous issues.

2000-10: Ibid., *TranStats Database, T-100 Market Data* and *T-100 Segment Data*, special tabulation, July 17, 2012.

Commuter Rail:

1980-95: American Public Transportation Association, *Public Transportation Fact Book, Appendix A: Historical Tables* (Washington, DC: April 2011), table 3, available at http://www.apta.com/resources/statistics/Pages/transitstats.aspx as of Aug. 18, 2011.

1996-2010: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, DC: Annual Issues), table 19 and similar tables in earlier editions, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of July 17, 2012.

Amtrak:

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

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

2003-10: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in previous editions.

Table 1-40M: U.S. Passenger-Kilometers (Millions)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Air																												
Air carrier, certificated, domestic, all services	50,049	85,659	174,520	192,464	307,008	443,959	556,629	544,096	570,938	582,948	625,086	650,033	699,504	725,288	744,730	785,263	829,775	782,956	778,157	813,687	898,327	939,489	947,052	977,779	938,717	887,941	908,788	926,359
Highway, total	**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**	**6,760,265**	**6,927,051**	**7,323,440**	**7,385,358**	**7,547,724**	**7,629,479**	**7,833,881**	**7,887,734**	**7,974,402**	**(R) 8,016,284**	**(R) 7,886,061**	**(R) 7,475,990**	**(R) 6,831,397**	**6,798,346**
Light duty vehicle, short wheel base[a,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	5,001,406	5,051,924	5,176,916	5,214,853	5,295,644	5,330,719	5,207,439	5,351,032	5,148,478	4,507,134	(R) 4,529,562	4,569,061
Motorcycle[b,c]	U	U	5,274	9,965	19,725	19,009	19,995	18,759	19,226	19,609	19,940	17,344	17,561	17,846	18,203	18,736	24,885	22,729	22,832	23,267	30,607	28,150	39,154	43,731	(R) 42,535	36,094	(R) 32,091	32,069
Light duty vehicle, long wheel base[a,b,c]	U	U	363,090	584,622	838,104	1,107,376	1,608,947	1,797,569	1,933,896	2,016,283	2,042,728	2,021,571	2,089,410	2,176,919	2,221,791	2,305,586	1,370,778	1,429,314	1,449,525	1,474,098	1,588,837	1,621,635	1,764,987	(R) 1,636,714	1,689,275	1,327,699	(R) 1,338,832	1,296,951
Truck, single-unit 2-axle 6-tire or more[d]	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	161,716	166,519	172,710	181,410	179,020	176,602	198,460	193,087	204,153	193,454	(R) 178,216	166,592
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	259,487	271,930	270,719	279,284	278,352	281,841	285,370	296,440	295,839	(R) 270,531	(R) 282,905	263,437
Bus[e]	U	U	U	U	U	152,767	195,371	196,189	197,138	208,977	218,663	219,038	223,918	233,451	239,081	261,430	505,168	442,942	455,024	456,569	461,421	448,787	478,991	495,280	(R) 505,781	(R) 490,872	(R) 469,790	470,237
Transit, total[f]	**U**	**U**	**U**	**U**	**64,139**	**63,699**	**66,213**	**65,505**	**64,762**	**63,382**	**63,706**	**64,065**	**62,739**	**64,664**	**66,957**	**69,651**	**72,582**	**74,847**	**74,184**	**73,510**	**74,908**	**75,840**	**79,669**	**83,482**	**86,441**	**86,741**	**84,695**	**87,433**
Motor bus[e]	U	U	U	U	35,068	34,055	33,766	33,941	32,728	32,584	30,307	30,285	27,040	28,178	28,765	30,069	30,267	31,516	31,670	30,865	30,450	31,261	32,815	32,811	34,115	33,957	33,104	31,998
Light rail	U	U	U	U	613	563	919	1,065	1,128	1,135	1,341	1,384	1,537	1,647	1,795	1,915	2,156	2,297	2,304	2,375	2,537	2,735	3,003	3,107	3,349	3,534	3,497	3,537
Heavy rail	U	U	U	U	16,991	16,781	18,467	16,943	17,280	16,465	17,168	16,993	18,556	19,402	19,770	20,764	22,279	22,817	21,989	21,897	23,101	23,203	23,692	25,972	27,117	27,045	26,404	27,868
Trolley bus	U	U	U	U	352	492	311	314	320	303	301	301	296	304	292	300	309	301	302	283	279	278	264	250	259	270	272	258
Commuter rail	6,754	6,643	7,390	7,263	10,486	10,515	11,397	11,819	11,780	11,169	12,868	13,267	13,439	12,935	14,005	14,104	15,128	15,359	15,288	15,378	15,635	15,241	16,671	17,923	17,754	17,911	17,339	18,208
Demand responsive[e]	U	U	U	U	U	586	694	731	797	904	929	977	629	855	826	900	946	1,007	1,048	1,108	1,133	1,188	1,212	1,252	1,358	1,418	1,406	1,414
Ferry boat[g]	U	U	U	U	U	U	460	454	436	418	418	418	411	409	451	474	480	475	485	590	575	578	579	613	628	587	626	627
Other[g]	U	U	U	U	628	707	200	238	293	404	373	439	830	932	1,053	1,125	1,018	1,074	1,098	1,012	1,199	1,355	1,434	1,555	1,860	2,018	2,047	3,522
Rail																												
Intercity/Amtrak[h]	27,462	21,340	9,944	6,326	7,247	7,765	9,748	10,095	9,803	9,976	9,529	8,924	8,127	8,314	8,536	8,578	8,848	8,946	8,800	9,141	8,869	8,660	8,706	9,309	9,943	9,518	10,332	10,735

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

Table 1-49M: U.S. Tonne-Kilometers of Freight (Millions)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
TOTAL U.S. tonne-kilometers of freight (millions)	U	(R) 1,735,956	(R) 1,990,983	(R) 2,672,780	(R) 3,552,874	(R) 3,415,473	4,839,335	4,888,912	4,990,309	5,020,175	5,277,541	5,502,687	5,582,528	5,555,831	5,594,959	5,704,438	5,704,172	(R) 5,740,348	(R) 5,802,335	(R) 5,879,297	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	(R) 21,261	(R) 20,420	(R) 22,205	(R) 24,018	(R) 22,937	(R) 22,343	(R) 22,006	(R) 20,068	17,559
Intercity truck	U	U	U	U	U	U	1,246,816	1,276,016	1,308,135	1,366,534	1,454,132	1,521,291	1,563,630	1,633,709	1,677,508	1,731,527	1,756,346	1,787,006	1,832,265	1,845,405	U	U	U	U	U	U
Class I rail	835,555	1,018,882	1,116,600	1,101,187	1,341,653	1,280,372	1,509,566	1,516,728	1,557,470	1,619,560	1,752,990	1,906,268	1,979,686	1,969,394	2,010,092	2,092,813	2,140,261	2,183,347	2,200,194	2,265,056	2,427,347	2,476,733	2,586,920	2,584,946	2,594,715	2,236,990
Domestic water transportation[b,c]	U	715,099	870,428	826,321	1,345,855	1,303,711	1,216,951	1,238,639	1,250,736	1,152,878	1,189,759	1,179,260	1,116,421	1,032,799	982,262	957,539	942,849	907,644	893,620	884,957	906,891	863,248	819,962	807,585	759,945	696,584
Coastwise	U	441,708	525,275	461,126	921,460	892,009	699,522	733,100	733,360	654,658	668,084	642,892	595,794	510,761	459,692	427,378	414,445	400,848	384,977	407,213	408,584	384,650	331,640	332,950	303,495	286,578
Lakewise	U	110,838	115,946	100,033	90,149	70,347	88,956	80,794	81,444	82,398	85,063	87,166	85,168	90,760	90,014	83,284	84,502	74,245	78,332	69,406	81,369	75,808	77,532	75,762	73,383	48,923
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	409,468	396,554	380,984	357,685
Intraport	U	2,392	1,721	1,785	2,331	1,609	1,587	1,413	1,387	1,346	1,887	1,970	2,153	2,012	2,016	1,989	2,176	2,063	1,940	1,950	2,167	2,221	2,323	2,320	2,074	3,398
Oil pipeline[d]	U	U	U	740,206	858,756	823,862	852,770	844,594	859,632	865,617	863,427	877,589	904,015	900,073	904,891	901,825	842,842	841,090	855,836	861,675	875,399	886,933	848,682	814,226	(R) 919,636	U

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

[a] Includes freight, express, and mail revenue ton-miles as reported on U.S. DOT Form 41.
[b] Excludes intraterritorial traffic, for which ton-miles were not compiled.
[c] The large increase between1975 and 1980 was a result of a new Alaska pipeline and consequent water transportation of crude petroleum from Alaskan ports to the mainland United States for refining.

NOTES
Numbers may not add to totals due to rounding.
Eno Transportation Foundation has discontinued its intercity truck data for years prior to 1990.
1.459972 tonne-kilometers= 1 ton-mile.

SOURCES
Air carrier, domestic, all services:
1960-65: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969* (Washington, DC: 1970).
1970-80: Ibid., *Air Carrier Traffic Statistics* (Washington, DC: Annual Issues), p. 2, line 3.
1985-2000: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Traffic Statistics* (Washington, DC: Annual Issues), p. 3, line 3.
2001-2009: U.S. Department of Transportation, Research and Innovative Technology, Administration, Bureau of Transportation Statistics, *TranStats* table,
Intercity truck:
1960-2003: Eno Transportation Foundation, Inc., *Transportation in America, 2007* (Washington, DC: 2007), p. 40.
Class I rail:
Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issue), p. 27.

Domestic water transportation:
U.S. Army Corps of Engineers, *Waterborne Commerce of the U.S.* (New Orleans, LA: Annual Issues), part 5, section 1, table 1-4, and similar tables in
Oil pipeline:
1975: Association of Oil Pipe Lines, *Shifts in Petroleum Transportation* (Washington, DC: Annual Issue), table 4.
1980-2008: Ibid., *Shifts in Petroleum Transportation* (Washington, DC: Annual Issues), table 1.

Table 1-50M: U.S. Tonne-Kilometers of Freight (BTS Special Tabulation) (Millions)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
TOTAL U.S. ton-miles of freight	4,969,620	4,915,544	4,665,313	4,747,646	4,876,494	4,838,132	4,859,174	5,072,668	5,251,540	5,208,871	5,287,736	5,308,407	5,469,427	5,500,046	5,759,311	5,991,826	6,093,814	6,101,563	6,173,311	6,278,087	6,319,854	6,361,648	6,437,017	6,445,673	6,629,495	6,672,534	6,760,826	(R) 6,855,379	6,784,654	6,281,266
Air	7,066	7,431	7,504	8,570	9,490	9,796	10,716	12,658	13,622	14,906	15,213	14,541	16,045	16,848	17,563	18,571	20,089	20,294	20,644	21,170	23,082	19,400	20,202	22,237	24,018	22,987	22,427	22,106	20,109	17,559
Truck	919,160	920,948	944,002	983,894	1,031,882	1,046,352	1,073,218	1,131,184	1,169,042	1,209,404	1,238,995	1,266,962	1,299,503	1,354,607	1,442,108	1,509,428	1,550,171	1,621,117	1,663,775	1,717,218	1,741,211	1,770,966	1,818,164	1,846,237	1,870,760	1,885,273	1,885,180	(R) 2,049,126	2,086,732	1,929,201
Railroad	1,360,694	1,349,014	1,182,577	1,227,836	1,314,108	1,279,241	1,301,177	1,389,806	1,497,469	1,526,588	1,554,005	1,521,187	1,603,603	1,657,092	1,782,732	1,922,797	2,010,520	2,030,951	2,114,554	2,195,309	2,257,582	2,334,980	2,344,032	2,341,159	2,459,187	2,530,612	2,709,565	2,656,613	2,525,368	2,309,811
Domestic water transportation	1,345,853	1,356,917	1,294,220	1,342,541	1,296,045	1,303,713	1,275,141	1,307,281	1,299,417	1,190,680	1,216,951	1,238,639	1,250,733	1,152,877	1,189,756	1,179,260	1,116,422	1,032,799	982,262	957,539	942,848	907,646	893,620	884,956	906,891	863,246	819,962	807,573	759,906	696,584
Coastwise	921,460	926,739	923,735	948,617	867,111	892,009	848,082	856,738	819,913	706,464	699,522	733,100	733,360	654,657	668,083	642,891	595,794	510,761	459,693	427,378	414,445	400,848	384,977	407,214	408,583	384,650	331,640	332,950	303,495	286,578
Lakewise	90,149	90,734	52,009	62,907	72,683	70,347	63,068	73,111	84,912	85,128	88,956	80,793	81,443	82,398	85,062	87,166	85,167	90,761	90,013	83,284	84,502	74,245	78,332	69,406	81,369	75,808	77,532	75,762	73,343	48,923
Internal	331,914	337,522	316,853	329,411	354,562	339,747	362,244	375,703	392,785	397,342	426,886	423,332	434,543	414,477	434,724	447,232	433,307	429,265	430,540	444,889	441,726	430,489	428,370	406,386	414,772	400,568	408,468	396,539	380,994	357,685
Intraport	2,330	1,921	1,623	1,606	1,689	1,609	1,748	1,729	1,807	1,746	1,587	1,413	1,387	1,345	1,886	1,971	2,153	2,012	2,016	1,988	2,175	2,063	1,940	1,951	2,167	2,221	2,323	2,323	2,074	3,398
Pipeline	1,336,846	1,281,234	1,237,010	1,184,805	1,224,970	1,199,030	1,198,922	1,231,739	1,271,990	1,267,292	1,262,572	1,267,078	1,299,542	1,318,621	1,327,152	1,361,770	1,396,612	1,396,402	1,392,076	1,386,852	1,355,130	1,328,657	1,360,999	1,351,084	1,368,640	1,370,416	1,323,692	1,319,961	(R) 1,392,539	1,328,110
Oil and oil products	858,464	823,424	826,344	811,744	829,264	823,424	843,864	857,004	877,443	852,624	852,770	844,594	859,632	865,617	863,427	877,589	904,015	900,073	904,891	901,825	842,842	841,090	855,836	861,675	875,399	886,933	848,682	814,226	(R) 884,305	829,848
Natural Gas	478,383	457,809	410,666	373,060	395,706	375,606	355,058	374,736	394,547	414,669	409,802	422,484	439,911	453,004	463,724	484,181	492,597	496,330	487,185	485,027	512,288	487,568	505,163	489,409	493,240	483,483	475,010	505,735	508,234	498,262

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

NOTES

BTS developed a more comprehensive and reliable estimates of ton-miles for the *Air*, *Truck*, *Rail*, *Water* , and *Pipeline* modes than are presented in table 1-49. These improved estimates are not comparable to data in table 1-49M.

Numbers may not add to totals due to rounding.

1.459972 tonne-kilometers = 1 ton mile.

SOURCE

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

Table 1-56M: U.S. Waterborne Freight (Million short tonnes)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	(R) 2008	(P) 2009
TOTAL freight	997.8	1,154.8	1,389.5	1,537.7	1,813.4	1,622.4	1,963.0	1,897.9	1,934.2	1,930.7	2,009.2	2,032.5	2,072.1	2,116.6	2,122.4	2,107.0	2,199.6	2,171.2	2,123.1	2,172.0	2,315.1	2,293.0	2,348.2	2,326.0	2,247.2	2,005.6
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	1,399.3	1,379.6	1,228.0
Imports	191.7	244.8	307.8	432.3	469.5	374.4	544.3	503.8	532.3	588.6	652.7	610.2	664.6	715.1	762.7	780.9	852.5	863.5	848.2	911.5	988.0	995.1	1,025.9	975.8	906.0	779.2
Exports	116.1	157.8	219.2	246.9	366.4	328.1	400.6	415.7	408.9	373.1	359.5	430.6	409.0	392.2	367.1	362.9	376.5	362.0	348.7	338.7	377.2	364.5	393.8	423.5	473.6	448.8
Domestic	690.0	752.2	862.5	858.5	977.5	920.0	1,018.1	978.4	993.0	969.0	997.0	991.6	998.5	1,009.3	992.6	963.2	970.5	945.7	926.2	921.8	949.9	933.4	928.5	926.7	867.6	777.5
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	569.4	564.2	533.9	474.0
Coastal	189.8	182.8	216.3	210.4	299.0	281.0	270.9	267.2	258.7	246.5	251.3	241.9	242.6	238.7	226.5	207.6	205.9	202.9	196.3	202.7	200.1	193.8	183.1	186.7	169.0	152.2
Great Lakes	140.7	139.4	142.5	117.3	104.4	83.4	99.9	93.8	97.4	99.7	104.1	105.3	104.2	111.3	110.8	103.3	103.7	90.7	92.0	81.4	93.9	87.3	87.9	86.8	82.0	57.3
Intraport	94.5	93.3	73.9	71.0	85.4	67.4	78.4	68.6	69.7	67.5	75.2	75.4	80.7	81.5	81.7	80.4	85.8	84.6	81.7	78.8	82.8	81.8	82.9	84.4	78.9	89.8
Intraterritory	0.9	1.3	1.5	2.6	3.3	3.1	4.1	4.1	3.9	4.5	5.4	6.2	6.6	5.7	6.5	5.3	5.0	5.3	4.6	5.8	5.0	4.4	5.3	4.7	3.8	4.2

KEY: P = preliminary; R = Revised.

NOTES

Beginning in 1996, shipments of fish are excluded from domestic *Inland* and *Intraport* tonnage.
Numbers may not add to totals due to rounding.
1 short ton = .907185 short tonnes.

SOURCES

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

1965-2009: Ibid., *Waterborne Commerce of the United States* (New Orleans, LA: Annual Issues), tables 1-2 and 1-3, available at http://www.ndc.iwr.usace.army.mil/wcsc/wcsc.htm as of Apr. 6, 2011.

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

	1975		1980		1985		1990		1995		1996		1997		1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008	
	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent	Tonne-kilometers	Percent
Crude oil, total	484.0	100.0	1099.4	100.0	1147.8	100.0	917.2	100.0	855.5	100.0	793.1	100.0	710.9	100.0	663.0	100.0	617.6	100.0	548.9	100.0	549.8	100.0	560.6	100.0	555.4	100.0	546.2	100.0	549.4	100.0	534.3	100.0	489.8	100.0	578.7	100.0
Pipelines[a]	420.5	86.9	529.4	48.2	488.2	42.5	488.8	53.3	490.4	57.3	493.9	62.3	492.6	69.3	487.8	73.6	468.8	75.9	413.8	75.4	404.4	73.6	418.4	74.6	415.4	74.8	414.2	75.8	428.5	78.0	438.7	82.1	389.2	79.5	482.8	83.4
Water carriers[b]	59.3	12.3	565.6	51.4	655.8	57.1	425.1	46.4	361.6	42.3	295.5	37.3	215.1	30.3	172.1	26.0	146.0	23.6	132.9	24.2	143.2	26.0	139.7	24.9	137.4	24.7	129.5	23.7	118.4	21.6	93.1	17.4	97.7	19.9	92.3	15.9
Motor carriers[c]	2.0	0.4	3.6	0.3	2.6	0.2	2.2	0.2	2.5	0.3	2.5	0.3	2.5	0.3	2.3	0.4	2.0	0.3	1.8	0.3	1.6	0.3	1.8	0.3	1.9	0.3	1.8	0.3	2.0	0.4	2.0	0.4	2.3	0.5	2.5	0.4
Railroads	2.2	0.5	0.7	0.1	1.2	0.1	1.0	0.1	1.2	0.1	1.2	0.1	0.7	0.1	0.7	0.1	0.7	0.1	0.6	0.1	0.6	0.1	0.7	0.1	0.7	0.1	0.7	0.1	0.6	0.1	0.6	0.1	0.6	0.1	1.0	0.2
Refined petroleum products, total	752.2	100.0	718.7	100.0	597.6	100.0	654.9	100.0	670.0	100.0	699.3	100.0	685.6	100.0	694.5	100.0	715.2	100.0	736.0	100.0	720.1	100.0	701.7	100.0	734.2	100.0	771.4	100.0	773.3	100.0	714.5	100.0	720.8	100.0	709.1	100.0
Pipelines[a]	319.7	42.5	329.4	45.8	335.6	56.2	364.0	55.6	387.2	57.8	410.1	58.6	407.5	59.4	417.1	60.1	433.0	60.5	429.1	59.1	436.7	60.6	437.4	62.3	446.3	60.8	461.2	59.8	458.4	59.3	410.1	57.4	425.0	58.2	436.8	61.6
Water carriers	375.8	50.0	336.4	46.8	206.1	34.5	230.4	35.2	223.7	33.4	225.0	32.2	216.5	31.6	214.8	30.9	215.3	30.1	224.0	30.8	213.0	29.6	192.6	27.4	213.2	29.0	231.0	29.9	232.7	30.1	218.0	30.5	217.7	29.8	191.0	26.9
Motor carriers[c]	38.3	5.1	35.5	5.0	39.3	6.6	41.2	6.3	35.9	5.4	40.9	5.8	38.0	5.5	39.0	5.6	40.3	5.6	43.9	6.1	43.4	6.0	42.9	6.1	46.6	6.3	48.5	6.3	48.8	6.3	49.3	6.9	48.9	6.7	48.8	6.9
Railroads	18.4	2.4	17.5	2.4	16.5	2.7	19.4	3.0	23.2	3.5	23.4	3.3	23.7	3.4	23.7	3.4	26.6	3.7	29.1	4.0	27.0	3.8	28.8	4.1	28.2	3.8	30.8	4.0	33.3	4.3	37.1	5.2	38.3	5.2	32.6	4.6
Combined crude and petroleum products, total	1,236.2	100.0	1,818.1	100.0	1,745.4	100.0	1,572.1	100.0	1,525.5	100.0	1,492.4	100.0	1,396.5	100.0	1,357.5	100.0	1,332.8	100.0	1,275.0	100.0	1,269.9	100.0	1,262.3	100.0	1,289.6	100.0	1,317.6	100.0	1,322.7	100.0	1,248.9	100.0	1,219.7	100.0	1,288.0	100.0
Pipelines[a]	740.2	59.9	858.8	47.2	823.9	47.2	852.8	54.2	877.6	57.5	904.0	60.6	900.1	64.5	904.9	66.7	901.8	67.7	842.8	66.1	841.1	66.2	855.8	67.8	861.7	66.8	875.4	66.4	886.9	67.1	848.7	68.0	814.2	66.8	919.6	71.4
Water carriers[b]	435.1	35.2	902.0	49.6	862.0	49.4	655.5	41.7	585.3	38.4	520.5	34.9	431.6	30.9	386.9	28.5	361.3	27.1	356.8	28.0	356.2	28.1	332.3	26.3	350.5	27.2	360.5	27.4	351.1	26.5	311.1	24.9	315.4	25.9	283.2	22.0
Motor carriers[c]	40.3	3.3	39.1	2.2	41.9	2.4	43.4	2.8	38.4	2.5	43.4	2.9	40.4	2.9	41.3	3.0	42.3	3.2	45.7	3.6	45.0	3.5	44.7	3.5	48.5	3.8	50.2	3.8	50.8	3.8	51.4	4.1	51.4	4.2	51.2	4.0
Railroads	20.6	1.7	18.2	1.0	17.7	1.0	20.4	1.3	(R) 24.4	1.6	24.5	1.6	24.4	1.7	24.4	1.8	27.3	2.0	29.6	2.3	27.6	2.2	29.5	2.3	28.9	2.2	31.5	2.4	33.9	2.6	37.7	3.0	38.8	3.2	33.6	2.6

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

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

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

NOTES

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

1.459972 tonne-kilometers = 1 ton mile.

SOURCES

1975: Association of Oil Pipe Lines,*Shifts in Petroleum Transportation* (Washington, DC), table 6.

1980-85: Ibid., (Washington, DC: Annual Issues), tables 1, 2, and 3.

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

Table 4-3M: Domestic Demand for Refined Petroleum Products by Sector (Petajoules)

	1960	1965	1970	(R) 1975	(R) 1980	(R) 1985	(R) 1990	(R) 1991	(R) 1992	(R) 1993	(R) 1994	(R) 1995	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	2010
Total petroleum demand	21,016	24,541	31,156	34,535	36,088	32,627	35,399	34,655	35,371	35,603	36,463	36,335	37,640	38,150	38,843	39,921	40,368	40,288	40,329	40,948	42,510	42,612	42,155	41,964	39,333	37,353	37,951
Transportation	10,688	12,524	16,153	18,585	20,056	20,544	22,817	22,551	22,868	23,187	23,736	24,218	24,863	25,124	25,767	26,480	27,096	26,812	27,339	27,498	28,407	28,812	29,173	29,292	27,861	26,734	27,058
Industrial	6,067	7,164	8,219	8,574	10,033	8,139	8,705	8,396	9,023	8,848	9,254	9,059	9,516	9,764	9,582	9,871	9,574	9,683	9,672	9,704	10,366	10,163	10,308	9,971	8,980	8,246	8,454
Residential and commercial	3,682	4,083	4,547	4,035	3,220	2,794	2,516	2,443	2,435	2,382	2,356	2,261	2,399	2,284	2,116	2,292	2,491	2,446	2,303	2,476	2,458	2,334	1,990	2,008	1,998	1,961	2,040
Electric utilities	579	771	2,237	3,340	2,779	1150	1,360	1,264	1,045	1,186	1,117	796	862	978	1,378	1,278	1,207	1,347	1,014	1,271	1,279	1,303	684	693	493	411	399
Transportation as percent of total petroleum demand	50.9	51.0	51.8	53.8	55.6	63.0	64.5	65.1	64.7	65.1	65.1	66.7	66.1	65.9	66.3	66.3	67.1	66.5	67.8	67.2	66.8	67.6	69.2	69.8	70.8	71.6	71.3

KEY: R = revised.

NOTES

Transportation's share of U.S. petroleum demand in this table differs slightly from table 4-1 because this table takes into account differences within sectors in the use of various grades of petroleum-based fuel that have a different Btu content per unit volume.
The sum of components may not add to totals due to rounding.
1,055.06 petajoules = 1 quadrillion British thermal unit (Btu).

SOURCES

1960-70: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 1997*, DOE/EIA-0384(97) (Washington, DC: July 1998), tables 2.1, 5.12b, and A3.
1975-2010: Ibid., *Monthly Energy Review* (Washington, DC: May 2010), tables 2.2, 2.3, 2.4, 2.5, 2.6, available at http://www.eia.doe.gov/mer/consump.html as of June 1, 2011.

Table 4-5M: Fuel Consumption by Mode of Transportation

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Air																											
Certificated carriers[a]																											
Jet fuel (million liters)	7,397	14,721	29,742	28,610	32,249	38,289	46,228	43,002	43,903	45,273	47,320	48,498	49,919	51,700	50,358	54,853	52,631	49,635	46,512	47,003	50,649	50,286	49,284	49,206	47,202	42,198	41,852
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	1,117	1,073	1,036	939	861	836
Jet fuel (million liters)	N	212	787	1,715	2,900	2,616	2,510	2,184	1,870	1,719	1,756	2,120	2,300	2,430	3,084	3,662	3,679	3,477	3,552	3,529	4,659	5,779	6,218	5,624	6,457	5,477	5,431
Highway																											
Gasoline, diesel and other fuels (million liters)																											
Light duty vehicle, short wheel base and motorcycle[c]	155,849	188,222	256,950	281,078	265,683	271,414	264,067	244,163	248,425	254,554	257,707	258,424	262,781	265,335	272,175	278,207	277,375	279,180	286,413	286,352	286,194	293,778	284,776	340,883	325,843	(R) 326,075	328,066
Light duty vehicle, long wheel base[c]	N	U	46,610	72,229	90,078	103,580	134,802	144,667	154,933	162,209	166,982	172,632	179,255	186,953	191,019	200,093	200,395	202,602	209,031	229,994	240,060	222,844	229,719	139,721	132,207	(R) 135,179	136,778
Single-unit 2-axle 6-tire or more truck	N	52,420	15,021	20,517	26,206	28,008	31,635	30,934	31,180	32,131	34,190	34,887	35,617	36,249	25,805	35,477	36,200	36,595	39,068	33,616	33,912	35,966	37,295	61,757	64,895	(R) 61,523	57,053
Combination truck	N	25,203	27,815	34,739	49,350	53,015	61,070	63,629	65,170	67,183	70,609	74,865	76,437	76,850	95,233	92,884	97,155	96,573	100,236	90,151	91,573	104,813	106,395	116,986	115,686	(R) 106,181	113,127
Bus	3,131	3,312	3,104	3,986	3,854	3,157	3,388	3,271	3,324	3,517	3,649	3,663	3,747	3,886	3,937	4,347	4,210	3,883	3,784	3,668	5,149	4,240	4,347	7,653	7,786	(R) 7,522	7,281
Transit[d]																											
Electricity (million kWh)	2,908	2,584	2,561	2,646	2,446	4,216	4,837	4,853	4,716	4,865	5,081	5,068	4,923	4,908	4,962	5,126	5,382	5,485	5,529	5,508	5,657	5,765	5,770	6,216	6,337	(R) 6,492	6,414
Motor fuel (million liters)																											
Diesel[e]	787	939	1,026	1,382	1,632	2,304	2,464	2,518	2,593	2,568	2,567	2,568	2,025	2,041	2,122	2,180	2,236	2,256	2,551	2,102	2,061	2,015	2,062	2,032	2,028	2,491	2,395
Gasoline and other nondiesel fuels[f]	727	469	257	30	42	174	129	129	141	173	227	230	96	97	84	80	89	98	131	97	108	110	116	112	119	371	369
Compressed natural gas	N	N	N	N	N	N	N	N	4	6	18	41	43	73	109	132	165	199	249	301	328	355	419	408	427	538	478
Rail, Class I (in freight service)																											
Distillate / diesel fuel (million liters)	13,109	13,597	13,419	13,843	14,778	11,773	11,792	11,000	11,375	11,689	12,621	13,173	13,548	13,533	13,563	14,063	14,006	14,044	14,120	14,483	15,365	15,513	15,868	15,376	14,710	12,083	13,226
Amtrak																											
Electricity (million kWh)	N	N	N	180	254	295	330	303	300	301	309	336	363	390	416	443	470	456	518	537	551	531	549	578	582	565	559
Distillate / diesel fuel (million liters)	N	N	N	238	242	246	310	310	310	314	278	274	270	286	288	300	359	367	320	282	260	248	236	234	240	234	240
Water																											
Residual fuel oil (million liters)	14,960	11,708	14,286	15,369	33,887	17,375	23,947	25,639	24,844	19,994	20,390	22,282	21,582	18,965	21,276	22,100	24,264	20,477	18,351	14,664	17,755	19,603	21,780	23,950	19,176	17,199	15,920
Distillate / diesel fuel oil (million liters)	2,979	2,468	3,100	4,156	5,595	6,431	7,817	7,745	8,398	8,157	8,288	8,854	9,429	9,743	9,823	9,158	8,560	7,738	7,870	8,392	8,099	7,592	7,204	7,283	4,495	4,793	5,086
Gasoline (million liters)	N	N	2,264	2,763	3,982	3,986	4,921	6,473	4,982	3,307	3,314	4,014	3,761	3,737	3,620	4,157	4,256	3,762	4,093	4,192	3,804	4,773	4,684	4,624	4,302	4,279	4,418
Pipeline																											
Natural gas (million cubic meters)	9,828	14,173	20,450	16,508	17,971	14,265	18,684	17,027	16,642	17,679	19,407	19,831	20,146	21,279	17,995	18,273	18,185	17,697	18,885	16,749	16,033	16,538	16,543	17,595	18,348	(R) 18,977	18,940

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] Data for 2007-10 were calculated using a new methodology developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category Light duty vehicle, short wheel base includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. The new category Light duty vehicle, long wheel base includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches. In addition, this edition of table 4-05M is not comparable to previous editions.

[d] Data from 1997-2009 are not comparable to data before 1997 due to different sources. Prior to 1984, excludes commuter rail, automated guideway, ferryboat, demand responsive vehicles, and most rural and small systems.

[e] *Diesel* includes Diesel and Bio-Diesel.

[f] *Gasoline and all other nondiesel fuels* include Gasoline, Liquified Petroleum Gas, Liquified Natural Gas, Methane, Ethanol, Bunker Fuel, Kerosene, Grain Additive, and Other Fuel.

NOTES:

The following conversion rates were used:

1 gallon = 3.785412 litres.

1 cubic foot = 0.028317 cubic metres.

SOURCES

Air:

Certificated air carriers:

1960-2010: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Fuel Cost and Consumption,* available at http://www.bts.gov/programs/airline_information as of Mar. 8, 2012.

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.

1994-2010: Ibid., *FAA Aerospace Forecasts Fiscal Years 2011-2031* (Washington, DC: February 2011), tables 23 and 31, and similar tables in earlier editions, available at http://www.faa.gov/about/office_org/headquarters_offices/apl/aviation_forecasts/ as of Mar. 8, 2012.

Highway:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of June 29, 2010.

1995-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 8, 2012.

Transit:

Electricity / motor fuel / compressed natural gas:

1960-96: American Public Transportation Association, *2009 Public Transportation Fact Book* (Washington, DC: June 2009), tables 26, 27, 28 and similar tables in earlier editions.

1997-2010: U.S. Department of Transportation, Federal Transit Administration, *National Transportation Database*, table 17 and similar tables in previous years, available at www.ntdprogram.gov as of Mar. 8, 2012.

Rail:

1960-2010: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 40.

Amtrak:

1975-2010: National Railroad Passenger Corporation (Amtrak), Energy Management Department and Government Affairs Department, personal communication, Apr. 27, 2011.

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.

1985-2010 U.S. Department of Energy, Energy Information Administration, Fuel Oil and Kerosene Sales (Washington, DC: Annual Issues), available at http://www.eia.doe.gov/oil_gas/petroleum/data_publications/fuel_oil_and_kerosene_sales/foks.html as of Mar. 9, 2012.

Gasoline:

1970-2010: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table MF-24 and similar tables in earlier editions, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 8, 2012.

Pipeline:

1960-2010: U.S. Department of Energy, *Natural Gas Annual 2009,* DOE/EIA-0131(04) (Washington, DC: December 2010), table 15 and similar tables in earlier editions, available at http://www.eia.doe.gov/natural_gas/data_publications/natural_gas_annual/nga.html as of Mar. 8, 2012.

Table 4-6M: Energy Consumption by Mode of Transportation (Petajoules)

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Air																											
Certificated carriers[a]																											
Jet fuel	278	554	1,119	1,077	1,213	1,441	1,739	1,618	1,652	1,703	1,780	1,825	1,878	1,945	1,895	2,064	1,980	1,868	1,750	1,769	1,906	1,892	1,854	1,851	1,776	1,588	1,575
General aviation[b,c]																											
Aviation gasoline	31	37	70	52	66	53	45	45	40	34	34	36	37	37	39	44	42	35	35	35	35	37	36	35	31	29	28
Jet fuel	U	8	30	65	109	98	94	82	70	65	66	80	87	91	116	138	138	131	134	133	175	217	234	212	243	206	204
Highway																											
Gasoline, diesel and other fuels																											
Light duty vehicle, short wheel base and motorcycle[d]	5,430	6,558	8,952	9,793	9,256	9,456	9,200	8,507	8,655	8,869	8,978	9,003	9,155	9,244	9,482	9,693	9,664	9,727	9,978	9,976	9,944	10,235	9,921	11,876	11,352	(R) 11,360	11,430
Light duty vehicle, long wheel base[d]	U	U	1,624	2,516	3,138	3,609	4,696	5,040	5,398	5,651	5,818	6,014	6,245	6,513	6,655	6,971	6,982	7,059	7,283	8,013	8,364	7,764	8,003	4,868	4,606	(R) 4,710	4,765
Single-unit 2-axle 6-tire or more truck[e]	U	2,026	581	793	1,013	1,083	1,223	1,196	1,205	1,242	1,322	1,349	1,377	1,401	998	1,371	1,261	1,275	1,361	1,171	1,181	1,253	1,299	2,152	2,261	(R) 2,143	1,988
Combination truck	U	974	1,075	1,343	1,908	2,049	2,361	2,460	2,519	2,597	2,730	2,894	2,955	2,971	3,682	3,591	3,385	3,365	3,492	3,141	3,190	3,652	3,707	4,076	4,030	(R) 3,699	3,941
Bus	121	128	120	154	149	122	131	126	128	136	141	142	145	150	152	168	147	135	132	128	179	148	151	267	271	(R) 262	254
Transit[f]																											
Electricity	10	9	9	10	9	15	17	17	17	18	18	18	18	18	18	18	19	20	20	20	20	21	21	22	23	17	23
Motor fuel																											
Diesel[g]	30	36	40	53	63	89	95	97	100	99	99	99	78	79	82	84	86	87	99	81	80	78	80	79	78	96	85
Gasoline and other nondiesel fuels[h]	25	16	9	1	1	6	4	4	5	6	8	8	3	3	3	3	3	3	5	3	4	4	4	4	4	13	19
Compressed natural gas	U	U	U	U	U	U	U	U	0	0	1	2	2	3	4	5	6	8	10	12	13	14	16	16	16	21	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	613	594	569	467	511
Amtrak																											
Electricity	U	U	U	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
Distillate / diesel fuel	U	U	U	9	9	9	12	12	12	12	11	11	10	11	11	12	14	14	12	11	10	10	9	9	9	9	9
Water																											
Residual fuel oil	624	489	596	641	1,414	725	999	1,070	1,037	834	851	930	900	791	888	922	1,012	854	766	612	741	818	909	999	800	718	664
Distillate / diesel fuel oil	115	95	120	161	216	249	302	299	325	315	320	342	364	377	380	354	331	299	304	324	313	293	278	282	174	185	197
Gasoline	U	U	79	96	139	139	171	226	174	115	115	140	131	130	126	145	148	131	143	146	133	166	163	161	150	149	154
Pipeline																											
Natural gas	378	544	786	634	690	548	718	654	639	679	746	762	774	817	691	702	699	680	725	643	616	635	635	676	705	(R) 729	728

KEY: P = preliminary; R = revised; U = data are unavailable.

[a] Domestic operations only.
[b] Includes fuel used in air taxi operations, but not commuter operations.
[c] The values for energy consumption by general aviation in 2009 are estimated values.

[d] Data for 2007-10 were calculated using a new methodology developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category *Light duty vehicle, short wheel base* includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. The new category *Light duty vehicle, long wheel base* includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches. In addition, this edition of table 4-06M is not comparable to previous editions.
[e] 1965 data includes other 2-axle 4-tire vehicles.
[f] Prior to 1984, excludes commuter rail, automated guideway, ferryboat, demand responsive vehicles, and most rural and smaller systems.
[g] *Diesel* includes Diesel and Bio-Diesel.
[h] *Gasoline and all other nondiesel fuels* include Gasoline, Liquified Petroleum Gas, Liquified Natural Gas, Methane, Ethanol, Bunker Fuel, Kerosene, Grain Additive, and Other Fuel.

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 joules/liter
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:

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 Jan 3, 2012.

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.

1994-2010: Ibid., *FAA Aerospace Forecasts Fiscal Years 2011-2031* (Washington, DC: February 2011), tables 22 and 30, and similar tables in earlier editions, available at http://www.faa.gov/about/office_org/headquarters_offices/apl/aviation_forecasts/ as of Jan. 3, 2012.

Highway:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics, Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Sep. 28, 2009.

1995-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 9, 2012.

Transit:

Electricity / motor fuel / compressed natural gas:

1960-96: American Public Transportation Association, *Public Transportation Fact Book, Appendix A: Historical Tables* (Washington, DC: Annual Issues), tables 29, 30, 31 and similar tables in earlier editions, available at http://apta.com/resources/statistics/Pages/transitstats.aspx as of Apr. 26, 2011.

1997-2010: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* , table 17 and similar tables in previous years, available at

Rail:

Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 40 and similar tables in previous editions.

Amtrak:

1975-2010: 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.

1985-2010 U.S. Department of Energy, Energy Information Administration, *Fuel Oil and Kerosene Sales* (Washington, DC: Annual Issues), available at http://www.eia.doe.gov/oil_gas/petroleum/data_publications/fuel_oil_and_kerosene_sales/foks.html as of Mar. 9, 2012.

Gasoline:

1970-2010: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table MF-24 and similar tables in earlier editions, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Jan. 3, 2012.

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, available at http://tonto.eia.doe.gov/dnav/ng/ng_pub_publist.asp as of Jan. 3, 2012.

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	2007	2008	(R) 2009	(R) 2010	2011
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	522,543	526,764	534,295	532,036	529,178	529,569	514,726	517,449	521,274	511,678
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	506,247	509,679	516,402	513,546	510,585	512,596	500,450	502,997	506,205	497,695
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	17,086	17,893	18,490	18,593	16,972	14,276	14,452	15,069	13,983
Agriculture	8,675	7,432	7,313	5,924	4,009	4,091	2,579	2,949	3,049	3,204	3,452	3,508	3,475	3,727	3,433	2,661	2,469	3,034	3,149	3,229	4,141	4,080	4,651	4,015	2,399	2,560	2,967	3,025
Aviation[a]	5,011	1,898	1,488	1,551	1,563	1,444	1,366	1,282	1,303	1,289	1,379	1,389	1,301	1,267	1,329	1,219	1,120	1,347	1,293	1,152	1,190	1,257	1,346	1,369	1,127	1,234	910	837
Marine	230	365	2,264	2,762	3,983	3,986	4,923	6,472	4,994	3,307	3,394	4,014	3,761	3,737	3,619	4,156	4,256	3,762	4,093	4,192	3,909	4,776	4,684	4,624	4,302	4,279	4,418	4,179
Other[b]	6,270	6,235	4,087	3,551	4,280	5,639	6,562	5,608	5,448	3,218	3,263	3,172	3,124	3,749	4,050	3,464	3,537	7,218	7,762	8,512	8,654	8,377	7,912	6,964	6,449	6,379	6,775	5,942

KEY: R = revised.

[a] Does not include aviation jet fuel.
[b] Includes state, county, and municipal use, industrial and commercial use, construction use, and miscellaneous.

NOTES

All nonhighway uses of gasoline were estimated by the U.S. Department of Transportation, Federal Highway Administration.
1 gallon = 3.785412 liters.

SOURCES

Highway:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* , *Summary to 1995* (Washington, DC: 1996), table MF-221, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 29, 2012.
1995-2001: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table MF-21, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 29, 2012.
2002-07: Ibid., personal communication, June 21, 2010.
2008-11: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table MF-21, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 19, 2013.

Nonhighway:

1960-2001: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), tables MF-21 and MF-24, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 29, 2012.
2002-07: Ibid., personal communication, June 21, 2010.
2008-11: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), tables MF-21 and MF-24, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Feb. 19, 2013.

Table 4-8M: Certificated Air Carrier Fuel Consumption and Travel[a]

	(R) 1960	(R) 1965	(R) 1970	(R) 1975	(R) 1980	1985	1990	1991	1992	1993	1994	1995	1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010	2011
Number of aircraft	**2,135**	**2,125**	**2,679**	**2,495**	**3,808**	**4,678**	**6,083**	**6,054**	**7,320**	**7,297**	**7,370**	**7,411**	**7,478**	**7,616**	**8,111**	**8,228**	**8,055**	**8,497**	**8,194**	**8,176**	**8,186**	**8,225**	**8,089**	**8,044**	**7,856**	**U**	**U**	**U**
Average kilometers flown per aircraft (thousands)	**784**	**1,074**	**1,528**	**1,272**	**1,103**	**(R) 1,184**	**1,250**	**1,239**	**1,077**	**1,128**	**1,169**	**1,222**	**(R) 1,259**	**1,272**	**1,233**	**1,281**	**1,387**	**1,289**	**1,342**	**1,450**	**1,574**	**1,615**	**1,636**	**1,684**	**1,668**	**U**	**U**	**U**
Aircraft-Kilometers (millions)																												
Domestic operations	1,381	1,825	3,328	2,635	3,663	(R) 4,869	6,378	6,203	6,429	6,689	7,046	7,448	7,736	7,897	8,095	8,572	9,112	8,923	9,033	9,826	10,625	10,809	10,631	10,835	10,374	9,552	9,617	9,663
International operations	293	457	764	537	538	668	1,224	1,298	1,455	1,542	1,570	1,606	(R) 1,679	1,793	1,909	1,972	2,063	2,033	1,966	2,030	2,257	2,471	2,599	2,707	2,730	2,574	2,720	2,861
Fuel consumption (million liters)																												
Domestic operations	7,397	14,721	29,742	28,610	32,249	38,289	46,228	43,002	43,903	45,273	47,320	48,498	49,919	51,700	50,358	54,853	56,272	52,496	48,916	49,520	53,339	52,904	51,839	51,791	48,021	42,924	42,608	41,910
International operations	2,143	4,845	8,491	7,378	6,614	9,418	14,906	14,717	15,442	15,565	16,373	17,078	17,633	18,782	18,607	19,974	20,850	20,197	19,226	19,755	21,169	22,616	22,779	23,487	23,419	21,657	22,818	24,693
Aircraft-Kilometers flown per liters																												
Domestic operations	0.19	0.12	0.11	0.09	0.11	0.13	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.15	0.16	0.16	0.16	0.17	0.18	0.20	0.20	0.20	0.21	0.21	0.22	0.22	0.23	0.23
International operations	0.14	0.09	0.09	0.07	0.08	0.07	0.08	0.09	0.09	0.10	0.10	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.12

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

[a] Aircraft operating under 14 CFR 121 and 14 CFR 135.

NOTES

1.609344 kilometers = 1 mile.
3.785412 liters = 1 gallon.

SOURCES

Number of aircraft:

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

1970-75: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1979* (Washington, DC: 1979), table 5.1.

1980-85: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1986* (Washington, DC: 1986), table 5.1.

1990-97: Ibid., *FAA Statistical Handbook of Aviation, Calendar Year 1997* (Washington, DC: unpublished), personal communication, Mar. 19, 1999.

1998-2008: Aerospace Industries Association, *Aerospace Facts and Figures* (Washington DC: Annual Issues), "Active U.S. Air Carrier Fleet", p. 94 and similar pages in earlier editions.

Aircraft-miles flown:

1960-70: Air Transport Association, available at http://www.air-transport.org/ as of July 31, 2002.

1975-2011: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class* , available at http://www.transtats.bts.gov/Fields.asp?Table_ID=264 as of July 23, 2012.

Fuel consumption:

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airline Fuel Cost and Consumption* , available at http://www.transtats.bts.gov/fuel.asp as of July 23, 2012.

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	2007	2008	2009	(R) 2010	2011
Vehicles registered (thousands)	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	243,011	247,421	250,845	254,403	255,918	254,213	250,070	253,108
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	4,499,098	4,595,495	4,651,360	4,771,364	4,811,021	4,851,160	4,878,121	4,790,257	4,758,450	4,775,352	4,741,339
Fuel consumed (million liters)	219,099	269,160	349,504	412,551	435,170	459,175	494,962	486,664	503,034	519,594	533,135	544,471	557,836	569,273	588,173	611,009	615,334	618,833	638,532	643,781	656,887	661,640	662,532	667,000	646,417	636,479	645,074	638,210
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	19.6	19.4	19.3	19.2	18.7	18.7	19.1	18.7
Average kilometers traveled per liter	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	7.3	7.3	7.3	7.3	7.4	7.5	7.4	7.4
Average fuel consumed per vehicle (liters)	2,967	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	2,772	2,725	2,630	2,722	2,719	2,703	2,674	2,641	2,622	2,526	2,504	2,580	2,521

KEY: R = revised.

NOTES

Motor vehicles, fuel consumption and travel data include light duty vehicles, buses, trucks and motorcycles.
For 2007-11, the methodology and data categories of the Highway Statistics series were updated, so the data from 1960-2006 are not comparable. In addition, this edition of table 4-9M is not comparable to editions from 2009 or earlier.
See tables 4-11, 4-12, 4-13, 4-14, and 4-15 for individual highway vehicles.
1 gallon = 3.785412 liters and 1 mile = 1.609344 kilometers.

SOURCES

1960-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995*, tables VM-201A and MF-221, available at www.fhwa.dot.gov/policy/ohpi as of Feb. 16, 2010.
1995-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 19, 2013.

Table 4-11M: Light Duty Vehicle, Short Wheel Base and Motorcycle Fuel Consumption and Trave

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	(R) 2010	2011
Vehicles registered (thousands)																												
Light duty vehicles, short wheel base	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	196,491	196,763	193,980	190,203	192,513
Motorcycles	574	1,382	2,824	4,964	5,694	5,444	4,259	4,177	4,065	3,978	3,757	3,897	3,872	3,826	3,879	4,152	4,346	4,903	5,004	5,370	5,768	6,227	6,679	7,138	7,753	7,930	8,010	8,330
Vehicle-kilometers traveled (millions)																												
Light duty vehicles, short wheel base[a]	944,685	1,163,556	1,475,768	1,664,062	1,789,591	2,006,852	2,265,956	2,185,489	2,208,020	2,212,848	2,262,738	2,314,237	2,365,501	2,418,129	2,493,802	2,525,222	2,575,412	2,620,546	2,669,055	2,690,950	2,735,708	2,749,437	2,720,651	3,386,729	3,258,531	3,243,977	3,260,120	3,288,548
Motorcycles	U	U	4,828	9,012	16,415	14,645	15,450	14,806	15,450	15,933	16,415	15,772	15,965	16,224	16,549	17,033	16,848	15,512	15,372	15,413	16,290	16,824	19,392	34,434	33,492	33,510	29,794	29,773
Fuel consumed (million liters)																												
Light duty vehicles, short wheel base[a]	155,849	188,222	256,723	280,650	264,911	270,725	263,344	243,466	247,702	253,804	256,931	257,681	262,030	264,571	271,396	277,406	276,582	278,450	285,690	285,627	285,427	293,059	283,940	339,085	323,991	324,249	328,530	335,148
Motorcycles	U	U	227	428	772	689	723	697	723	750	776	742	751	763	779	801	793	731	723	725	766	715	837	1,798	1,853	1,826	1,615	1,610
Average kilometers traveled per vehicle (thousands)																												
Light duty vehicles, short wheel base[a]	15.3	15.5	16.5	15.6	14.7	15.7	16.9	17.0	17.4	17.4	17.7	18.0	18.2	18.6	18.9	19.1	19.3	19.0	19.6	19.8	20.1	20.1	20.1	17.2	16.6	16.7	17.1	17.1
Motorcycles	U	U	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	2.8	2.7	2.9	4.8	4.3	4.2	3.7	3.6
Average kilometers traveled per liter																												
Light duty vehicles, short wheel base[a]	6.1	6.2	5.7	5.9	6.8	7.4	8.6	9.0	8.9	8.7	8.8	9.0	9.0	9.1	9.2	9.1	9.3	9.4	9.3	9.4	9.6	9.4	9.6	10.0	10.1	10.0	9.9	9.8
Motorcycles	U	U	21.3	21.1	21.3	21.3	21.4	21.3	21.4	21.3	21.2	21.3	21.3	21.3	21.3	21.3	21.3	21.2	21.3	21.3	21.3	23.5	23.2	19.2	18.1	18.4	18.4	18.5
Average fuel consumed per vehicle (liters)																												
Light duty vehicles, short wheel base[a]	2,527	2,501	2,877	2,630	2,179	2,117	1,970	1,898	1,957	1,993	2,009	2,007	2,020	2,039	2,059	2,095	2,070	2,023	2,102	2,105	2,092	2,146	2,097	1,726	1,647	1,672	1,727	1,741
Motorcycles	U	U	80	86	136	127	170	167	178	188	207	190	194	199	201	193	182	149	145	135	133	115	125	252	239	230	202	193

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

[a] 1960 and 1965 data include motorcycles.

NOTES

Data for 2007-11 were calculated using a new methodology for light duty vehicles and motorcycles developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category Light duty vehicle, short wheel base includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. The new category Light duty vehicle, long wheel base is found in table 4-12 and includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches. This edition of 4-11M is not comparable to editions from 2009 or earlier.
1 Gallon = 3.785412 liters and 1 Mile = 1.609344 kilometers.

SOURCES

1960-94: U.S. Department of Transportation, Federal Highway Administration, Highway Statistics Summary to 1995, FHWA-PL-97-009 (Washington, DC: July 1997), tables MV-201 and VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 23, 2009.
1995-2011: Ibid., Highway Statistics (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 19, 2013.

Table 4-12M: Light Duty Vehicle, Long Wheel Base Fuel Consumption and Travel

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	(R) 2010	2011
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	39,187	39,685	40,488	40,242	41,328
Vehicle-kilometers traveled (millions)	197,949	323,478	468,319	629,254	925,373	1,044,464	1,137,806	1,200,571	1,231,148	1,271,382	1,314,094	1,369,132	1,397,353	1,450,054	1,485,519	1,517,945	1,554,681	1,583,746	1,653,060	1,675,409	1,742,099	944,071	974,388	993,824	1,002,157	970,808
Fuel consumed (million liters)	46,610	72,229	90,078	103,580	134,802	144,667	154,933	162,209	166,982	172,634	179,255	186,953	191,020	200,093	200,395	202,602	209,031	229,994	240,060	222,843	229,719	139,721	132,207	135,179	137,225	133,723
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	18.0	18.3	18.2	18.0	17.6	17.6	24.1	24.6	24.5	24.9	23.5
Average kilometers traveled per liter	4.2	4.5	5.2	6.1	6.9	7.2	7.3	7.4	7.4	7.4	7.3	7.3	7.3	7.2	7.4	7.5	7.4	6.9	6.9	7.5	7.6	6.8	7.4	7.4	7.3	7.3
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	2,407	2,459	2,638	2,614	2,337	2,317	3,565	3,331	3,339	3,410	3,236

KEY: R = revised.

NOTES

Data for 2007-11 were calculated using a new methodology for light duty vehicles and motorcycles developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category Light duty vehicle, long wheel base includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches. The new category Light duty vehicle, short wheel base is found in table 4-11 and includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. This edition of 4-12M is not comparable to editions from 2009 or earlier.

For 1993-2006, nearly all vehicles in this category are light trucks, which include vans, pickup trucks, and sport utility vehicles. In 1995, the U.S. Department of Transportation, Federal Highway Administration revised its vehicle categories beginning with 1993 data. The new categories were passenger car, other 2-axle 4-tire vehicle, single-unit 2-axle 6-tire or more truck, and combination truck. Prior to 1993, some minivans and sport utility vehicles were included under the passenger car category.

1 gallon = 3.785412 liters and 1 mile = 1.609344 kilometers.

SOURCES

1970-94: U.S. Department of Transportation, Federal Highway Administration, Highway Statistics Summary to 1995, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 23, 2009.

1995-2011: Ibid., Highway Statistics (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of Mar. 20, 2013.

Table 4-13M: Single-Unit 2-Axle 6-Tire or More Truck Fuel Consumption and Travel[a]

	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	(R) 2007	(R) 2008	2009	2010
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	8,117	8,288	8,356	8,217
Vehicle-kilometers (millions)	43,613	55,683	64,052	73,064	83,525	85,134	86,744	91,411	98,653	100,914	103,114	107,654	109,469	113,143	113,459	116,594	122,094	125,138	126,239	126,327	129,301	193,087	204,153	193,454	178,112
Fuel consumed (million liters)	15,021	20,517	26,206	28,008	31,635	30,934	31,180	32,131	34,190	34,886	35,617	36,249	36,874	35,477	36,200	36,595	39,068	33,616	33,912	35,965	37,295	61,757	64,895	61,523	57,053
Average kilometers traveled per vehicle (thousands)	11.8	13.2	14.6	15.9	18.6	19.0	19.9	20.7	20.1	20.1	19.6	20.3	19.1	19.6	19.1	20.4	21.6	21.4	20.5	19.8	19.4	23.8	24.6	23.2	21.7
Average kilometers traveled per liter	2.9	2.7	2.4	2.6	2.6	2.8	2.8	2.8	2.9	2.9	2.9	3.0	3.0	3.2	3.1	3.2	3.1	3.7	3.7	3.5	3.5	3.1	3.1	3.1	3.1
Average fuel consumed per vehicle (liters)	4,080.1	4,848.5	5,991.7	6,097.9	7,050.3	6,903.7	7,135.4	7,289.4	6,968.4	6,944.4	6,763.4	6,848.1	6,429.7	6,156.2	6,108.7	6,416.1	6,913.9	5,747.8	5,504.3	5,623.7	5,608.9	7,608.7	7,830.0	7,362.6	6,943.2

KEY: R = revised.

[a] Beginning in 1998, the Federal Highway Administration (FHWA) used the Census Bureau's *1997 Vehicle Inventory and Use Survey* (VIUS) for its baseline estimate of single-unit 2-axle 6-tire or more trucks. Prior to 1998, the FHWA used the Census Bureau's *1992 Transportation Inventory and Use Survey* (TIUS) for its baseline estimates. Therefore, post-1997 data may not be comparable to 1997 and earlier years.

NOTES

Data for 2007-10 were calculated using new sources and a new methodology developed by FHWA. Data for these years are not comparable to previous years. The FHWA estimates national trends by using State reported Highway Performance and Monitoring System (HPMS) data, fuel consumption data (MF-21 and MF-27), vehicle registration data (MV-1, MV-9, and MV-10), other data such as the R. L. Polk vehicle data, and a host of modeling techniques. Starting with the 2007 VM-1, an enhanced methodology is used to provide timely indictors on both travel and travel behavior changes.

From 1998-2006, the Federal Highway Administration (FHWA) used the Census Bureau's 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.

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 those that have single frames, two axles, and at least 6 tires or a gross vehicle weight rating exceeding 10,000 lbs.. Pre-1993 data have been reassigned to the most appropriate category.

1 Gallon = 3.785412 liters and 1 mile = 1.609344 kilometers.

SOURCES

1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of April 16, 2009.

1995-2010: Ibid., Highway Statistics (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 13, 2012.

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	2007	2008	2009	(R) 2010
Number registered (thousands)	787	905	1,131	1,417	1,403	1,709	1,691	1,675	1,680	1,682	1,696	1,747	1,790	1,997	2,029	2,097	2,154	2,277	1,908	2,010	2,087	2,170	2,635	2,585	2,617	2,553
Vehicle-kilometers traveled (millions)	51,016	56,488	75,156	110,562	125,690	151,761	155,463	160,130	165,923	175,258	185,879	191,349	200,499	206,574	213,051	217,294	219,811	223,276	225,566	229,122	231,791	228,799	296,440	295,839	270,530	282,905
Fuel consumed (million liters)	25,203	27,815	34,739	49,350	53,015	61,070	63,629	65,170	67,183	70,609	74,864	76,437	76,850	95,233	92,884	97,155	96,573	100,236	90,151	91,573	104,814	106,395	116,986	115,686	106,181	113,285
Average kilometers traveled per vehicle (thousands)	64.9	62.4	66.5	78.0	89.6	88.8	91.9	95.6	98.7	104.2	109.6	109.6	112.0	103.4	105.0	103.6	102.0	98.1	118.2	114.0	111.1	105.5	112.5	114.4	103.4	110.8
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	2.2	2.2	2.5	2.6	2.5	2.5
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	44,831	44,028	47,240	45,551	50,228	49,037	44,391	44,749	40,572	44,376

KEY: R = revised.

NOTES

Data for 2007-11 were calculated using new sources and a new methodology developed by FHWA. Data for these years are not comparable to previous years. The FHWA estimates national trends by using State reported Highway Performance and Monitoring System (HPMS) data, fuel consumption data (MF-21 and MF-27), vehicle registration data (MV-1, MV-9, and MV-10), other data such as the R. L. Polk vehicle data, and a host of modeling techniques. Starting with the 2007 VM-1, an enhanced methodology is used to provide timely indictors on both travel and travel behavior changes.

From 1998-2006, the Federal Highway Administration (FHWA) used the Census Bureau's 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.

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. Pre-1993 data have been reassigned to the most appropriate category.

1 mile = 1.609344 kilometers and 1 gallon = 3.785412 liters.

SOURCES

1965-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 23, 2009.

1995-2011: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 20, 2013.

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	2007	2008	2009	(R) 2010	2011
Number registered (thousands)	272	314	378	462	529	593	627	631	645	654	670	686	695	698	716	729	746	750	761	777	795	807	822	834	843	842	846	666
Vehicle-kilometers traveled (millions)	6,920	7,564	7,242	9,817	9,817	7,242	9,173	9,334	9,334	9,817	10,300	10,300	10,562	11,011	11,277	12,331	12,215	11,389	11,016	10,916	10,945	11,233	10,917	23,361	23,856	23,154	22,160	22,181
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	4,240	4,347	7,653	7,786	7,522	7,272	7,317
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	15.2	14.5	14.1	13.8	13.9	13.3	28.0	28.3	27.5	26.2	33.3
Average kilometers traveled per liter	2.2	2.3	2.3	2.5	2.5	2.3	2.7	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.9	2.8	2.9	2.9	2.9	3.0	2.1	2.6	2.5	3.1	3.1	3.1	3.0	3.0
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	5,181	4,974	4,723	6,474	5,253	5,289	9,171	9,233	8,933	8,596	10,985

KEY: R = revised.

NOTES:

Includes both publicly and privately owned school, transit, and other commercial buses.

Data for 2007-11 were calculated using new sources and a new methodology developed by FHWA. Data for these years are not comparable to previous years. The FHWA estimates national trends by using State reported Highway Performance and Monitoring System (HPMS) data, fuel consumption data (MF-21 and MF-27), vehicle registration data (MV-1, MV-9, and MV-10), other data such as the R. L. Polk vehicle data, and a host of modeling techniques. Starting with the 2007 VM-1, an enhanced methodology is used to provide timely indictors on both travel and travel behavior changes.

1 gallon = 3.785412 liters and 1 mile = 1.609344 kilometers.

SOURCES:

1960-94: U.S. Department of Transportation, Federal Highway Administration,*Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of April 16, 2009.

1995-2011: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 20, 2013.

Table 4-16M: Transit Industry Electric Power and Primary Energy Consumption [a] and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of vehicles (millions)	65	62	61	62	75	94	93	97	103	108	116	116	94	98	100	103	106	111	112	115	117	122	126	126	129	136	136
Vehicle-kilometers traveled (millions)	3,449	3,232	3,031	3,502	3,680	4,491	5,217	5,321	5,399	5,528	5,580	5,713	4,427	4,592	4,780	5,007	5,154	5,341	5,525	5,594	5,710	5,799	5,907	6,066	6,268	6,418	7,081
Electric power consumed (million kJ)	10,468,800	9,302,400	9,219,600	9,525,600	8,805,600	15,177,600	17,413,200	17,470,800	16,977,600	17,514,000	18,291,600	18,244,800	17,722,058	17,667,813	17,861,615	18,452,544	19,373,883	19,744,647	19,905,427	19,828,874	20,366,065	20,754,283	20,772,743	22,375,898	22,812,850	23,372,818	23,088,678
Primary energy consumed (thousand liters)																											
Diesel	787,744	940,296	1,024,332	1,381,903	1,633,027	2,304,324	2,464,417	2,517,897	2,592,795	2,568,444	2,567,365	2,567,592	2,025,035	2,040,977	2,121,525	2,179,979	2,235,701	2,255,796	2,547,732	2,098,201	2,051,686	1,818,723	1,999,591	1,949,313	1,890,434	2,325,884	2,208,583
Gasoline and other nondiesel fuels [b]	726,421	470,148	258,165	28,678	43,154	173,008	128,348	130,472	140,738	172,887	227,136	229,888	95,494	97,382	83,684	79,862	89,492	98,453	133,983	101,033	116,870	305,558	177,562	194,192	257,102	536,272	555,715
Compressed natural gas	N	N	N	N	N	N	N	N	3,819	5,977	18,302	40,655	43,443	73,204	109,018	131,826	165,333	198,772	248,980	300,774	327,798	355,322	418,830	407,700	426,818	538,120	477,853

KEY: kJ = kilajoule; kWh = kilowatt hour; N = data do not exist.

[a] Prior to 1984, excludes commuter rail, automated guideway, urban ferryboat, demand responsive vehicles, and most rural and smaller systems.
[b] 1960 to 1991 data include propane. Series not continuous between 1991 and 1992. 1992 to 1995 data include propane, liquefied natural gas, bio/soy fuel, biodiesel, hydrogen, methanol and ethanol, except compressed natural gas. 1996 to 2001 data include only propane, liquefied natural gas, methanol and ethanol. 2002 to 2009 data include the above, and also biodiesel and grain fuel.

NOTES

Data prior to 1996 are not comparable to data from 1996 onward due to a change in sources with differing methodologies. 2009 data for *Gasoline and other nondiesel fuels* is not comparable to previous years' data due to a change in the reporting requirements that require transit agencies to submit energy consumption data for both purchased transportation (PT) services and directly operated (DO) transportation services. The major effect of this reporting change occurred within the following modes: Demand Response, Motor Bus, Publico, and Vanpool.
This table is not comparable to previous editions due to a change in the unit of measure of power consumption.
The heat equivalent factor used in joule conversion for electric = 3,600 kJ/kWh, negating electrical system losses (to include electrical system losses, multiply this conversion factor by approximately three).
1.609344 kilometers = 1 mile.
3.785412 liters = 1 gallon.

SOURCE

1960-1995: American Public Transportation Association, *2009 Public Transportation Fact Book Appendix A: Historical Tables* (Washington, DC: Annual Issues), tables 7, 17, 29, 30, 31 and similar tables in earlier editions, available at http://www.apta.com/resources/statistics/Pages/transitstats.aspx as of Apr. 1, 2010.
1996-2010: U.S. Department of Transportation, Federal Transit Administration, National Transit Database, tables 19 and 17 and similar tables in previous editions, available at www.ntdprogram.gov as of November 2011.

Table 4-17M: Class I Rail Freight Fuel Consumption and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Number in use																										
Locomotives[a]	29,031	27,780	27,077	27,846	28,094	22,548	18,835	18,344	18,004	18,161	18,505	18,812	19,269	19,684	20,261	20,256	20,028	19,745	20,506	20,774	22,015	22,779	23,732	24,143	24,003	24,045
Freight cars[b]	1,965,486	1,800,662	1,784,181	1,723,605	1,710,827	1,421,686	1,212,261	1,189,660	1,173,136	1,173,132	1,192,412	1,218,927	1,240,573	1,270,419	1,315,667	1,368,836	1,380,796	1,314,136	1,299,670	1,278,980	1,287,920	(R) 1,316,522	(R) 1,361,250	1,385,709	1,392,972	1,363,433
Kilometers traveled (millions)																										
Freight train-kilometers[c]	651	677	687	648	690	559	611	603	628	653	710	738	754	764	764	789	811	804	804	830	861	881	(R) 905	875	844	702
Locomotive unit-kilometers	N	N	N	2,380	2,464	1,976	2,060	1,992	2,057	2,124	2,261	2,326	2,358	2,290	2,317	2,420	2,419	2,378	2,323	2,388	2,476	2,555	2,671	2,589	2,509	2,107
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	61,454	59,909	51,684
Average kilometers traveled per liter																										
Freight trains	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Freight cars	3.46	3.47	3.58	3.22	3.19	3.41	3.57	3.75	3.70	3.70	3.63	3.71	3.77	3.77	3.87	3.87	3.97	3.92	3.95	3.95	3.88	3.91	3.95	4.00	4.07	4.28
Fuel consumed (million liters)	13,109	13,597	13,419	13,843	14,778	11,773	11,792	11,000	11,375	11,689	12,621	13,173	13,548	13,533	13,563	14,063	14,006	14,044	14,120	14,483	15,365	15,513	15,868	15,376	14,710	12,083
Revenue tonne-kilometers per liter of fuel consumed	71	84	93	89	101	121	143	154	153	154	155	161	163	162	165	166	170	173	174	174	176	178	182	187	197	206
Average kilometers traveled per locomotive (thousands)	N	N	N	85.5	87.7	87.6	109.4	108.6	114.2	117.0	122.2	123.6	122.4	116.3	114.4	119.5	120.8	120.4	113.3	115.0	112.5	112.2	112.6	107.2	104.5	87.6
Average fuel consumed per locomotive[a] (thousand liters)	451.5	489.5	495.6	497.1	526.0	522.1	626.0	599.7	631.8	643.7	682.0	700.3	703.1	687.5	669.4	694.3	699.3	711.3	688.6	697.2	697.9	681.0	668.7	636.9	612.8	502.5

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.
1.459972 tonne-kilometers = 1 ton-mile.

SOURCES
All data except for locomotive unit-kilometers:
Association of American Railroads,*Railroad Facts* (Washington, DC: Annual Issues), pp. 33, 34, 40, 49, and 51, and similar pages 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).
2005-09: Association of American Railroads, personal communications, June 13, 2007, Apr. 24, 2008, Apr. 28, 2010, and Aug. 12, 2011.

Table 4-18M: Amtrak Fuel Consumption and Travel

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Number in use																							
Locomotives	355	419	291	318	316	336	360	338	313	299	332	345	329	378	401	372	442	276	258	319	270	278	274
Cars	1,913	2,128	1,854	1,863	1,786	1,796	1,853	1,852	1,722	1,730	1,728	1,962	1,992	1,894	2,084	2,896	1,623	1,211	1,186	1,191	1,164	1,177	1,214
Kilometers traveled (millions)																							
Train-kilometers	48	48	48	53	55	55	56	55	51	48	51	53	55	56	58	61	60	60	58	58	60	61	62
Car-kilometers	407	378	404	484	504	494	488	489	470	444	463	502	550	592	608	609	534	496	426	425	429	437	455
Locomotive fuel consumed																							
Electric (million of kWh)	180	254	295	330	303	300	301	309	336	363	390	416	443	470	456	518	537	551	531	549	578	582	565
Diesel (million liters)	239	240	245	311	310	309	313	278	274	270	286	288	300	359	367	320	282	260	248	236	234	240	234
Average kilometers traveled per car (thousands)	213	178	218	260	282	275	263	264	273	257	268	256	276	313	292	210	329	410	359	357	369	372	375

KEY: kWh = kilowatt hour.

NOTE
1 gallon = 3.785412 liters and 1 mile = 1.609344 kilometers.

SOURCES
Number of locomotives and cars:
1975–80: National Passenger Railroad Corporation (Amtrak), State and Local Affairs Department, personal communication.
1985–2000: Ibid., *Amtrak Annual Report* , Statistical Appendix (Washington, DC: Annual Issues).
2001–09: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in earlier editions.
Miles traveled:
Train-miles:
1975–2002: National Passenger Railroad Corporation (Amtrak), *Amtrak Annual Report*, Statistical Appendix (Washington, DC: Annual Issues).
2003–09: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in earlier editions.
Car-miles:
1975: Association of American Railroads, *Yearbook of Railroad Facts 1975* (Washington, DC: 1976), p. 40.
1980–85: National Passenger Railroad Corporation (Amtrak), State and Local Affairs Department and Public Affairs Department, personal communication.
1990–2000: Ibid., Amtrak Corporate Reporting, Route Profitability System, personal communication, Aug. 22, 2001.
2001–09: Association of American Railroads, *Railroad Facts* (Washington, DC: Annual Issues), p. 77 and similar pages in earlier editions.
Locomotive fuel consumed:
1975-2000: National Passenger Railroad Corporation (Amtrak), State and Local Affairs Department, personal communication.
2001-09: National Passenger Railroad Corporation (Amtrak), personal communication, May 2, 2011.

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[c]	Total	Electricity	Natural gas	Coal and other[d]	Total
FY 2003, total	43.3	179.9	490.9	6.3	720.6	185.9	132.4	38.1	1,077.0
Agriculture	2.1	0.4	0.0	0.7	3.1	2.5	1.3	0.3	7.3
Defense	15.6	157.8	483.3	4.0	660.7	95.8	72.6	26.2	855.2
Energy	0.9	1.9	Z	0.1	2.8	17.1	6.6	3.4	30.0
GSA	0.1	0.1	0.0	0.0	0.2	9.5	7.2	1.7	18.6
Health and Human Services	0.5	0.9	0.0	0.1	1.4	3.4	3.5	1.2	9.6
Interior	2.3	1.1	0.1	0.7	4.2	2.3	1.2	0.1	7.8
Justice	4.3	0.4	1.4	0.0	6.2	6.6	8.2	0.7	21.5
NASA	0.2	0.4	0.6	0.1	1.3	5.5	2.7	0.8	10.2
Postal Service	12.2	4.8	0.0	0.2	17.3	20.6	9.9	0.7	48.2
Transportation	0.7	0.3	0.6	0.1	1.5	3.0	0.7	0.0	5.3
Veterans Affairs	0.9	1.8	0.0	0.0	2.7	9.7	14.8	1.8	28.9
Other[a]	3.9	10.1	4.9	0.3	19.2	10.0	4.0	1.1	34.3
FY 2010, total	(R) 48.6	(R) 150.1	508.2	(R) 4.5	(R) 711.5	(R) 184.9	(R) 122.6	(R) 35.0	(R) 1,054.0
Agriculture	2.1	0.6	(R) 0.0	0.4	3.0	1.8	1.3	0.3	6.4
Defense	17.6	131.0	501.6	2.6	652.9	(R) 97.8	69.1	(R) 23.0	(R) 842.9
Energy	0.6	1.5	(R) 0.2	0.4	2.7	(R) 16.2	6.7	(R) 4.5	(R) 30.0
GSA	0.1	0.1	0.0	Z	0.2	9.4	6.6	1.7	17.8
Health and Human Services	0.2	0.6	0.0	0.1	0.8	3.2	5.6	0.1	9.8
Interior	2.0	1.2	Z	0.4	3.6	(R) 2.6	1.0	0.8	7.9
Justice	2.7	0.3	0.3	0.1	3.2	5.1	6.4	0.1	(R) 14.9
NASA	0.1	0.3	0.8	0.1	1.1	(R) 5.1	2.5	(R) 0.8	9.6
Postal Service	13.7	4.4	0.0	0.3	18.4	16.9	4.3	0.5	(R) 40.1
Transportation	0.6	0.2	0.5	Z	1.4	(R) 3.8	0.3	(R) 0.0	5.4
Veterans Affairs	0.9	1.0	0.0	0.1	2.0	(R) 10.5	14.1	2.0	28.6
Other[b]	(R) 8.1	(R) 9.0	4.8	0.3	(R) 22.2	(R) 12.6	(R) 4.5	(R) 1.3	(R) 40.6
FY 2011[P], total	49.8	158.6	506.6	4.5	719.4	185.7	119.1	34.1	1058.3
Agriculture	2.5	0.6	0.9	0.4	4.4	1.7	1.6	0.2	7.9
Defense	18.7	138.5	499.4	2.5	659.0	98.7	65.0	21.1	843.8
Energy	0.7	2.3	0.2	0.4	3.4	17.0	7.0	4.4	31.7
GSA	0.1	0.1	0.0	Z	0.2	9.0	6.7	1.7	17.5
Health and Human Services	0.2	0.6	0.0	0.1	0.9	3.3	5.6	0.2	10.0
Interior	1.9	1.3	Z	0.2	3.5	2.6	1.1	0.7	7.9
Justice	2.8	0.3	0.7	0.2	3.9	5.0	4.0	0.4	13.2
NASA	0.1	0.2	0.7	0.1	1.0	5.1	2.4	1.0	9.6
Postal Service	14.6	4.6	0.0	0.3	19.4	16.0	6.0	0.7	42.1
Transportation	0.4	0.1	0.5	Z	1.0	3.9	0.8	0.7	6.4
Veterans Affairs	1.0	1.0	0.0	0.1	2.2	10.8	14.3	1.7	29.0
Other[b]	6.9	9.0	4.3	0.3	20.5	12.7	4.7	1.4	39.3

KEY: FY = fiscal year; GSA = General Services Administration; NASA = National Aeronautics and Space Administration; P = preliminary; R = revised; Z = value too small to report.

[a] Includes National Archives and Records Administration, U.S. Department of Commerce, U.S. Department of Labor, U.S. Department of State, Environmental Protection Agency, Federal Communications Commission, Federal Trade Commission, Panama Canal Commission, Equal Employment Opportunity Commission, Nuclear Regulatory Commission, Office of Personnel Management, U.S. Department of Housing and Urban Development, U.S. Department of the Treasury, Railroad Retirement Board, Tennessee Valley Authority, Federal Emergency Management Agency, and U.S. Information Agency.

[b] Includes National Archives and Records Administration, U.S. Department of Commerce, Tennessee Valley Authority, U.S. Department of Labor, National Science Foundation, Federal Trade Commission, Federal Communications Commission, Environmental Protection Agency, U.S. Department of Homeland Security, U.S. Department of Housing and Urban Development, Railroad Retirement Board, Equal Employment Opportunity Commission, Nuclear Regulatory Commission, U.S. Department of State, U.S. Department of the Treasury, Office of Personnel Management, Consumer Product Safety Commission, Central Intelligence Agency, Social Security Administration, and U.S. information Agency (International Broadcasting Bureau).

[c] Includes liquefied petroleum gases.

[d] Includes purchased steam, chilled water from district heating and cooling systems, and any other energy type, such as renewable energy.

NOTES

1 Trillion BTU=1.055056 Petajoules

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

U.S. Department of Energy, Energy Information Administration, *Annual Energy Review,* table 1.13, available at http://www.eia.doe.gov/emeu/aer/ as of Feb. 14, 2013.

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	(R) 1996	(R) 1997	(R) 1998	(R) 1999	(R) 2000	(R) 2001	(R) 2002	(R) 2003	(R) 2004	(R) 2005	(R) 2006	(R) 2007	(R) 2008	(R) 2009	(R) 2010	2011
Aircraft-kilometers (millions)																												
Domestic operations	1,381	1,825	3,328	2,635	3,663	4,869	6,378	6,203	6,429	6,689	7,046	7,448	7,736	7,897	8,095	8,572	9,112	8,923	9,033	9,826	10,625	10,809	10,631	10,835	10,374	9,552	9,617	9,663
International operations	293	457	764	537	538	668	1,224	1,298	1,455	1,542	1,570	1,606	1,679	1,793	1,909	1,972	2,063	2,033	1,966	2,030	2,257	2,471	2,599	2,707	2,730	2,574	2,720	2,861
Available seat-kilometers (millions)																												
Domestic operations	84,040	152,545	343,048	346,452	525,827	728,641	918,225	887,653	912,562	936,834	962,630	992,094	1,028,392	1,049,334	1,064,768	1,124,715	1,168,853	1,134,267	1,105,983	1,121,732	1,208,459	1,220,953	1,200,573	1,228,864	1,181,646	1,099,892	1,110,304	1,122,960
International operations	21,480	47,529	83,622	103,220	136,011	177,958	293,950	300,091	331,250	340,909	339,746	347,011	355,194	368,039	382,079	391,040	408,850	395,445	365,789	362,739	400,924	435,469	453,112	477,226	493,424	469,712	486,042	506,531
Passenger-kilometers (millions)																												
Domestic operations	49,177	83,504	167,608	192,464	307,008	443,959	556,629	544,096	570,938	582,948	625,086	650,033	699,504	725,288	744,730	785,263	829,775	782,956	778,157	813,687	898,327	939,489	947,052	977,779	938,717	887,941	908,788	926,357
International operations	13,367	27,019	44,358	56,109	86,795	117,863	203,361	201,508	223,619	231,369	239,966	249,258	259,928	272,552	277,096	290,115	310,278	287,015	276,945	271,232	312,327	340,094	356,709	377,329	387,033	367,343	393,277	402,752
Fuel consumed (million liters)																												
Domestic operations	7,397	14,721	29,742	28,610	32,249	38,289	46,228	43,002	43,903	45,273	47,320	48,498	49,919	51,700	50,358	54,853	56,272	52,496	48,916	49,520	53,339	52,904	51,839	51,791	48,021	42,924	42,608	41,910
International operations	2,143	4,845	8,491	7,378	6,614	9,418	14,906	14,717	15,442	15,565	16,373	17,078	17,633	18,782	18,607	19,974	20,850	20,197	19,226	19,755	21,169	22,616	22,779	23,487	23,419	21,657	22,818	24,693
Seats per aircraft																												
Domestic operations	60.9	83.6	103.1	131.5	143.6	149.6	144.0	143.1	141.9	140.1	136.6	133.2	132.9	132.9	131.5	131.2	128.3	127.1	122.4	114.2	113.7	113.0	112.9	113.4	113.9	115.1	115.5	116.2
International operations	73.3	104.0	109.4	192.1	252.7	266.2	240.2	231.2	227.6	221.1	216.4	216.1	211.5	205.3	200.1	198.3	198.2	194.5	186.0	178.7	177.6	176.2	174.3	176.3	180.7	182.5	178.7	177.0
Seat-kilometers per liter																												
Domestic operations	11.4	10.4	11.5	12.1	16.3	19.0	19.9	20.6	20.8	20.7	20.3	20.5	20.6	20.3	21.1	20.5	20.8	21.6	22.6	22.7	22.7	23.1	23.2	23.7	24.6	25.6	26.1	26.8
International operations	10.0	9.8	9.8	14.0	20.6	18.9	19.7	20.4	21.5	21.9	20.7	20.3	20.1	19.6	20.5	19.6	19.6	19.6	19.0	18.4	18.9	19.3	19.9	20.3	21.1	21.7	21.3	20.5
Energy intensity (kilojoule/passenger-kilometer)																												
Domestic operations	5,659	6,633	6,677	5,593	3,952	3,245	3,125	2,974	2,893	2,922	2,848	2,807	2,685	2,682	2,544	2,628	2,552	2,523	2,365	2,290	2,234	2,119	2,060	1,993	1,925	1,819	1,764	1,702
International operations	6,031	6,748	7,202	4,948	2,867	3,007	2,758	2,748	2,598	2,531	2,567	2,578	2,552	2,593	2,527	2,591	2,528	2,648	2,612	2,741	2,550	2,502	2,403	2,342	2,277	2,218	2,183	2,307
Load factor (percent)																												
Domestic operations	58.5	54.7	48.9	55.6	58.4	60.9	60.6	61.3	62.6	62.2	64.9	65.5	68.0	69.1	69.9	69.8	71.0	69.0	70.4	72.5	74.3	76.9	78.9	79.6	79.4	80.7	81.9	82.5
International operations	62.2	56.8	53.0	54.4	63.8	66.2	69.2	67.1	67.5	67.9	70.6	71.8	73.2	74.1	72.5	74.2	75.9	72.6	75.7	74.8	77.9	78.1	78.7	79.1	78.4	78.2	80.9	79.5

KEY: R = revised.

[a] U.S. owned carriers only. Operations of foreign-owned carriers in or out of the United States not included.

NOTES

Aircraft-kilometers include all four large certificated air-carrier groups (majors, nationals, large regionals, and medium regionals), scheduled and charter, passenger, and all-cargo. *Fuel consumed* includes majors, nationals, and large regionals, scheduled and charter, passenger, and all-cargo.

Passenger-kilometers include all four large certificated air-carrier groups, scheduled and charter, passenger service only.

International operations include operations outside the United States, including those between the United States and foreign countries and the United States and its territories or possessions.

Load factor: Ratio of *Passenger-kilometers* to *Available seat-kilometers*.

Heat equivalent factor used for conversion is 37,626.7 kilojoules/liter.

1.609344 kilometers = 1 mile.

3.785412 liters = 1 gallon.

SOURCES

Aircraft-miles, available seat-miles, and passenger-miles:

1960-70: Air Transport Association, available at http://www.air-transport.org/ as of July 31, 2002.

1975-2011: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class*, available at http://www.transtats.bts.gov/Fields.asp?Table_ID=264 as of July 23, 2012.

Fuel consumed:

U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Airline Information, *Airline Fuel Cost and Consumption*, available at http://www.transtats.bts.gov/fuel.asp as of July 23, 2012.

Seats per aircraft, seat-miles per gallon, energy intensiveness and load factor:

Derived by calculation.

Table 4-22M: Energy Intensity of Light Duty Vehicles and Motorcycles

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	(R) 2009	2010
Vehicle-kilometers (millions)																											
Light duty vehicle, short wheel base[a,b]	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	2,618,991	2,669,055	2,690,770	2,735,708	2,749,437	2,720,651	3,386,729	3,258,531	3,243,977	3,259,559
Light duty vehicle, long wheel base[b]	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	1,516,991	1,554,681	1,583,627	1,653,060	1,675,410	1,742,099	944,071	974,388	993,824	1,001,435
Motorcycle[a]	U	U	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	15,502	15,372	15,411	16,290	16,825	19,392	34,434	33,492	33,510	29,712
Passenger-kilometers (millions)																											
Light duty vehicle, short wheel base[a,b]	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	4,114,258	4,217,107	4,251,702	4,322,419	4,344,110	4,298,629	5,351,032	5,148,478	4,507,134	4,528,783
Light duty vehicle, long wheel base[b]	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	2,701,851	2,695,316	2,745,706	2,865,873	2,904,621	3,020,240	1,636,715	1,689,275	1,327,699	1,337,868
Motorcycle[a]	U	U	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	18,925	19,523	19,574	20,689	21,367	24,628	43,731	42,534	36,094	32,003
Average occupancy rate																											
Light duty vehicle, short wheel base[a,b]	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	1.58	1.58	1.39	1.39
Light duty vehicle, long wheel base[b]	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	1.73	1.73	1.34	1.34
Motorcycle[a]	U	U	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	1.27	1.27	1.08	1.08
Fuel consumed (million liters)																											
Light duty vehicle, short wheel base[a,b]	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	293,061	283,940	339,085	323,991	324,249	326,455
Light duty vehicle, long wheel base[b]	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	222,844	229,719	139,721	132,207	135,179	136,778
Motorcycle[a]	U	U	227	428	772	689	723	697	723	750	776	742	750	765	780	801	793	730	723	725	766	717	837	1,798	1,853	1,826	1,611
Energy intensity (Kilojoules/passenger-kilometer)[b]																											
Light duty vehicle, short wheel base[a,b]	2,947	2,921	3,174	3,109	2,850	2,799	2,498	2,396	2,429	2,483	2,472	2,439	2,427	2,397	2,384	2,407	2,353	2,358	2,360	2,341	2,301	2,350	2,301	2,208	2,192	2,506	2,511
Light duty vehicle, long wheel base[b]	N	N	4,465	4,308	3,743	3,259	2,918	2,804	2,790	2,803	2,849	2,975	2,990	2,991	2,994	3,023	2,956	2,612	2,702	2,918	2,918	2,673	2,650	2,974	2,727	3,547	3,562
Motorcycle[a]	U	U	1,639	1,543	1,393	1,243	1,304	1,257	1,304	1,352	1,400	1,460	1,475	1,505	1,535	1,446	1,490	1,343	1,291	1,291	1,291	1,170	1,184	1,432	1,517	1,762	1,754

KEY: Btu = British thermal unit; N = data do not exist; R = revised; U = data are unavailable.

[a] *Motorcycle* was included in *Light duty vehicle, short wheel base* (previously *Passenger car*) in 1960 and 1965.
[b] 1960-99 data are for *Passenger car* and *Other 2-axle, 4-tire vehicles*, respectively. The data from 1960-2006 are not comparable to the data from 2007-10.
[c] *Energy Intensity* (Kilojoules/passenger-kilometer) is calculated by converting the fuel consumption in liters to the energy equivalent Kilojoule units and dividing by the passenger-kilometers. The heat equivalent factor used for kilojoule conversion is 34,839.537 Kilojoules/liter.

NOTES

Data for 2007-09 were calculated using a new methodology developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category *Light duty vehicle, short wheel base* includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. The new category *Light duty vehicle, long wheel base* includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches.

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.

For 1970-94, the unrevised motorcycle fuel consumed is subtracted from the combined passenger car and motorcycle fuel consumed from VM-201A.

Vehicle-kilometers and *Passenger-kilometers* data for 1960 through 1999 have been rounded to the nearest billion miles.

1 mile = 1.609344 kilometers
1 gallon = 3.785412 liters
1 Btu = 1.055056 kilojoules.

SOURCES

Vehicle-miles:

Passenger car:

1960-94: U.S. Department of Transportation, Federal Highway Administration, Highway Statistics Summary to 1995, table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.
1995-2006: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

Light duty vehicle, short wheel base:

2007-2010: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 14, 2012.

Other 2-axle 4-tire vehicle:

1970-94: U.S. Department of Transportation, Federal Highway Administration, Highway Statistics Summary to 1995, table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.
1995-2006: Ibid., Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 6, 2011.

Light duty vehicle, long wheel base:

2007-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 14, 2012.

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.
1995-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 14, 2012.

Passenger-miles:

1960-97: Vehicle-miles multiplied by vehicle occupancy rates.
1998-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 14, 2012.

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.
1995-2010: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Mar. 14, 2012.

Table 4-23M: Average Fuel Efficiency of U.S. Light Duty Vehicles

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	(R) 2010	2011
Average U.S. passenger car fuel efficiency (kmpl) (calendar year)																								
Light duty vehicle, short wheel base[a,b]	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	9.3	9.4	9.6	9.4	9.6	9.7	10.1	10.1	U	U
Light duty vehicle, long wheel base[a]	5.2	6.1	6.9	7.2	7.3	7.4	7.4	7.4	7.3	7.3	7.3	7.2	7.4	7.5	7.4	6.9	6.9	7.5	7.6	7.3	7.4	7.4	U	U
New vehicle fuel efficiency (kmpl)[c] (model year)																								
Light-duty vehicle																								
Passenger car	10.3	11.7	11.9	12.1	11.9	12.1	12.0	12.2	12.1	12.2	12.2	12.0	12.1	12.2	12.3	12.5	12.5	12.9	12.8	13.3	13.4	14.0	14.4	14.4
Domestic	9.6	11.2	11.4	11.6	11.5	11.8	11.7	11.8	11.9	11.8	12.2	11.9	12.2	12.2	12.4	12.4	12.7	13.0	12.9	13.0	13.3	13.6	14.1	13.8
Imported	12.6	13.4	12.7	12.8	12.4	12.6	12.6	12.9	12.6	12.8	12.4	12.3	12.0	12.3	12.2	12.7	12.2	12.7	12.6	13.7	13.5	14.4	15.0	15.0
Light truck (<8,500 lbs GVWR)[d]	7.9	8.8	8.8	9.1	8.8	8.9	8.8	8.7	8.8	8.8	8.9	8.9	9.1	8.9	9.1	9.3	9.1	9.4	9.6	9.8	10.0	10.5	10.7	10.4
CAFE standards (kmpl)[e] (model year)																								
Passenger car	8.5	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	12.8
Light truck[e]	U	8.3	8.5	8.6	8.6	8.7	8.7	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.9	9.2	9.4	9.6	9.8	10.0	10.3

KEY: CAFE = Corporate Average Fuel Economy; GVWR = gross vehicle weight rating; kmpl = kilometers per liter; R = revised; U = data are not available.

[a] 1960-2006 data are for *Passenger car* and *Other 2-axle, 4-tire vehicles*, respectively. The data from 1960-2006 are not comparable to the data from 2007-09.
[b] From 1980 to 1994, *Light duty vehicle, short wheel base* (previously *Passenger car*) fuel efficiency includes motorcycles.
[c] 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.
[d] Beginning with FY 1999, the total *Light truck* fleet ceased to be categorized by either domestic or import fleets.
[e] No combined figure is available for 1980. In 1980, CAFE standard for 2 wheel drive, and 4 wheel drive light trucks were 6.8, and 6.0 kmpl respectively.

NOTES

Data for 2007-09 were calculated using a new methodology developed by FHWA. Data for these years are based on new categories and are not comparable to previous years. The new category *Light duty vehicle, short wheel* base includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. The new category *Light duty vehicle, long wheel base* includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases (WB) larger than 121 inches.
The fuel efficiency figures for light duty vehicles represent the sales-weighted harmonic average of the combined passenger car and light truck fuel economies.
1.609344 kilometers = 1 mile.
3.785412 liters = 1 gallon.

SOURCES

Average U.S. passenger car fuel efficiency:
1980-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Apr. 20, 2011.
1995-2009: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Oct. 5, 2011.
New vehicle fuel efficiency (based on model year production) and CAFE standards:
U.S. Department of Transportation, National Highway Traffic Safety Administration, *Summary of Fuel Economy Performance* (Washington, DC: Annual Issues), available at http://www.nhtsa.gov/fuel-economy as of Dec. 19, 2011.

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	2006	2007	2008	2009	2010	2011
Vehicle-kilometers (millions)	2,537	2,460	2,268	2,456	2,699	2,998	3,428	3,487	3,505	3,556	3,479	3,514	2,692	2,744	2,841	2,931	2,993	3,079	3,077	2,997	2,976	2,961	2,956	2,995	3,050	3,060	2,974	2,829
Passenger-kilometers (millions)	N	N	N	N	35,068	34,055	33,766	33,941	32,728	32,584	30,307	30,285	25,460	26,565	27,248	28,253	28,365	29,535	29,104	27,463	26,847	27,413	28,149	28,131	29,449	28,976	28,435	27,690
Energy consumed																												
Diesel fuel (million liters)	787	939	1,026	1,382	1,632	1,961	2,132	2,169	2,241	2,179	2,139	2,134	1,763	1,754	1,773	1,804	1,853	1,862	1,773	1,672	1,668	1,421	1,597	1,535	1,526	1,462	1,397	1,341
Compressed Natural Gas (million liters)	N	N	N	N	N	N	N	N	N	N	N	38	38	67	103	126	159	193	246	296	323	351	413	402	421	470	402	402
Bio-diesel (million liters)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	3	3	8	195	61	78	125	134	119	132
Liquefied natural gas (million liters)	N	N	N	N	N	N	N	N	N	N	N	6	8	12	10	17	33	37	53	44	50	55	58	57	56	52	50	43
Gasoline (million liters)	N	N	N	N	N	N	N	N	N	N	N	9	4	5	6	4	4	5	4	3	5	3	7	7	11	11	13	16
Other major fuels[a] (million liters)	N	N	N	N	N	N	N	N	N	N	N	N	43	34	16	9	3	4	8	8	8	11	8	4	3	4	(R) 4	2
Power[b] (million KWH)	N	N	N	N	N	N	N	N	N	N	N	N	(R) 0	(R) 0	(R) 1	(R) 1	(R) 1	(R) 1	(R) 3	(R) 1	(R) 2	(R) 1	(R) 1	(R) 1	(R) 1	(R) 1	(R) 1	1
Energy consumed, total (Billion kilojoules)	N	N	N	N	N	N	N	N	N	N	N	N	69,603	69,471	69,992	71,266	73,644	74,334	71,846	68,023	68,389	65,721	68,317	66,322	67,780	65,957	(R) 62,458	60,684
Diesel fuel	30,438	36,291	39,657	53,413	63,071	75,817	82,409	83,830	86,638	84,252	82,689	82,500	68,160	67,799	68,541	69,751	71,646	71,974	68,535	64,642	64,464	54,914	61,729	59,337	58,981	56,523	54,017	51,859
Compressed Natural Gas	N	N	N	N	N	N	N	N	N	N	N	237	240	420	647	790	999	1,211	1,543	1,856	2,027	2,199	2,589	2,521	2,640	2,950	2,519	2,521
Bio-diesel	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	103	113	283	6,850	2,138	2,745	4,380	4,721	4,169	4,640
Liquefied natural gas	N	N	N	N	N	N	N	N	N	N	N	152	200	289	230	392	781	875	1,253	1,049	1,178	1,295	1,381	1,354	1,330	1,238	1,174	1,023
Gasoline	N	N	N	N	N	N	N	N	N	N	N	303	132	175	199	143	134	163	139	122	190	102	243	251	373	394	440	558
Other major fuels[a]	N	N	N	N	N	N	N	N	N	N	N	N	867	786	368	182	73	101	246	225	226	349	223	101	65	122	(R) 132	72
Power[b]	N	N	N	N	N	N	N	N	N	N	N	N	3	3	7	9	10	11	27	15	21	13	13	11	10	8	(R) 8	10
Energy intensity (kilojoules/passenger-kilometer)	N	N	N	N	N	N	N	N	N	N	N	N	2,734	2,615	2,569	2,522	2,596	2,517	2,469	2,477	2,547	2,397	2,427	2,358	2,302	2,276	(R) 2,197	2,192

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

[a] Before 2002, *Other major fuels* include liquefied petroleum gas, methanol, ethanol, and bunker fuel. From 2002 to 2010, *Other major fuels* include liquefied petroleum gas, methanol, ethanol, bunker fuel, kerosene, and grain additive.
[b] *Power* includes electric propulsion and electric battery.

NOTES

Data from 1996 and after are not comparable to the data for earlier years or to the data published in previous editions of the report due to different data sources used.
Data from 1996 and after are for those vehicles used for directly operated (DO) services only .

Energy consumed, total does not include the other types of energy identified in table 17 in the *National Transit Database* due to the lack of information on the unit of measurement for such data before 2008.
The following conversion rates were used:
Diesel =38,657.95 kilojoules/liter.
Compressed Natural Gas = 6,271.117 kilojoules/liter.
Bio-Diesel = 35,174.00 kilojoules/liter.
Liquefied natural gas = 23,635.15 kilojoules/liter.
Gasoline = 34,839.54 kilojoules/liter.
Liquefied petroleum gas = 25,446.80 kilojoules/liter.
Methanol = 18,005.07 kilojoules/liter.
Ethanol = 23,579.40 kilojoules/liter.
Bunker fuel = 41,723.83 kilojoules/liter.
Kerosene = 37,626.70 kilojoules/liter.
Grain additive = 33,696.80 kilojoules/liter.
Electricity 1KWH = 3,412 Btu, negating electrical system losses. This table includes approximate electrical system losses, and thus the conversion factor is multiplied by 3.
1.609344 kilometers = 1 mile.
3.785412 liters = 1 gallon.
1.055056 kilojoules = 1 British thermal unit (Btu).

SOURCES

1960-95: American Public Transportation Association, *2010 Public Transportation Fact Book Appendix A: Historical Tables* (Washington, DC: Annual Issues), tables 2, 6, 30, 32 and similar tables in earlier editions, available at http://www.apta.com/resources/statistics/Pages/transitstats.aspx as of Aug 23, 2010.
1996-2010: U.S. Department of Transportation, Federal Transit Administration, National Transit Database, tables 17, 19, and similar tables in earlier editions, available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Feb. 4, 2013.

Table 4-25M: Energy Intensity of Class I Railroad[a] Freight Service

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	(R) 2005	2006	2007	2008	2009
Revenue freight tonne-kilometers (millions)	835,555	1,018,882	1,116,600	1,101,187	1,341,653	1,280,372	1,509,566	1,516,728	1,557,470	1,619,560	1,752,990	1,906,268	1,979,686	1,969,394	2,010,092	2,092,813	2,140,261	2,183,347	2,200,194	2,265,056	2,427,347	2,476,733	2,586,920	2,584,946	2,594,715	2,236,990
Car-kilometers (millions)	45,335	47,212	48,103	44,508	47,117	40,105	42,099	41,244	42,049	43,264	45,842	48,897	51,040	50,952	52,556	54,478	55,667	55,109	55,812	57,220	59,660	60,692	62,692	61,454	59,909	51,684
Tonnes per car load	(R) 40.3	(R) 44.4	(R) 49.8	(R) 55.2	(R) 60.9	(R) 61.4	(R) 60.4	(R) 60.1	(R) 59.9	(R) 58.4	(R) 57.5	(R) 59.2	(R) 60.4	(R) 57.5	(R) 58.2	(R) 57.5	(R) 56.8	(R) 58.1	(R) 57.4	(R) 56.5	(R) 55.6	55.3	(R) 55.2	56.0	57.2	58.2
Fuel consumed (million liters)	13,109	13,597	13,419	13,843	14,778	11,773	11,792	11,000	11,375	11,689	12,621	13,173	13,548	13,533	13,563	14,063	14,006	14,044	14,120	14,483	15,365	15,513	15,868	15,376	14,710	12,083
Energy intensity (kilojoule / revenue freight tonne-kilometer)	(R) 606	(R) 516	(R) 465	(R) 486	(R) 426	(R) 355	(R) 302	(R) 280	(R) 282	(R) 279	(R) 278	(R) 267	(R) 265	(R) 266	(R) 261	(R) 260	(R) 253	(R) 249	(R) 248	(R) 247	(R) 245	242	237	230	219	209
Energy intensity (kilojoule / car-kilometer)	(R) 11,178	(R) 11,133	(R) 10,784	(R) 12,023	(R) 12,124	(R) 11,347	(R) 10,827	(R) 10,310	(R) 10,457	(R) 10,444	(R) 10,642	(R) 10,414	(R) 10,261	(R) 10,267	(R) 9,976	(R) 9,979	(R) 9,726	(R) 9,851	(R) 9,779	(R) 9,784	(R) 9,956	9,880	9,784	9,672	9,492	9,037

KEY: R = revised.

[a] The threshold for classification as a Class I Railroads is based on operating revenues; the 2009 threshold is $389.8 million.

NOTES

The heat equivalent factor used for joule conversion is 38,655.900 joules/liter.
1.459972 tonne-kilometer = 1 ton-mile.
1.609344 kilometers = 1 mile.
0.9071847 tonnes = 1 ton.
3.785412 liters = 1 gallon.
1.055056 kilojoules = 1 British thermal unit (Btu).

SOURCE

Association of American Railroads, *Railroad Facts 2010* (Washington, DC: 2010), pp. 34, 37, and 40, and similar tables in earlier editions.

Glossary

14 CFR 121 (Air): Code of Federal Regulations, Title 14, part 121. Prescribes rules governing the operation of domestic, flag, and supplemental air carriers and commercial operators of large aircraft.

14 CFR 135 (Air): Code of Federal Regulations, Title 14, part 135. Prescribes rules governing the operations of commuter air carriers (scheduled) and on-demand air taxi (unscheduled).

ACCIDENT (Aircraft): As defined by the National Transportation Safety Board, an occurrence incidental to flight in which, as a result of the operation of an aircraft, any person (occupant or nonoccupant) receives fatal or serious injury or any aircraft receives substantial damage.

ACCIDENT (Automobile): See Crash (Highway)

ACCIDENT (Gas): 1) An event that involves the release of gas from a pipeline or of liquefied natural gas (LNG) or other gas from an LNG facility resulting in personal injury necessitating inpatient hospitalization or a death; or estimated property damage of $50,000 or more to the operator or others, or both, including the value of the gas that escaped during the accident; 2) An event that results in an emergency shutdown of an LNG facility; or 3) An event that is significant in the judgment of the operator even though it did not meet the criteria of 1) or 2).

ACCIDENT (Hazardous liquid or gas): Release of hazardous liquid or carbon dioxide while being transported, resulting in any of the following: 1) An explosion or fire not intentionally set by the operator; 2) Loss of 50 or more barrels of hazardous liquid or carbon dioxide; 3) Release to the atmosphere of more than 5 barrels a day of highly volatile liquids; 4) Death of any person; 5) Bodily harm resulting in one or more of the following: a) The loss of consciousness, b) The necessity of carrying person from the scene, c) The necessity for medical treatment, d) Disability that prevents the discharge of normal duties; and 6) Estimated damage to the property of the operators and/or others, exceeding $50,000.

ACCIDENT (Highway-Rail Grade-Crossing): An impact between on-track railroad equipment and an automobile, bus, truck, motorcycle, bicycle, farm vehicle, or pedestrian or other highway user at a designated crossing site. Sidewalks, pathways, shoulders, and ditches associated with the crossing are considered to be part of the crossing site.

ACCIDENT (Rail): A collision, derailment, fire, explosion, act of God, or other event involving operation of railroad on-track equipment (standing or moving) that results in railroad damage exceeding an established dollar threshold.

ACCIDENT (Recreational Boating): An occurrence involving a vessel or its equipment that results in 1) A death; 2) An injury that requires medical treatment beyond first aid; 3) Damage to a vessel and other property, totaling to more than $500 or complete loss of a vessel; or 4) The disappearance of the vessel under circumstances that indicate death or injury. Federal regulations (33 CFR 173-4) require the operator of any vessel that is numbered or used for recreational purposes to submit an accident report.

ACCIDENT (Transit): An incident involving a moving vehicle. Includes a vehicle, object, or person (except suicides) or a derailment/left roadway.

ACTIVE AIRCRAFT (General Aviation): All legally registered civil aircraft that flew one or more hours.

AERIAL APPLICATION FLYING (General Aviation): The operation of aircraft for the purposes of dispensing any substances required for agriculture, health, forestry, seeding, firefighting, and insect control purposes.

AERIAL OBSERVATION FLYING (General Aviation): Any use of an aircraft for aerial mapping and photography, surveying, patrolling, fish spotting, search and rescue, hunting, sightseeing, or highway traffic advisory not included under Federal Aviation Regulations (FAR) Part 135.

AIR CARRIER: A person who undertakes directly, by lease, or other arrangement to engage in air transportation. More specifically, the commercial system of air transportation comprising large certificated air carriers, small certificated air carriers, commuter air carriers, on-demand air taxis, supplemental air carriers, and air travel clubs.

AIR ROUTE TRAFFIC CONTROL CENTER: A facility established to provide air traffic control service to aircraft operating on an IFR (instrument flight rule) flight plan within controlled airspace and principally during the en route phase of flight.

AIR TAXI: An aircraft operator who conducts operations for hire or compensation in accordance with 14 CFR 135 (for safety purposes) or FAR Part 135 (for economic regulations/reporting purposes) in an aircraft with 30 or fewer passenger seats and a payload capacity of 7,500 pounds or less. An air taxi operates on an on-demand basis and does not meet the flight scheduled qualifications of a commuter air carrier (see below).

AIRCRAFT REVENUE HOURS: The airborne hours in revenue service, computed from the moment an aircraft leaves the ground until it lands.

AIRCRAFT REVENUE MILES: The miles (computed in airport-to-airport distances) for each interairport hop actually completed in revenue service, whether or not performed in accordance with the scheduled pattern. For this purpose, operation to a flag stop is a hop completed even if a landing is not actually made. In cases where the interairport distances are inapplicable, aircraft-miles flown are determined by multiplying the normal cruising speed for the aircraft type by the airborne hours.

AIRPORT: A landing area regularly used by aircraft for receiving or discharging passengers or cargo.

AIRPORT/AIRWAY TRUST FUND: See Trust Funds.

ALTERNATIVE FUELS: The Energy Policy Act of 1992 defines alternative fuels as methanol, denatured ethanol, and other alcohol; mixtures containing 85 percent or more (but not less than 70 percent as determined by the Secretary of Energy by rule to provide for requirements relating to cold start, safety, or vehicle functions) by volume of methanol, denatured ethanol, and other alcohols with gasoline or other fuels. Includes compressed natural gas, liquid petroleum gas, hydrogen, coal-derived liquid fuels, fuels other than alcohols derived from biological materials, electricity, or any other fuel the Secretary of Energy determines by rule is substantially not petroleum and would yield substantial energy security and environmental benefits.

AMTRAK: Operated by the National Railroad Passenger Corporation of Washington, D.C., this rail system was created by the Rail Passenger Service Act of 1970 (P.L. 91-518, 84 Stat. 1327) and given the responsibility for the operation of intercity, as distinct from suburban, passenger trains between points designated by the Secretary of Transportation.

ARTERIAL HIGHWAY: A major highway used primarily for through traffic.

ASPHALT: A dark brown to black cement-like material containing bitumens as the predominant constituent. The definition includes crude asphalt and finished products such as cements, fluxes, the asphalt content of emulsions, and petroleum distillates blended with asphalt to make cutback asphalt. Asphalt is obtained by petroleum processing.

AVAILABLE SEAT-MILES (Air Carrier): The aircraft miles flown in each interairport hop multiplied by the number of seats available on that hop for revenue passenger service.

AVERAGE HAUL: The average distance, in miles, one ton is carried. It is computed by dividing ton-miles by tons of freight originated.

AVERAGE PASSENGER TRIP LENGTH (Bus/Rail): Calculated by dividing revenue passenger-miles by the number of revenue passengers.

AVIATION GASOLINE (General Aviation): All special grades of gasoline used in aviation reciprocating engines, as specified by American Society of Testing Materials (ASTM) Specification D910 and Military Specification MIL-G5572.

Includes refinery products within the gasoline range marketed as or blended to constitute aviation gasoline.

BARREL (oil): A unit of volume equal to 42 U.S. gallons.

BLOOD ALCOHOL CONCENTRATION (Highway): A measurement of the percentage of alcohol in the blood by grams per deciliter.

BRITISH THERMAL UNIT: The quantity of heat needed to raise the temperature of 1 pound of water by 1 °F at or near 39.2 °F.

BULK CARRIER (Water): A ship with specialized holds for carrying dry or liquid commodities, such as oil, grain, ore, and coal, in unpackaged bulk form. Bulk carriers may be designed to carry a single bulk product (crude oil tanker), or accommodate several bulk product types (ore/bulk/oil carrier) on the same voyage or on a subsequent voyage after holds are cleaned.

BUS: Large motor vehicle used to carry more than 10 passengers, includes school buses, intercity buses, and transit buses.

BUSINESS TRIP (American Travel Survey): A trip taken for business or business combined with pleasure, or for attending a convention, conference, or seminar.

CAFE STANDARDS: See Corporate Average Fuel Economy Standards.

CAR-MILE (Rail): The movement of a railroad car a distance of 1 mile. An empty or loaded car-mile refers to a mile run by a freight car with or without a load. In the case of intermodal movements, the designation of empty or loaded refers to whether the trailers/containers are moved with or without a waybill.

CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY (Air Carrier): A certificate issued by the Department of Transportation to an air carrier under Section 401 of the Federal Aviation Act authorizing the carrier to engage in air transportation.

CERTIFICATED AIR CARRIER: An air carrier holding a Certificate of Public Convenience and Necessity issued by the U.S. Department of Transportation (DOT) to conduct scheduled services interstate. These carriers may also conduct nonscheduled or charter operations. Certificated air carriers operate large aircraft (30 seats or more or a maximum load of 7,500 pounds or more) in accordance with FAR Part 121. See also Large Certificated Air Carrier.

CERTIFICATED AIRPORTS: Airports that service air carrier operations with aircraft seating more than 30 passengers.

CHAINED DOLLARS: A measure used to express real prices, defined as prices that are adjusted to remove the effect of changes in the purchasing power of the dollar. Real prices usually reflect buying power relative to a reference year. The "chained-dollar" measure is based on the average weights of goods and services in successive pairs of years. It is "chained" because the second year in each pair, with its weights, becomes the first year of the next pair. Prior to 1996, real prices were expressed in constant dollars, a weighted measure of goods and services in a single year. See also Constant Dollars and Current Dollars.

CLASS I RAILROAD: A carrier that has an annual operating revenue of $250 million or more after applying the railroad revenue deflator formula, which is based on the Railroad Freight Price Index developed by the U.S. Department of Labor, Bureau of Labor Statistics. The formula is the current year's revenues x 1991 average index/current year's average index.

COASTWISE TRAFFIC (Water): Domestic traffic receiving a carriage over the ocean, or the Gulf of Mexico (e.g., between New Orleans and Baltimore, New York and Puerto Rico, San Francisco and Hawaii, Alaska and Hawaii). Traffic between Great Lakes ports and seacoast ports, when having a carriage over the ocean, is also considered coastwise.

COEFFICIENT OF VARIATION: Ratio of the sampling error (or standard error) of a statistic to the value of that statistic. Also referred to as relative standard error.

COLLECTOR (Highway): In rural areas, routes that serve intracounty rather than statewide travel. In urban areas, streets that provide direct access to neighborhoods and arterials.

COLLISION WITH OBJECT (Transit): An incident in which a transit vehicle strikes an obstacle other than a vehicle or person (e.g., building, utility pole). Reports are made if the accident results in a death, injury, or property damage over $1,000.

COLLISION WITH PEOPLE (Transit): An incident in which a transit vehicle strikes a person. Excludes suicides and suicide attempts. Reports are made if the incident results in death, injury, or property damage over $1,000.

COLLISION WITH VEHICLE (Transit): An incident in which a transit vehicle strikes or is struck by another vehicle. Reports are made if the incident results in a death, injury, or property damage over $1,000.

COMBINATION TRUCK: A power unit (truck tractor) and one or more trailing units (a semitrailer or trailer).

COMMERCIAL BUS: Any bus used to carry passengers at rates specified in tariffs; charges may be computed per passenger (as in regular route service) or per vehicle (as in charter service).

COMMERCIAL SERVICE AIRPORT: Airport receiving scheduled passenger service and having 2,500 or more enplaned passengers per year.

COMMUTER AIR CARRIER: Different definitions are used for safety purposes and for economic regulations and reporting. For safety analysis, commuter carriers are defined as air carriers operating under 14 CFR 135 that carry passengers for hire or compensation on at least five round trips per week on at least one route between two or more points according to published flight schedules, which specify the times, days of the week, and points of service. On March 20, 1997, the size of the aircraft subject to 14 CFR 135 was reduced from 30 to fewer than 10 passenger seats. (Larger aircraft are subject to the more stringent regulations of 14 CFR 121.) Helicopters carrying passengers or cargo for hire, however, are regulated under CFR 135 whatever their size. Although, in practice, most commuter air carriers operate aircraft that are regulated for *safety purposes* under 14 CFR 135 and most aircraft that are regulated under 14 CFR 135 are operated by commuter air carriers, this is not necessarily the case.

For economic regulations and reporting requirements, commuter air carriers are those carriers that operate aircraft of 60 or fewer seats or a maximum payload capacity of 18,000 pounds or less. These carriers hold a certificate issued under section 298C of the Federal Aviation Act of 1958, as amended.

COMMUTER RAIL (Transit): Urban passenger train service for short-distance travel between a central city and adjacent suburb. Does not include rapid rail transit or light rail service.

COMPACT CAR: An automobile industry designation usually consisting of cars with a wheelbase between 100 and 104 inches.

COMPRESSED NATURAL GAS: Natural gas compressed to a volume and density that is practical as a portable fuel supply. It is used as a fuel for natural gas-powered vehicles.

CONSTANT DOLLAR: Dollar value adjusted for changes in the average price level by dividing a current dollar amount by a price index. See also Chained Dollar and Current Dollar.

CORPORATE AVERAGE FUEL ECONOMY STANDARDS (CAFÉ): Originally established by Congress for new automobiles and later for light trucks. Under CAFE, automobile manufacturers are required by law to produce vehicle fleets with a composite sales-weighted fuel economy not lower than the CAFE standards in a given year. For every vehicle that does not meet the standard, a fine is paid for every one-tenth of a mile per gallon that vehicle falls below the standard.

CORPORATE FLYING (General Aviation): Corporate aircraft piloted by a professional crew.

CRASH (Highway): An event that produces injury and/or property damage, involves a motor vehicle in transport, and occurs on a trafficway or while the vehicle is still in motion after running off the trafficway.

CRUDE OIL: A mixture of hydrocarbons that exists in the liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface-separating facilities.

CURRENT DOLLAR: Dollar value of a good or service in terms of prices current at the time the good or service is sold. See also Chained Dollar and Current Dollar.

DEADWEIGHT TONNAGE (Water): The carrying capacity of a vessel in long tons (2,240 pounds). It is the difference between the number of tons of water a vessel displaces "light" and the number of tons it displaces when submerged to the "load line."

DEMAND-RESPONSIVE VEHICLE (Transit): A nonfixed-route, a nonfixed-schedule vehicle that operates in response to calls from passengers or their agents to the transit operator or dispatcher.

DERAILMENT/LEFT ROADWAY (Transit): A noncollision incident in which a transit vehicle leaves the rails or road on which it travels. This also includes rollovers. Reports are made for all occurrences.

DESTINATION OF TRIP (American Travel Survey): The place the survey respondent names as the destination of the trip. If more than one location is visited on the same trip, the farthest point from the origin is considered the destination.

DIESEL FUEL: A complex mixture of hydrocarbons with a boiling range between approximately 350 and 650 °F. Diesel fuel is composed primarily of paraffins and naphthenic compounds that auto-ignite from the heat of compression in a diesel engine. Diesel is used primarily by heavy-duty road vehicles, construction equipment, locomotives, and by marine and stationary engines.

DISTILLATE FUEL OIL: A general classification for one of the petroleum fractions produced in conventional distillation operations. Included are No. 1, No. 2 and No. 4 fuel oils and No. 1, No. 2, and No. 4 diesel fuels. Distillate fuel oil is used primarily for space heating, on- and off-highway diesel engine fuel (including railroad engine fuel and fuel for agricultural machinery), and electric power generation.

DISTRIBUTION MAINS (Gas): A network of pipelines, services, and equipment that carry or control the supply of gas from the point of local supply to, and including, the sales meters.

DOMESTIC FREIGHT (Water): All waterborne commercial movements between points in the United States, Puerto Rico, and the Virgin Islands, excluding traffic with the Panama Canal Zone. Cargo moved for the military in commercial vessels is reported as ordinary commercial cargo; military cargo moved in military vessels is omitted.

DOMESTIC OPERATIONS (Air Carrier): All air carrier operations having destinations within the 50 United States, the District of Columbia, the Commonwealth of Puerto Rico, and the U.S. Virgin Islands.

DOMESTIC PASSENGER (Water): Any person traveling on a public conveyance by water between points in the United States, Puerto Rico, and the Virgin Islands.

DRY CARGO BARGES (Water): Large flat-bottomed, nonself-propelled vessels used to transport dry-bulk materials such as coal and ore.

EMERGENCY PREPAREDNESS TRUST FUND: See Trust Funds.

ENERGY EFFICIENCY: The ratio of energy inputs to the outputs from a process; for example, miles traveled per gallon of fuel (mpg).

ENPLANED PASSENGERS (Air Carrier): See Revenue Passenger Enplanements.

ETHANOL: A clear, colorless, flammable oxygenated hydrocarbon with a boiling point of 78.5 °C. in the anhydrous state. It is used in the United States as a gasoline octane enhancer and oxygenate (10-percent concentration). Ethanol can be used in high concentrations in vehicles optimized for its use. Otherwise known as ethyl alcohol, alcohol, or grain-spirit.

FATAL CRASH (Highway): A police-reported crash involving a motor vehicle in transport on a trafficway in which at least one person dies within 30 days of the crash as a result of that crash.

FATAL INJURY (Air): Any injury that results in death within thirty days of the accident.

FATALITY: For purposes of statistical reporting on transportation safety, a fatality shall be considered a death due to injuries in a transportation crash, accident, or incident that occurs within 30 days of that occurrence.

FATALITY (Rail): 1) Death of any person from an injury within 30 days of the accident/incident (may include nontrain accidents/incidents); or 2) Death of a railroad employee from an occupational illness within 365 days after the occupational illness was diagnosed by a physician.

FATALITY (Recreational Boating): All deaths (other than deaths by natural causes) and missing persons resulting from an occurrence that involves a vessel or its equipment.

FATALITY (Transit): A transit-caused death confirmed within 30 days of a transit incident. Incidents include collisions, derailments, personal casualties, and fires associated with transit agency revenue vehicles, transit facilities on transit property, service vehicles, maintenance areas, and rights of way.

FATALITY (Water): All deaths and missing persons resulting from a vessel casualty.

FEDERAL ENERGY REGULATORY COMMISSION (FERC): The Federal agency with jurisdiction over, among other things, gas pricing, oil pipeline rates, and gas pipeline certification.

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

FIELD AND GATHERING GAS PIPELINES: A network of pipelines (mains) transporting natural gas from individual wells to a compressor station, processing point, or main trunk pipeline.

FLAG STOP (Air): A drop-off or pick-up point along a predetermined route that is visited only by request or if a signal to stop is given.

FOSSIL FUELS: Any naturally occurring organic fuel formed in the Earth's crust, such as petroleum, coal, and natural gas.

FREIGHT REVENUE (Rail): Revenue from the transportation of freight and from the exercise of transit, stopoff, diversion, and reconsignment privileges as provided for in tariffs.

FREIGHTERS (Water): General cargo carriers, full containerships, partial containerships, roll-on/rolloff ships, and barge carriers.

FULL-SIZE CAR: As designated by the automobile industry, cars with a wheelbase between 110 and 114 inches.

GAS TRANSMISSION PIPELINES: Pipelines installed for the purpose of transmitting gas from a source or sources of supply to one or more distribution centers, or to one or more large volume customers; or a pipeline installed to interconnect sources of supply. Typically, transmission lines differ from gas mains in that they operate at higher pressures and the distance between connections is greater.

GASOHOL: A blend of finished motor gasoline (leaded or unleaded) and alcohol (generally ethanol but sometimes methanol) limited to 10 percent by volume of alcohol.

GASOLINE: A complex mixture of relatively volatile hydrocarbons, with or without small quantities of additives that have been blended to produce a fuel suitable for use in spark ignition engines. Motor gasoline includes both leaded or unleaded grades of finished motor gasoline, blending components, and gasohol. Leaded gasoline is no longer used in highway motor vehicles in the United States.

GENERAL AVIATION: 1) All facets of civil aviation, except facets of those air carriers holding a Certificate of Public Convenience and Necessity. 2) All civil aviation activity except that of air carriers certificated in accordance with Federal Aviation Regulations (FAR) Parts 121, 123, 127, and 135. The types of aircraft used in general aviation range from corporate multiengine jet aircraft piloted by professional crews to amateur-built single-engine piston-driven acrobatic planes to balloons and dirigibles. 3) All civil aviation operations other than scheduled air services and nonscheduled air transport operations for taxis, commuter air carriers, and air travel clubs that do not hold Certificates of Public Convenience and Necessity.

GENERAL ESTIMATES SYSTEM: A data collection system that uses a nationally representative probability sample selected from all police-reported highway crashes. It began operation in 1988.

GROSS DOMESTIC PRODUCT: The total output of goods and services produced by labor and property located in the United States, valued at market prices. As long as the labor and property are located in the United States, the suppliers (workers and owners) may be either U.S. residents or residents of foreign countries.

GROSS VEHICLE WEIGHT RATING (gvwr) (Truck): The maximum rated capacity of a vehicle, including the weight of the base vehicle, all added equipment, driver and passengers, and all cargo.

HARBOR MAINTENANCE TRUST FUND: See Trust Funds.

HAZARDOUS MATERIAL: Any toxic substance or explosive, corrosive, combustible, poisonous, or radioactive material that poses a risk to the public's health, safety, or property-particularly when transported in commerce.

HEAVY RAIL (Transit): An electric railway with the capacity to transport a heavy volume of passenger traffic and characterized by exclusive rights-of-way, multicar trains, high speed, rapid acceleration, sophisticated signaling, and high-platform loading. Also known as "subway," "elevated (railway)," or "metropolitan railway (metro)."

HIGHWAY-RAIL GRADE CROSSING (Rail): A location where one or more railroad tracks are crossed by a public highway, road, or street or a private roadway at grade, including sidewalks and pathways at or associated with the crossing.

HIGHWAY TRUST FUND: A grant-in-aid type fund administered by the U.S. Department of Transportation, Federal Highway Administration. Most funds for highway improvements are apportioned to States according to formulas that give weight to population, area, and mileage.

HOUSEHOLD TRIP (American Travel Survey): A trip in which one or more members of a household travel together.

HIGHWAY-USER TAX: A charge levied on persons or organizations based on their use of public roads. Funds collected are usually applied toward highway construction, reconstruction, and maintenance.

INCIDENT (Hazmat): Any unintentional release of hazardous material while in transit or storage.

INCIDENT (Train): Any event involving the movement of a train or railcars on track equipment that results in a death, a reportable injury, or illness, but in which railroad property damage does not exceed the reporting threshold.

INCIDENT (Transit): Collisions, derailments, personal casualties, fires, and property damage in excess of $1,000 associated with transit agency revenue vehicles; all other facilities on the transit property; and service vehicles, maintenance areas, and rights-of-way.

INJURY (Air): See SERIOUS INJURY (air and general aviation).

INJURY (Gas): Described in DOT Forms 7100.1 or 7100.2 as an injury requiring "in-patient hospitalization" (admission and confinement in a hospital beyond treatment administered in an emergency room or out-patient clinic in which confinement does not occur).

INJURY (Hazardous Liquid Pipeline): An injury resulting from a hazardous liquid pipeline accident that results in one or more of the following: 1) Loss of consciousness, 2) A need to be carried from the scene, 3) A need for medical treatment, and/or 4) A disability that prevents the discharge of normal duties or the pursuit of normal duties beyond the day of the accident.

INJURY (Highway): Police-reported highway injuries are classified as follows:

Incapacitating Injury: Any injury, other than a fatal injury, that prevents the injured person from walking, driving, or normally continuing the activities the person was capable of performing before the injury occurred. Includes severe lacerations, broken or distorted limbs, skull or chest injuries, abdominal injuries, unconsciousness at or when taken from the accident scene, and inability to leave the accident scene without assistance. Exclusions include momentary unconsciousness.

Nonincapacitating Evident Injury: Any injury, other than a fatal injury or an incapacitating injury, evident to observers at the scene of the accident. Includes lumps on head, abrasions, bruises, minor lacerations, and others. Excludes limping.

Possible Injury: Any injury reported or claimed that is not evident. Includes momentary unconsciousness, claim of injuries not obvious, limping, complaint of pain, nausea, hysteria, and others.

INJURY (Highway-Rail Grade Crossing): 1) An injury to one or more persons other than railroad employees that requires medical treatment; 2) An injury to one or more employees that requires medical treatment or that results in restriction of work or motion for one or more days, or one or more lost work days, transfer to another job, termination of employment, or loss of consciousness; 3) Any occupational illness affecting one or more railroad employees that is diagnosed by a physician.

INJURY (Rail): 1) Injury to any person other than a railroad employee that requires medical treatment, or 2) Injury to a railroad employee that requires medical treatment or results in restriction of work or motion for one or more workdays, one or more lost workdays, termination of employment, transfer to another job, loss of consciousness, or any occupational illness of a railroad employee diagnosed by a physician.

INJURY (Recreational Boating): Injury requiring medical treatment beyond first aid as a result of an occurrence that involves a vessel or its equipment.

INJURY (Transit): Any physical damage or harm to a person requiring medical treatment or any physical damage or harm to a person reported at the time and place of occurrence. For employees, an injury includes incidents resulting in time lost from duty or any definition consistent with a transit agency's current employee injury reporting practice.

INJURY (Water): All personal injuries resulting from a vessel casualty that require medical treatment beyond first aid.

INLAND AND COASTAL CHANNELS: Includes the Atlantic Coast Waterways, the Atlantic Intracoastal Waterway, the New York State Barge Canal System, the Gulf Coast Waterways, the Gulf Intracoastal Waterway, the Mississippi River System (including the Illinois Waterway), Pacific Coast Waterways, the Great Lakes, and all other channels (waterways) of the United States, exclusive of Alaska, that are usable for commercial navigation.

INSTRUCTIONAL FLYING: Flying under the supervision of a flight instructor (excludes proficiency flying).

INTERCITY CLASS BUS I: As defined by the Bureau of Transportation Statistics, an interstate motor carrier of passengers with an average annual gross revenue of at least $1 million.

INTERCITY TRUCK: Truck that carries freight beyond local areas and commercial zones.

INTERMEDIATE -SIZE CAR: As designated by the automobile industry, a car with a wheelbase between 105 and 109 inches.

INTERNAL TRAFFIC (Water): Vessel movements (origin and destination) that take place solely on inland waterways located within the boundaries of the contiguous 48 states or within the state of Alaska. The term "internal traffic" also applies to carriage on both inland waterways and the water of the Great Lakes; carriage between offshore areas and inland waterways; and carriage occurring within the Delaware Bay, Chesapeake Bay, Puget Sound, and the San Francisco Bay, which are considered internal bodies of water rather than arms of the ocean.

INTERSTATE HIGHWAY: Limited access, divided highway of at least four lanes designated by the Federal Highway Administration as part of the Interstate System.

INTRAPORT (Water): Movement of freight within the confines of a port whether the port has one or several channels included in the port definition. Does not include car-ferries and general ferries moving within a port.

INTRATERRITORY TRAFFIC (Water): Traffic between ports in Puerto Rico and the U.S. Virgin Islands, which are considered a single unit.

JET FUEL: The term includes kerosene-type jet fuel and naphtha-type jet fuel. Kerosene-type jet fuel is used primarily for commercial turbojet and turboprop aircraft engines. Naphtha-type jet fuel is used primarily for military turbojet and turboprop aircraft engines.

LAKEWISE OR GREAT LAKES TRAFFIC: Waterborne traffic between U.S. ports on the Great Lakes system. The Great Lakes system is treated as a separate waterways system rather than as a part of the inland system.

LARGE CERTIFICATED AIR CARRIERS: An air carrier holding a certificate issued under section 401 of the Federal Aviation Act of 1958, as amended, that: 1) Operates aircraft designed to have a maximum passenger capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds, or 2) Conducts operations where one or both terminals of a flight stage are outside the 50 states of the United States, the District of Columbia, the Commonwealth of Puerto Rico, and the U.S. Virgin Islands. Large certificated air carriers are grouped by annual operating revenues: 1) Majors (more than $1 billion in annual operating revenues), 2) Nationals (between $100 million and $1 billion in annual

operating revenues), Large regionals ($20 million and $99,999,999 in annual operating revenues), and 4) Medium regionals (less than $20 million in annual operating revenues).

LARGE REGIONALS (Air): Air carrier groups with annual operating revenues between $20 million and $99,999,999.

LARGE CAR: As designated by the automobile industry, a car with a wheelbase greater than 114 inches.

LARGE TRUCK: Trucks over 10,000 pounds gross vehicle weight rating, including single-unit trucks and truck tractors.

LEASE CONDENSATE: A mixture consisting primarily of pentanes and heavier hydrocarbons, which are recovered as a liquid from natural gas in lease or field separation facilities. This category excludes natural gas liquids, such as butane and propane, which are recovered at natural gas processing plants or facilities.

LIGHT-DUTY VEHICLE: A vehicle category that combines light automobiles and trucks.

LIGHT RAIL: A streetcar-type vehicle operated on city streets, semiexclusive rights-of-way, or exclusive rights-of-way. Service may be provided by step-entry vehicles or by level boarding.

LIGHT TRUCK: Trucks of 10,000 pounds gross vehicle weight rating or less, including pickups, vans, truck-based station wagons, and sport utility vehicles.

LIQUEFIED NATURAL GAS (LNG): Natural gas, primarily methane, that has been liquefied by reducing its temperature to -260 °F. at atmospheric pressure.

LIQUEFIED PETROLEUM GAS (LPG): Propane, propylene, normal butane, butylene, isobutane, and isobutylene produced at refineries or natural gas processing plants, including plants that fractionate new natural gas plant liquids.

LOCOMOTIVE: Railroad vehicle equipped with flanged wheels for use on railroad tracks, powered directly by electricity, steam, or fossil fuel, and used to move other railroad rolling equipment.

LOCOMOTIVE-MILE: The movement of a locomotive unit, under its own power, the distance of 1 mile.

MAINS (Gas): A network of pipelines that serves as a common source of supply for more than one gas service line.

MAJORS (Air): Air carrier groups with annual operating revenues exceeding $1 billion.

MEDIUM REGIONALS (Air): Air carrier groups with annual operating revenues less than $20 million.

MERCHANDISE TRADE EXPORTS: Merchandise transported out of the United States to foreign countries whether such merchandise is exported from within the U.S. Customs territory, from a U.S. Customs bonded warehouse, or from a U.S. Foreign Trade Zone. (Foreign Trade Zones are areas, operated as public utilities, under the control of U.S. Customs with facilities for handling, storing, manipulating, manufacturing, and exhibiting goods.)

MERCHANDISE TRADE IMPORTS: Commodities of foreign origin as well as goods of domestic origin returned to the United States with no change in condition or after having been processed and/or assembled in other countries. Puerto Rico is a Customs district within the U.S. Customs territory, and its trade with foreign countries is included in U.S. import statistics. U.S. import statistics also include merchandise trade between the U. S. Virgin Islands and foreign countries even though the Islands are not officially a part of the U.S. Customs territory.

METHANOL: A light, volatile alcohol produced commercially by the catalyzed reaction of hydrogen and carbon monoxide. Methanol is blended with gasoline to improve its operational efficiency.

METHYL TERTIARY BUTYL ETHER (MTBE): A colorless, flammable, liquid oxygenated hydrocarbon that contains 18.15 percent oxygen. It is a fuel oxygenate produced by reacting methanol with isobutylene.

MID-SIZE CAR: See Intermediate-Size Car.

MINI-COMPACT CAR: An automobile industry designation usually consisting of cars with a wheelbase of less than 95 inches.

MINOR ARTERIALS (Highway): Streets and highways linking cities and larger towns in rural areas, in distributing trips to small geographic areas in urban areas (not penetrating identifiable neighborhoods).

MOTOR BUS (Transit): A rubber-tired, self-propelled, manually steered bus with fuel supply onboard the vehicle. Motor bus types include: intercity, school, and transit.

MOTORCYCLE: A two- or three-wheeled motor vehicle designed to transport one or two people, including motor scooters, minibikes, and mopeds.

NATIONALS (Air): Air carrier groups with annual operating revenues between $100 million and $1 billion.

NATURAL GAS: A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in porous geologic formations beneath the Earth's surface, often in association with petroleum. The principal constituent is methane.

NATURAL GAS PLANT LIQUIDS: Liquids recovered from natural gas in processing plants or field facilities, or extracted by fractionators. They include ethane, propane, normal butane, isobutane, pentanes plus, and other products, such as finished motor gasoline, finished aviation gasoline, special naphthas, kerosene, and distillate fuel oil produced at natural gas processing plants.

NEAR MIDAIR COLLISION (Air): An incident in which the possibility of a collision occurred as a result of aircraft flying with less than 500 feet of separation, or a report received from a pilot or flight crew member stating that a collision hazard existed between two or more aircraft.

NONOCCUPANT (Automobile): Any person who is not an occupant of a motor vehicle in transport (e.g., bystanders, pedestrians, pedalcyclists, or an occupant of a parked motor vehicle).

NONRESPONSE ERROR: Error that results from some members of the sample or census not providing information. Nonresponse bias results from a systematic difference between those who do and those who do not respond to the measurement instrument.

NONSAMPLING ERROR: All sources of bias or inaccuracy in a study other than sampling error. Examples of nonsampling errors include processing, recording, or dataentry errors; nonresponse error; and response error.

NONSCHEDULED SERVICE (Air): Revenue flights not operated as regular scheduled service, such as charter flights, and all nonrevenue flights incident to such flight.

NONSELF-PROPELLED VESSEL (Water): A vessel without the means for self- propulsion. Includes dry cargo and tanker barges.

NONTRAIN INCIDENT: An event that results in a reportable casualty, but does not involve the movement of ontrack equipment, and does not cause reportable damage above the threshold established for train accidents.

NONTRESPASSERS (Rail): A person lawfully on any part of railroad property used in railroad operations, or a person adjacent to railroad premises when injured as the result of railroad operations.

NONVESSEL-CASUALTY-RELATED DEATH: A death that occurs onboard a commercial vessel but not as a result of a vessel casualty, such as a collision, fire, or explosion.

OCCUPANT: Any person in or on a motor vehicle in transport. Includes the driver, passengers, and persons riding on the exterior of a motor vehicle (e.g., a skateboard rider holding onto a moving vehicle). Excludes occupants of parked cars unless they are double parked or motionless on the roadway.

OCCUPATIONAL FATALITY: Death resulting from a job-related injury.

OPERATING EXPENSES (Air): Expenses incurred in the performance of air transportation, based on overall operating revenues and expenses. Does not include nonoperating income and expenses, nonrecurring items, or income taxes.

OPERATING EXPENSES (Rail): Expenses of furnishing transportation services, including maintenance and depreciation of the plant used in the service.

OPERATING EXPENSES (Transit): The total of all expenses associated with operation of an individual mode by a given operator. Includes distributions of "joint expenses" to individual modes and excludes "reconciling items," such as interest expenses and depreciation. Should not be confused with "vehicle operating expenses."

OPERATING EXPENSES (Truck): Includes expenditures for equipment maintenance, supervision, wages, fuel, equipment rental, terminal operations, insurance, safety, and administrative and general functions.

OPERATING REVENUES (Air): Revenues from the performance of air transportation and related incidental services. Includes l) Transportation revenues from the carriage of all classes of traffic in scheduled and nonscheduled services, and 2) Nontransportation revenues consisting of federal subsidies (where applicable) and services related to air transportation.

OTHER FREEWAYS AND EXPRESSWAYS (Highway): All urban principal arterials with limited access but not part of the Interstate system.

OTHER PRINCIPAL ARTERIAL (Highway): Major streets or highways, many of multilane or freeway design, serving high-volume traffic corridor movements that connect major generators of travel.

OTHER RAIL REVENUE: This includes revenues from miscellaneous operations (i.e., dining- and bar-car services), income from lease of road and equipment, miscellaneous rental income, income from nonoperating property, profit from separately operated properties, dividend income, interest income, income from sinking and other reserve funds, release or premium on funded debt, contributions from other companies, and other miscellaneous income.

OTHER REVENUE VEHICLES (Transit): Other revenue-generating modes of transit service, such as cable cars, personal rapid transit systems, monorail vehicles, inclined railway cars, etc., not covered otherwise.

OTHER 2-AXLE 4-TIRE VEHICLES (Truck): Includes vans, pickup trucks, and sport utility vehicles.

OTHER WORK (General Aviation): Con-struction work (not Federal Aviation Regulations, Part 135), helicopter hoist, parachuting, aerial advertising, and towing gliders.

OXYGENATES: Any substance that when added to motor gasoline increases the amount of oxygen in that gasoline blend. Includes oxygen-bearing compounds such as ethanol, methanol, and methyl tertiary butyl ether. Oxygenated fuel tends to give a more complete combustion of carbon into carbon dioxide (rather than monoxide), thereby reducing air pollution from exhaust emissions.

PASSENGER CAR: A motor vehicle designed primarily for carrying passengers on ordinary roads, includes convertibles, sedans, and stations wagons.

PASSENGER-MILE: 1) Air: One passenger transported 1 mile; passenger-miles for one interairport flight are calculated by multiplying aircraft miles flow by the number of passengers carried on the flight. The total passenger-miles for all flights is the sum of passenger-miles for all interairport flights. 2) Auto: One passenger traveling 1 mile; e.g., one car transporting two passengers 4 miles results in eight passenger-miles. 3) Transit: The total number of miles traveled by transit passengers; e.g., one bus transporting five passengers 3 miles results in 15 passenger-miles.

PASSENGER REVENUE: 1) Rail: Revenue from the sale of tickets. 2) Air: Revenues from the transport of passengers by air. 3) Transit: Fares, transfer, zone, and park-and-ride parking charges paid by transit passengers. Prior to 1984, fare revenues collected by contractors operating transit services are not included.

PASSENGER VESSELS: A vessel designed for the commercial transport of passengers.

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

PEDESTRIAN: Any person not in or on a motor vehicle or other vehicle. Excludes people in buildings or sitting at a sidewalk cafe. The National Highway Traffic Safety Administration also uses an "other pedestrian" category to refer to pedestrians using conveyances and people in buildings. Examples of pedestrian conveyances include skateboards, nonmotorized wheelchairs, rollerskates, sleds, and transport devices used as equipment.

PERSON-MILES (American Travel Survey): An estimate of the aggregate distances traveled by all persons on a given trip based on the estimated transportation-network-miles traveled on that trip.

PERSON TRIP (American Travel Survey): A trip taken by an individual. For example, if three persons from the same household travel together, the trip is counted as one household trip and three person trips.

PERSONAL BUSINESS TRIP (American Travel Survey): A trip taken for a school-related activity or for personal or family business, including weddings and funerals.

PERSONAL-USE VEHICLE TRIP (American Travel Survey): A trip in which the principle means of transportation is a car, pickup truck, or van; other truck; rental car, truck, or van; recreational vehicle or motor home; or motorcycle or moped.

PLEASURE TRIP (American Travel Survey): A trip taken to visit friends or relatives or for leisure.

PERSONAL CASUALTY (Transit): 1) An incident in which a person is hurt while getting on or off a transit vehicle (e.g., falls or door incidents), but not as a result of a collision, derailment/left roadway, or fire. 2) An incident in which a person is hurt while using a lift to get on or off a transit vehicle, but not as a result of a collision, derailment/left roadway, or fire. 3) An incident in which a person is injured on a transit vehicle, but not as a result of a collision, derailment/left roadway, or fire. 4) An incident in which a person is hurt while using a transit facility. This includes anyone on transit property (e.g., patrons, transit employees, trespassers), but does not include incidents resulting from illness or criminal activity.

PERSONAL WATERCRAFT: Craft less than 13 feet in length designed to be operated by a person or persons sitting, standing, or kneeling on the craft rather than within the confines of a hull.

PETROLEUM (Oil): A generic term applied to oil and oil products in all forms, such as crude oil, lease condensate, unfinished oils, petroleum products, natural gas plant liquids, and nonhydrocarbon compounds blended into finished petroleum products.

PROPERTY DAMAGE (Transit): The dollar amount required to repair or replace transit property (including stations, right of way, bus stops, and maintenance facilities) damaged during an incident.

PUBLIC ROAD: Any road under the jurisdiction of and maintained by a public authority (federal, state, county, town, or township, local government, or instrumentality thereof) and open to public travel.

RAIL MOTOR CARS: Self-propelled passenger rail cars that are driven by electric motors energized from an electrified roadway or by a generator driven by a diesel or gas turbine engine.

RAPID RAIL TRANSIT: Transit service using rail cars driven by electricity usually drawn from a third rail, configured for passenger traffic, and usually operated on exclusive rights-of-way. It generally uses longer trains and has longer station spacing than light rail.

REFORMULATED GASOLINE: Gasoline whose composition has been changed to meet performance specifications regarding ozone-forming tendencies and release of toxic substances into the air from both evaporation and tailpipe emissions. Reformulated gasoline includes oxygenates and, compared with gasoline sold in 1990, has a lower content of olefins, aromatics, volatile components, and heavy hydrocarbons.

RESIDUAL FUEL OIL: The heavier oils that remain after the distillate fuel oils and lighter hydrocarbons are distilled away in refinery operations and that conform to American Society for Testing and Materials (ASTM) Specifications D396 and 976. Includes, among others, Navy Special oil used in steam-powered vessels in government service and No. 6 oil used to power ships. Imports of residual fuel oil include imported crude oil burned as fuel.

RESPONSE ERROR: Error that results from the tendency of people to answer a question falsely, deliberate misrepresentation, unconscious falsification, or misunderstanding of what is required.

REVENUE: Remuneration received by carriers for transportation activities.

REVENUE PASSENGER: 1) Air: Person receiving air transportation from an air carrier for which remuneration is received by the carrier. Air carrier employees or others, except ministers of religion, elderly individuals, and handicapped individuals, receiving reduced rate charges (less than the applicable tariff) are considered nonrevenue passengers. Infants, for whom a token fare is charged, are not counted as passengers. 2) Transit: Single-vehicle transit rides by initial-board (first-ride) transit passengers only. Excludes all transfer rides and all nonrevenue rides. 3) Rail: Number of one-way trips made by persons holding tickets.

REVENUE PASSENGER ENPLANEMENTS (Air): The total number of passengers boarding aircraft. Includes both originating and connecting passengers.

REVENUE PASSENGER LOAD FACTOR (Air): Revenue passenger-miles as a percent of available seat-miles in revenue passenger services. The term is used to represent the proportion of aircraft seating capacity that is actually sold and utilized.

REVENUE PASSENGER-MILE: One revenue passenger transported 1 mile.

REVENUE PASSENGER TON-MILE (Air): One ton of revenue passenger weight (including all baggage) transported 1 mile. The passenger weight standard for both domestic and international operations is 200 pounds.

REVENUE TON-MILE: One short ton of freight transported 1 mile.

REVENUE VEHICLE-MILES (Transit): One vehicle (bus, trolley bus, streetcar) traveling 1 mile while revenue passengers are on board generates one revenue vehicle-mile. Revenue vehicle-miles reported represent the total mileage traveled by vehicles in scheduled or unscheduled revenue-producing services.

ROAD OIL: Any heavy petroleum oil, including residual asphaltic oil, that is used as a dust palliative and surface treatment on roads and highways. It is generally produced in 6 grades from 0, the most liquid, to 5, the most viscous.

ROLL ON/ROLL OFF VESSEL: Ships that are designed to carry wheeled containers or other wheeled cargo and use the roll on/roll off method for loading and unloading.

ROUND-TRIP DISTANCE (American Travel Survey): The estimated transportation network-miles traveled at the time of the trip from the household residence to the destination and back.

RURAL HIGHWAY: Any highway, road, or street that is not an urban highway.

RURAL MILEAGE (Highway): Roads outside city, municipal district, or urban boundaries.

SAMPLING ERROR: The estimated inaccuracy of the results of a study when a population sample, rather than a census, is used to explain the behavior of the total population. (Also referred to as margin of error and standard error.)

SCHEDULED SERVICE (Air): Transport service operated pursuant to published flight schedules.

SCHOOL BUS: A passenger motor vehicle that is designed or used to carry more than 10 passengers, in addition to the driver, and, as determined by the Secretary of Transportation, is likely to be significantly used for the purpose of transporting pre-primary, primary, or secondary school students between home and school.

SCHOOL-BUS-RELATED CRASH: Any crash in which a vehicle, regardless of body design, used as a school bus is directly or indirectly involved, such as a crash involving school children alighting from a vehicle.

SCOW (Water): Any flat-bottomed, nonself-propelled, rectangular vessel with sloping ends. Large scows are used to transport sand, gravel, or refuse.

SELF-PROPELLED VESSEL: A vessel that has its own means of propulsion. Includes tankers, containerships, dry bulk cargo ships, and general cargo vessels.

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

SMALL CERTIFICATED AIR CARRIER: An air carrier holding a certificate issued under section 401 of the Federal Aviation Act of 1958, as amended, that operates aircraft designed to have a maximum seating capacity of 60 seats or fewer or a maximum payload of 18,000 pounds or less.

STATE AND LOCAL HIGHWAY EXPENDITURES: Disbursements for capital outlay, maintenance and traffic surfaces, administration and research, highway law enforcement and safety, and interest on debt.

STREETCARS: Relatively lightweight passenger rail cars operating singly or in short trains, or fixed rails in right-of-way that are not always separated from other traffic for much of the way. Streetcars do not necessarily have the right-of-way at grade crossings with other traffic.

SUBCOMPACT CAR: As designated by the automobile industry, a car with a wheelbase between 95 and 99 inches.

SUPPLEMENTAL AIR CARRIER: An air carrier authorized to perform passenger and cargo charter services.

TANKER: An oceangoing ship designed to haul liquid bulk cargo in world trade.

TON-MILE (Truck): The movement of 1 ton of cargo the distance of 1 mile. Ton-miles are calculated by multiplying the weight in tons of each shipment transported by the miles hauled.

TON-MILE (Water): The movement of 1 ton of cargo the distance of 1 statute mile. Domestic ton-miles are calculated by multiplying tons moved by the number of statute miles moved on the water (e.g., 50 short tons moving 200 miles on a waterway would yield 10,000 ton-miles for that waterway). Ton-miles are not computed for ports. For coastwise traffic, the shortest route that safe navigation permits between the port of origin and destination is used to calculate ton-miles.

TRAFFICWAY (Highway): Any right-of-way open to the public as a matter of right or custom for moving persons or property from one place to another, including the entire width between property lines or other boundaries.

TRAIN LINE MILEAGE: The aggregate length of all line-haul railroads. It does not include the mileage of yard tracks or sidings, nor does it reflect the fact that a mile of railroad may include two or more parallel tracks. Jointly-used track is counted only once.

TRAIN-MILE: A train-mile is the movement of a train, which can consist of many cars, the distance of 1 mile. A train-mile differs from a vehicle-mile, which is the movement of one car (vehicle) the distance of 1 mile. A 10-car (vehicle) train traveling 1 mile is measured as 1 train-mile and 10 vehicle-miles. Caution should be used when comparing train-miles to vehicle-miles.

TRANSIT VEHICLE: Includes light, heavy, and commuter rail; motor bus; trolley bus; van pools; automated guideway; and demand-responsive vehicles.

TRANSSHIPMENTS: Shipments that enter or exit the United States by way of a U.S. Customs port on the northern or southern border, but whose origin or destination was a country other than Canada or Mexico.

TRAVEL PARTY (American Travel Survey): Household and nonhousehold members traveling together on a trip.

TRESPASSER (Rail): Any person whose presence on railroad property used in railroad operations is prohibited, forbidden, or unlawful.

TRIP (American Travel Survey): Roundtrip travel to a destination at least 100 miles from home. The following types of trips are excluded: 1) travel as part of an operating crew on a train, airplane, truck, bus, or ship; 2) regular commuting to work or school; 3) one-way trips to move to a new destination; and 4) trips by members of the Armed Forces while on active duty.

TROLLEY BUS: Rubber-tired electric transit vehicle, manually steered and propelled by a motor drawing current, normally through overhead wires, from a central power source.

TRUST FUNDS: Accounts that are specifically designated by law to carry out specific purposes and programs. Trust Funds are usually financed with earmarked tax collections.

TUG BOAT: A powered vessel designed for the towing or pushing of ships, dumb barges, pushed-towed barges, and rafts, but not for the carriage of goods.

U.S. FLAG CARRIER OR AMERICAN FLAG CARRIER (Air): One of a class of air carriers holding a Certificate of Public Convenience and Necessity issued by the U.S. Department of Transportation and approved by the President, authorizing scheduled operations over specified routes between the United States (and/or its territories) and one or more foreign countries.

UNLEADED GASOLINE: See Gasoline.

UNLINKED PASSENGER TRIPS (Transit): The number of passengers who board public transportation vehicles. A passenger is counted each time he/she boards a vehicle even if on the same journey from origin to destination.

URBAN HIGHWAY: Any road or street within the boundaries of an urban area. An urban area is an area including and adjacent to a municipality or urban place with a population of 5,000 or

more. The boundaries of urban areas are fixed by state highway departments, subject to the approval of the Federal Highway Administration, for purposes of the Federal-Aid highway program.

VANPOOL (Transit): Public-sponsored commuter service operating under prearranged schedules for previously formed groups of riders in 8- to 18-seat vehicles. Drivers are also commuters who receive little or no compensation besides the free ride.

VEHICLE MAINTENANCE (Transit): All activities associated with revenue and nonrevenue (service) vehicle maintenance, including administration, inspection and maintenance, and servicing (cleaning, fueling, etc.) vehicles. In addition, it includes repairs due to vandalism or to revenue vehicle accidents.

VEHICLE-MILES (Highway): Miles of travel by all types of motor vehicles as determined by the states on the basis of actual traffic counts and established estimating procedures.

VEHICLE-MILES (Transit): The total number of miles traveled by transit vehicles. Commuter rail, heavy rail, and light rail report individual car-miles, rather than train-miles for vehicle-miles.

VEHICLE OPERATIONS (Transit): All activities associated with transportation administration, including the control of revenue vehicle movements, scheduling, ticketing and fare collection, system security, and revenue vehicle operation.

VESSEL CASUALTY (Water): An occurrence involving commercial vessels that results in 1) Actual physical damage to property in excess of $25,000; 2) Material damage affecting the seaworthiness or efficiency of a vessel; 3) Stranding or grounding; 4) Loss of life; or 5) Injury causing any person to remain incapacitated for a period in excess of 72 hours, except injury to harbor workers not resulting in death and not resulting from vessel casualty or vessel equipment casualty.

VESSEL-CASUALTY-RELATED DEATH: Fatality that occurs as a result of an incident that involves a vessel or its equipment, such as a collision, fire, or explosion. Includes drowning deaths.

WATERBORNE TRANSPORTATION: Transport of freight and/or people by commercial vessels under U.S. Coast Guard jurisdiction.

WAYBILL: A document that lists goods and shipping instructions relative to a shipment.

WEEKEND TRIP (American Travel Survey): Travel by persons who stay one or two nights away, including a Friday and/or Saturday night. Travel over three to five nights including a Friday and/or Saturday night stay is defined as a long-weekend trip.

Acronyms and Initialisms

AAA	American Automobile Association
AADT	Annual Average Daily Traffic
AAMA	American Automobile Manufacturers Association
AAR	Association of American Railroads
AAS	Air Activity Statistics of Certificated Air Carriers
AGA	American Gas Association
AI	Alcohol Involvement
AIA	Aerospace Industries Association
ALVW	Adjusted Loaded Vehicle Weight
AMIO	Alien Migrant Interdiction Operations
AOPL	Association of Oil Pipelines
APTA	American Public Transit Association
ATS	American Travel Survey
ATV	All-Terrain Vehicle
BAC	Blood Alcohol Concentration
BEA	Bureau of Economic Analysis
BMA	Bicycle Manufacturer's Association
BTS	Bureau of Transportation Statistics
Btu	British Thermal Unit
CFR	U.S. Code of Federal Regulation
CFS	Commodity Flow Survey
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CVS	Certification Vehicle Standard
dB	Decibels
DNL	Day Night Sound Level
dwt	Deadweight Tons
EPA	U.S. Environmental Protection Agency
EIA	Energy Information Administration
FAA	Federal Aviation Administration
FARS	Fatality Analysis Reporting System Database
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FRA	Federal Railway Administration
FTA	Federal Transit Administration
FTP	Federal Test Procedure
FTZ	Foreign Trade Zone
GAATA	General Aviation and Air Taxi Activity
GAMA	General Aviation Manufacturers Association
GES	General Estimates System
GIS	Geographic Information System
g/mi	Grams Per Mile
GVWR	Gross Vehicle Weight Rating
HC	Hydrocarbon
HPMS	Highway Performance Monitoring System
ICC	Interstate Commerce Commission
INM	Integrated Noise Model
IO	Investigative Officer
IRI	International Roughness Index
LDT	Light-Duty Truck
LMIS	Lloyd's Maritime Information System
LPG	Liquefied Petroleum Gas
LR	Lloyd's Register
LVW	Loaded Vehicle Weight
MARAD	Maritime Administration
MCMIS	Motor Carrier Management Information System
MDPV	Medium-Duty Passenger Vehicles
MIC	Motorcycle Industry Council, Inc.
mmbd	Million Barrels Per Day
MOBILE	Mobile Source Emissions Factor Model

mpg Miles Per Gallon
MSIS Marine Safety Information System
MTBE Methyl Tributyl Ether
MVMA Motor Vehicle Manufacturers Association

NANIM Nationwide Airport Noise Impact Model
NBDA National Bicycle Dealers Association
NDC Navigation Data Center
NHS National Highway System
NHTSA National Highway Traffic Safety Administration
NMAC Near Mid-Air Collision
NO_x Nitrogen Oxides
NOPS National Operations Center
NOPUS National Occupant Protection Use Survey
NPIAS National Plan of Integrated Airport Systems
NPTS Nationwide Personal Transportation Survey
NTD National Transit Database
NTS National Transportation Statistics
NTSB National Transportation Safety Board

OAG Official Airline Guide
OAI Office of Airline Information
OIG Office of the Inspector General
OPS Office of Pipeline Safety
ORNL Oak Ridge National Laboratory
OST Office of the Secretary of Transportation

PAR Police Accident Report
PIRS Pollution Incident Reporting System
PMT Passenger Miles of Travel
PSI Pollutant Standard Index
PSR Present Serviceability Rating

RFG Reformulated Gasoline
RO/RO Roll-On/Roll-Off
RSPA Research and Special Programs Administration
RTECS Residential Transportation Energy Consumption Survey
RVP Reid Vapor Pressure

SAMIS Safety Management Information Statistics
SEC Securities and Exchange Commission
SHA State Highway Agencies
SO_2 Sodium Dioxide
STB Surface Transportation Board

TAF Terminal Area Forecast
TIUS Truck Inventory and Use Survey
TMG Traffic Monitoring Guide
TRFD Transportation-Related Final Demand
TSFD Transborder Surface Freight Data
TTI Texas Transportation Institute

USACE U.S. Army Corps of Engineers
USCG U.S. Coast Guard
USDOC U.S. Department of Commerce
USDOD U.S. Department of Defense
USDOT U.S. Department of Transportation
USSR Union of Soviet Social Republic

Modal Profiles

Air Carrier Profile

Financial	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Operating revenues (thousand dollars) [1]																	
Domestic total [a]	2,178,339	7,180,161	26,440,297	58,201,660	66,672,151	71,424,865	77,396,919	82,599,270	86,856,624	91,351,103	98,899,810	86,573,051	79,336,448	88,870,097	100,902,509	110,269,243	120,279,816
Majors, all services	1,942,635	6,272,775	23,012,073	56,138,825	59,846,676	63,226,187	69,515,318	74,942,391	77,650,810	80,800,698	89,293,771	78,599,844	71,730,250	77,196,343	85,605,321	95,955,258	110,175,124
Nationals, all services	146,481	736,831	3,182,418	1,251,559	4,888,701	6,329,602	6,109,778	5,940,674	7,225,393	9,230,210	9,016,171	7,494,385	6,961,517	10,580,912	14,064,227	13,171,292	9,200,672
Large regionals, all services	N	N	245,806	703,526	1,031,404	1,148,504	1,230,628	1,366,503	1,617,586	902,160	589,869	478,822	644,680	1,092,842	1,232,961	1,142,693	904,019
International total	705,938	2,109,497	6,442,144	17,824,538	22,364,429	23,432,883	25,046,819	27,318,034	26,611,331	27,958,958	31,348,410	28,706,979	27,837,150	28,897,918	33,719,280	39,535,274	44,388,011
Majors, all services	705,938	2,109,497	5,976,221	17,083,295	19,222,842	19,820,215	20,960,305	23,608,853	23,356,233	24,447,607	28,097,698	25,883,361	24,528,512	24,964,860	29,735,873	34,226,000	38,988,147
Nationals, all services	N	N	465,923	380,294	2,568,643	2,819,653	3,751,539	3,338,903	2,668,243	3,026,884	2,801,690	2,503,678	2,959,809	3,408,860	3,399,904	4,803,265	5,160,564
Large regionals, all services	N	N	N	357,761	572,944	793,015	334,975	370,278	586,855	484,468	449,022	319,940	348,828	524,198	583,502	506,009	239,299
Total large-certificated [a]	2,884,877	9,289,658	32,882,441	76,026,198	89,036,580	94,857,748	102,443,738	109,917,304	113,467,954	119,310,062	130,248,220	115,280,030	107,173,597	117,768,015	134,621,789	149,804,516	164,667,827
Operating expenses (thousand dollars) [1]																	
Domestic total [a]	2,052,094	7,001,668	26,465,999	59,183,777	64,456,644	66,667,151	72,145,242	76,125,467	78,796,175	84,816,236	93,548,937	94,949,876	86,826,833	91,520,149	104,621,676	112,363,170	116,140,022
Majors, all services	1,907,785	6,256,039	23,150,527	57,138,322	57,824,115	58,694,406	64,143,384	68,307,270	70,114,852	74,834,600	84,206,809	86,611,140	79,196,985	80,810,165	89,877,864	98,352,872	106,259,194
Nationals, all services	144,309	745,629	3,058,289	1,258,274	4,666,546	6,178,809	6,058,307	5,921,639	6,672,705	8,638,079	8,726,001	7,814,067	6,958,543	9,677,656	13,501,703	12,849,910	8,985,641
Large regionals, all services	N	N	257,183	676,688	1,077,578	1,055,905	1,328,760	1,502,305	1,600,958	858,956	616,126	524,670	671,305	1,032,329	1,242,109	1,160,389	895,187
International total	665,660	2,065,605	6,642,095	18,757,740	21,842,021	22,335,258	24,155,202	25,249,593	25,387,024	26,157,262	29,685,280	30,649,400	28,922,103	28,340,403	31,490,257	37,059,043	41,001,911
Majors, all services	665,660	2,065,605	6,171,366	18,086,050	18,875,302	18,997,478	20,406,144	21,688,642	22,321,441	22,993,261	26,647,046	27,664,641	25,687,398	24,606,982	27,783,564	32,207,742	35,951,166
Nationals, all services	N	N	470,729	325,273	2,372,138	2,582,833	3,414,618	3,209,074	2,514,464	2,714,754	2,556,866	2,663,591	2,914,105	3,253,707	3,157,046	4,349,805	4,818,660
Large regionals, all services	N	N	N	344,097	594,581	754,947	334,440	351,877	551,119	449,247	481,367	321,169	320,601	479,714	549,646	501,496	232,085
Total large-certificated [a]	2,717,754	9,067,273	33,108,094	77,941,517	86,298,665	89,002,409	96,300,444	101,375,060	104,183,200	110,973,499	123,234,216	125,599,276	115,748,936	119,860,552	136,111,932	149,422,213	157,141,933
Inventory for large-certificated carriers[b]																	
Number of carriers [c,2]																	
Total domestic and international	55	39	(R) 52	(R) 58	(R) 66	(R) 84	(R) 88	(R) 72	(R) 74	(R) 75	(R) 66	(R) 61	(R) 62	65	69	67	66
Majors	N	N	14	12	11	11	12	13	13	13	14	(R) 14	13	14	14	17	20
Nationals	N	N	(R) 16	15	(R) 22	27	31	(R) 28	27	(R) 28	(R) 29	(R) 26	(R) 25	26	28	28	25
Regionals	N	N	(R) 22	(R) 31	(R) 33	(R) 46	(R) 45	(R) 31	(R) 34	(R) 34	(R) 23	(R) 21	(R) 24	25	27	22	21
Number of aircraft available for service [3]																	
Total domestic and international	2,135	2,690	2,818	4,727	5,221	5,567	5,961	5,770	6,144	6,254	6,522	6,081	5,819	6,675	7,051	6,750	6,758
Majors	N	N	2,071	3,854	4,085	4,039	4,422	4,352	4,605	4,711	5,118	4,996	4,530	4,948	4,904	5,018	5,626
Nationals	N	N	432	650	819	1,143	1,167	967	1,113	1,319	1,182	952	1,079	1,299	1,858	1,478	940
Regionals	N	N	315	223	317	385	372	451	426	224	222	133	210	428	289	254	192
Number of full-time equivalent employees [c,2]																	
Total domestic and international	169,872	304,690	347,335	555,262	535,394	555,537	575,937	593,542	631,147	659,689	667,778	599,531	590,779	558,246	563,588	547,795	539,833
Majors	118,189	214,021	312,842	517,754	481,041	484,870	511,270	540,039	564,388	590,197	612,814	557,422	537,776	489,036	478,114	478,142	490,631
Nationals	12,470	24,913	29,269	30,225	42,785	54,447	51,921	43,630	54,205	60,756	51,384	38,446	48,685	64,348	78,090	63,246	41,908
Regionals	N	N	5,225	7,283	11,569	16,221	12,747	9,873	12,555	8,737	3,580	3,664	4,318	4,863	7,385	6,407	7,295

continued

Air Carrier Profile *continued*

Performance	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Aircraft revenue-miles (thousands) [4]																	
Domestic																	
Certificated, all services [a,d]	858,451	2,067,598	2,523,375	3,963,268	4,379,929	4,629,393	4,811,447	4,939,436	5,033,144	5,332,176	5,662,443	5,549,662	5,602,737	6,086,649	6,591,637	6,714,903	6,624,022
Majors, all services	716,961	1,778,065	2,113,669	3,767,330	3,760,067	3,854,368	4,062,122	4,218,049	4,260,051	4,445,133	4,784,664	4,680,578	4,432,285	4,267,107	4,632,828	4,923,387	5,388,726
Nationals, all services	94,794	247,055	330,528	120,599	447,024	592,345	591,638	572,654	613,823	801,719	805,439	810,665	915,170	1,259,491	1,498,161	1,434,676	901,647
Large regionals, all services	N	N	56,995	70,881	100,478	100,004	110,976	133,571	134,852	58,329	52,390	37,399	37,516	76,478	101,418	121,016	148,692
International																	
Certificated, all services [a,d]	181,605	474,666	400,971	760,334	979,769	997,656	1,043,312	1,114,063	1,186,222	1,225,217	1,281,702	1,263,543	1,221,086	1,261,917	1,403,378	1,535,929	1,594,357
Majors, all services	N	N	330,391	694,479	809,243	815,701	853,424	917,108	1,003,727	1,043,730	1,117,709	1,119,126	1,050,808	1,028,158	1,148,209	1,250,037	1,325,504
Nationals, all services	N	N	66,499	24,301	108,392	125,951	145,847	142,658	127,037	134,370	127,550	124,765	141,670	185,397	197,334	231,735	216,064
Large regionals, all services	N	N	2,948	33,893	46,040	48,867	32,005	39,516	51,100	41,440	30,848	15,409	25,896	41,241	49,211	40,654	36,701
Other certificated, all services, domestic and international [d]	N	N	23,204	12,120	88,454	89,811	58,747	29,942	28,775	32,674	25,545	25,264	220,478	490,693	367,854	249,326	201,045
Total certificated [d]	1,040,056	2,542,264	2,924,346	4,723,602	5,359,697	5,627,048	5,854,760	6,053,499	6,219,366	6,557,393	6,944,145	6,813,205	6,823,823	7,348,566	7,995,015	8,250,831	8,218,378
Aircraft revenue-hours [4]																	
Domestic																	
Certificated, all services [a,d]	3,672,900	5,133,161	6,247,795	9,717,375	10,721,577	11,378,503	11,871,886	12,133,348	12,443,855	13,090,460	13,901,641	13,510,998	13,676,524	15,294,961	16,405,347	16,694,269	16,415,836
Majors, all services	2,802,317	4,066,480	4,941,327	9,053,789	8,864,840	9,023,772	9,512,983	9,898,147	9,957,390	10,349,992	11,308,820	11,028,054	10,328,412	9,862,773	10,758,395	11,519,750	12,709,883
Nationals, all services	606,146	908,935	919,187	458,621	1,362,863	1,832,909	1,934,433	1,828,382	2,002,173	2,515,044	2,403,184	2,305,781	2,407,006	3,383,803	3,917,027	3,761,623	2,373,121
Large regionals, all services	N	N	267,522	192,944	273,642	269,811	298,415	366,439	422,770	156,201	137,993	104,522	99,411	187,758	252,384	318,276	381,713
International																	
Certificated, all services [a,d]	608,736	977,325	819,518	1,556,760	1,978,378	2,021,060	2,113,467	2,235,792	2,381,246	2,456,580	2,595,893	2,565,169	2,487,258	2,593,915	2,881,257	3,155,013	3,281,909
Majors, all services	N	N	668,199	1,410,263	1,607,155	1,619,755	1,699,958	1,819,583	1,992,776	2,071,507	2,229,167	2,240,214	2,105,500	2,067,148	2,317,972	2,541,139	2,692,590
Nationals, all services	N	N	140,329	50,293	227,077	262,285	319,919	303,335	275,180	281,706	288,953	282,776	319,353	417,332	431,858	492,092	466,897
Large regionals, all services	N	N	7,583	75,786	108,717	122,659	68,418	82,063	103,813	88,224	66,058	33,173	57,086	91,932	109,372	87,461	80,143
Other certificated, all services, domestic and international [d]	N	N	123,411	32,439	255,661	268,372	151,227	71,191	70,999	84,366	63,359	81,647	847,014	1,878,130	1,499,596	1,128,941	993,398
Total certificated [d]	4,281,636	6,110,486	7,190,724	11,274,135	12,699,955	13,399,563	13,985,353	14,369,140	14,825,101	15,547,040	16,497,534	16,076,167	16,163,782	17,888,876	19,286,604	19,849,282	19,697,745
Revenue passenger-miles (thousands) [4]																	
Domestic																	
Certificated, all services [a,d]	31,098,944	108,441,978	204,367,599	345,872,950	388,410,210	403,911,656	434,651,687	452,827,860	462,753,505	488,356,869	515,621,596	486,506,043	481,195,481	505,221,674	557,890,670	583,757,943	590,634,648
Majors, all services	29,430,428	99,903,229	182,984,795	340,628,946	352,063,855	360,719,108	395,099,254	413,060,869	421,217,665	440,442,129	472,284,794	440,413,336	426,401,276	424,165,007	462,025,653	498,200,614	527,266,645
Nationals, all services	1,170,779	7,642,071	20,466,712	2,655,442	27,508,958	33,696,612	30,396,752	31,989,076	34,070,192	43,371,272	39,560,329	43,541,665	48,687,149	67,906,918	84,458,947	78,505,474	55,504,378
Large regionals, all services	N	N	711,868	2,285,750	5,915,731	5,646,715	6,366,240	6,860,718	6,000,206	3,205,826	2,731,996	1,747,222	1,748,996	3,595,739	5,915,613	4,850,116	5,754,152

continued

Air Carrier Profile *continued*

Performance (continued)	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
International																	
Certificated, all services [a,d]	8,950,672	39,695,392	63,354,387	126,362,697	149,107,689	154,882,007	161,512,010	169,356,100	172,179,498	180,269,038	192,797,653	178,343,116	171,998,786	168,601,124	194,173,889	211,359,416	219,471,625
Majors, all services	N	N	54,318,160	121,910,801	133,299,897	137,389,923	145,330,811	153,564,956	157,398,986	166,320,739	181,585,899	169,335,392	163,576,484	156,267,732	179,788,447	195,635,675	206,669,607
Nationals, all services	N	N	8,659,592	3,152,239	12,939,400	15,509,364	14,681,127	13,616,245	12,232,424	11,504,031	7,793,324	7,710,903	6,803,586	8,995,296	11,101,736	14,120,367	12,074,172
Large regionals, all services	N	N	330,288	988,679	2,484,738	1,685,684	505,337	760,809	2,261,005	2,034,607	3,218,488	1,185,896	1,540,681	3,211,186	3,200,033	1,528,876	394,327
Other certificated, all services, domestic and international [d]	N	N	250,571	613,790	3,305,320	4,146,257	3,784,176	2,331,287	1,752,525	1,747,303	1,244,419	914,745	4,436,095	9,680,920	5,574,130	2,276,237	2,442,992
Total certificated [d]	40,049,616	148,137,370	267,972,557	472,235,647	537,517,899	558,793,663	596,163,697	622,183,960	634,933,003	668,625,907	708,419,249	664,849,159	653,194,267	673,822,798	752,064,559	795,117,359	810,106,273
Average passenger revenue / passenger-mile [5]																	
(Domestic, scheduled service)	6.09	6.00	11.49	13.44	13.25	12.90	13.81	13.19	13.55	13.82	13.92	14.11	13.97	(R) 14.57	13.26	12.10	12.51
Average passenger fare [5]																	
(Domestic, scheduled service)	30.01	40.65	84.60	107.96	106.82	103.99	110.37	103.77	107.14	110.81	113.31	114.58	115.10	(R) 121.33	111.68	103.93	108.43
Revenue passenger enplanements (thousands) [4]																	
Domestic																	
Certificated, all services [a,d]	56,352	153,662	275,182	428,769	489,357	506,775	538,397	553,160	566,377	589,168	616,397	574,882	564,552	596,871	645,674	674,061	675,212
Majors, all services	48,678	122,866	223,237	411,797	428,329	432,076	466,743	482,656	486,902	502,305	537,377	496,455	468,938	453,112	487,525	523,288	567,108
Nationals, all services	5,949	26,726	47,145	13,374	46,461	57,670	58,383	59,690	67,237	80,995	75,156	75,600	81,722	112,715	132,037	131,142	87,167
Large regionals, all services	N	N	3,748	3,190	8,854	10,127	9,122	9,665	10,276	4,234	2,444	1,383	1,338	3,542	6,623	7,930	9,383
International																	
Certificated, all services [a,d]	5,904	16,620	26,514	46,121	51,330	52,863	54,519	56,759	57,758	57,694	60,830	56,641	56,904	58,837	67,479	73,090	75,449
Majors, all services	N	N	23,949	43,871	42,701	43,590	46,304	48,615	49,608	49,769	53,157	50,097	50,637	50,202	57,929	63,203	67,009
Nationals, all services	N	N	2,343	964	6,183	7,235	7,402	6,887	6,228	6,274	5,273	5,664	5,471	6,868	6,931	8,309	7,676
Large regionals, all services	N	N	149	825	2,168	1,790	405	631	1,751	1,322	2,151	779	718	1,600	2,379	1,290	364
Other certificated, all services, domestic and international [d]	N	N	1,125	871	5,992	7,150	4,558	1,776	2,133	1,964	1,668	1,546	12,631	27,669	19,729	11,989	11,953
Total certificated [d]	62,256	169,922	302,821	474,891	540,688	559,638	592,916	609,919	624,135	646,863	677,227	631,522	621,456	655,708	713,153	747,151	750,660
Revenue passenger																	
Load factor (%) (scheduled service) [4]																	
Domestic																	
Certificated [a,d]	58.5	48.9	58.0	60.4	64.7	65.4	67.9	69.1	70.0	69.8	71.2	69.1	70.3	72.6	74.4	77.0	79.0
Majors 59.5		49.3	58.1	60.5	65.0	65.8	68.5	69.6	70.4	70.2	71.6	69.3	70.6	72.9	74.8	77.7	79.4
Nationals	41.9	43.6	58.4	49.4	63.6	61.8	62.0	63.1	65.1	66.4	66.5	67.0	68.2	72.5	73.6	74.4	77.2
Large regionals	N	N	47.7	54.7	56.3	63.0	58.1	61.9	63.5	58.7	46.8	71.3	60.4	71.2	70.3	70.1	72.6
International																	
Certificated [a,d]	62.2	53.0	62.8	69.1	70.6	71.8	73.3	74.1	72.8	74.4	76.0	72.8	76.6	76.5	79.1	79.5	79.9
Majors	N	N	62.8	69.0	70.8	72.2	73.7	74.4	72.9	74.5	76.1	72.9	76.8	76.8	79.3	79.8	80.3
Nationals N		N	65.5	85.7	68.3	67.9	67.8	69.6	70.9	73.7	73.4	70.0	68.3	64.8	70.4	71.4	70.8
Large regionals	N	N	73.9	63.9	46.2	53.1	N	57.2	46.0	0.0	58.0	67.0	59.1	70.4	77.6	0.0	64.3
Other certificated, all services, domestic and international [d]	N	N	46.7	56.8	57.6	52.5	62.8	59.3	49.6	47.6	48.8	52.2	61.4	60.1	58.9	51.4	52.9

continued

Air Carrier Profile *continued*

Performance (continued)	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
U.S. international passenger travel [e,6]																	
Total passenger-arrivals (thousands)																	
Flag of carrier																	
United States	1,332	5,531	10,031	19,145	23,291	24,582	25,148	26,744	27,390	27,462	29,837	27,985	26,953	26,557	29,992	31,657	33,364
Foreign	1,234	4,343	10,231	17,269	20,527	22,328	24,704	27,571	28,791	30,324	32,380	28,715	26,912	27,395	29,591	29,042	29,587
Total passenger-departures (thousands)																	
Flag of carrier																	
United States	1,200	4,949	9,369	17,628	21,355	22,231	22,901	24,302	24,513	25,457	27,431	25,483	23,610	24,070	27,249	29,668	31,492
Foreign	1,136	4,147	9,886	16,418	18,993	20,795	22,884	25,382	26,350	28,399	30,068	27,111	24,996	25,897	28,682	28,877	27,985
Total revenue ton-miles (thousands) [f,4]																	
Domestic																	
Certificated, all services [a,d]	3,732,949	13,876,802	24,964,907	43,654,400	50,632,739	52,916,214	56,326,750	58,920,010	60,165,036	63,032,298	66,544,502	61,834,963	62,051,071	65,753,373	72,240,509	74,117,030	74,923,193
Majors, all services	3,332,483	12,589,057	21,427,534	42,027,064	44,952,734	46,142,919	49,892,293	52,478,725	53,424,348	55,599,788	59,095,406	54,883,338	54,411,945	54,251,883	58,514,663	61,959,817	65,627,369
Nationals, all services	121,157	850,477	3,336,057	640,398	3,967,715	4,957,793	5,073,195	5,068,024	5,299,740	6,577,361	6,699,944	6,211,281	6,073,565	8,192,062	11,142,320	10,131,320	7,860,786
Large regionals, all services	N	N	180,042	944,830	1,256,308	1,353,436	1,048,507	1,231,075	1,161,148	611,809	628,394	597,407	684,963	1,584,694	1,193,008	1,136,544	1,200,010
International																	
Certificated, all services [a,d]	1,291,336	6,308,701	9,689,067	19,975,913	24,879,793	26,296,958	28,177,722	30,950,867	31,192,066	32,810,134	35,161,434	32,782,793	33,771,616	35,168,498	40,923,680	44,696,422	45,806,946
Majors, all services	N	N	7,377,733	18,348,692	20,681,990	21,456,604	22,705,604	24,971,379	25,794,347	27,764,444	30,683,566	28,459,230	28,020,656	27,099,570	30,614,976	32,690,861	34,565,570
Nationals, all services	N	N	2,261,534	803,083	2,935,386	3,509,127	4,504,772	4,557,048	4,109,500	3,989,939	3,749,703	3,868,703	5,090,922	7,101,794	8,820,202	9,980,412	9,229,784
Large regionals, all services	N	N	44,438	704,369	918,447	1,186,218	668,766	1,038,610	1,211,260	993,874	621,161	303,700	636,385	812,738	1,256,237	1,421,590	1,618,112
Other certificated, all services, domestic and international [d]	N	N	28,178	161,878	799,950	607,077	611,336	526,016	356,761	305,217	227,762	294,098	904,251	1,879,129	1,622,782	1,492,908	628,507
Total certificated [d]	5,024,285	20,185,503	34,682,153	63,630,313	75,512,531	79,213,173	84,504,472	89,870,877	91,357,103	95,842,432	101,705,936	94,617,756	95,822,687	100,921,870	113,164,189	118,813,452	120,730,139
Revenue ton-miles of freight (thousands) [g,4]																	
Domestic																	
Certificated, all services [a,d]	552,756	2,708,900	4,528,316	9,067,099	11,802,776	12,524,772	12,860,845	13,640,994	13,886,053	14,201,505	14,982,612	13,172,867	13,931,509	15,231,204	16,451,441	15,741,236	15,859,729
Majors, all services	321,176	U	3,129,087	7,964,164	9,746,353	10,071,016	10,382,373	11,172,436	11,302,581	11,555,576	11,866,926	10,834,520	11,771,815	11,835,383	12,312,098	12,139,755	12,900,706
Nationals, all services	3,850	U	1,289,510	374,853	1,227,775	1,588,798	2,033,376	1,869,146	1,889,221	2,240,026	2,743,705	1,856,834	1,205,023	1,401,369	2,696,425	2,280,772	2,310,348
Large regionals, all services	N	N	108,864	716,256	664,768	787,828	411,285	549,046	561,109	296,660	356,013	422,682	510,401	1,225,120	601,447	651,532	624,594
International																	
Certificated, all services [a,d]	268,156	1,566,105	3,353,371	7,340,033	9,970,191	10,855,442	12,031,635	14,015,255	13,980,493	14,782,230	15,880,424	14,948,684	16,572,205	18,308,387	21,506,293	23,560,482	23,859,784
Majors, all services	N	N	1,945,660	6,157,984	7,352,000	7,717,612	8,172,522	9,614,884	10,054,447	11,132,370	12,524,975	11,525,689	11,663,007	11,472,799	12,636,132	13,127,294	13,898,610
Nationals, all services	N	N	1,395,575	487,873	1,641,444	2,004,875	3,041,774	3,195,422	2,892,634	2,838,536	2,970,370	3,097,665	4,410,564	6,202,264	7,710,029	8,568,375	8,022,366
Large regionals, all services	N	N	11,409	605,504	671,144	1,017,649	618,232	962,529	985,159	790,413	298,069	185,111	482,784	491,619	936,234	1,268,703	1,578,680
Other certificated, all services, domestic and international [d]	N	N	3,124	100,498	469,484	192,437	232,918	292,786	181,393	130,155	102,978	199,051	460,121	911,037	1,065,369	1,265,286	384,208
Total certificated [d]	820,907	3,755,436	7,884,811	16,407,132	21,772,967	23,380,215	24,892,480	27,656,249	27,866,545	28,983,735	30,863,036	28,121,551	30,503,714	33,539,592	37,957,734	39,301,718	39,719,513

continued

Air Carrier Profile *continued*

Safety [7]	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Air carrier fatalities																	
Operating under 14 CFR 121 (airlines)																	
Scheduled services	N	N	0	39	239	160	342	3	1	12	89	531	0	22	13	22	50
Nonscheduled services	N	N	1	0	0	8	38	5	0	0	3	0	0	0	1	0	0
Operating under 14 CFR 135																	
Scheduled services (commuters)	N	N	37	6	25	9	14	46	0	12	5	13	0	2	0	0	2
Nonscheduled services (on–demand air taxis)	N	N	105	51	63	52	63	39	45	38	71	60	35	42	64	18	16
Total 499		146	143	96	327	229	457	93	46	62	168	604	35	66	78	40	68
Air carrier accidents																	
Operating under 14 CFR 121 (airlines)																	
Scheduled services	N	N	15	21	18	30	31	43	41	40	49	41	35	51	(R) 24	(R) 34	25
Nonscheduled services	N	N	4	3	5	6	6	6	9	11	7	5	6	3	(R) 6	(R) 6	6
Operating under 14 CFR 135																	
Scheduled services (commuters)	N	N	38	15	10	12	11	16	8	13	12	7	7	2	4	6	3
Nonscheduled services (on–demand air taxis)	N	N	171	107	85	75	90	82	77	74	80	72	60	(R) 73	66	66	54
Total 90		55	228	146	118	123	138	147	135	138	148	125	108	(R) 129	100	(R) 112	88
Fatal air carrier accidents																	
Operating under 14 CFR 121 (airlines)																	
Scheduled services	N	N	0	6	4	2	3	3	1	2	3	6	0	2	1	3	2
Nonscheduled services	N	N	1	0	0	1	2	1	0	0	0	0	0	0	1	0	0
Operating under 14 CFR 135																	
Scheduled services (commuters)	N	N	8	3	3	2	1	5	0	5	1	2	0	1	0	0	1
Nonscheduled services (on–demand air taxis)	N	N	46	29	26	24	29	15	17	12	22	18	18	18	(R) 23	11	10
Total	17	8	55	38	33	29	35	24	18	19	26	26	18	(R) 21	25	14	13

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

[a] Some totals include data not in the table; thus totals may not equal sum of table data.

[b] Includes scheduled and nonscheduled (charter) operators. By Sec. 2 of the Airline Deregulation Act of 1978 "charter air carrier" and "charter air transportation" replaced supplemental air carriers and supplemental air transportation, which were formerly Sec. 101(36) and (37) of the Act. The 24 pre-deregulation supplemental carriers now have scheduled service authority.

[c] Total includes only those carriers who have reported employment statistics to BTS' Office of Airline Information. Full-time equivalent employees count two part-time employees as one full-time equivalent employee. Prior to 1980, there was no breakout for part-time employees so earlier numbers will overstate full-time equivalent employees.

[d] Data does not include small-certificated and commuter carriers prior to 2002. Small-certificated and commuter carriers began reporting T1 data in January of 2002 for Alaskan carriers and in October of 2002 for the remainder of the U.S.

[e] Passenger travel totals do not include Canada because the source does not record departures and arrivals to and from Canada.

[f] Total Revenue Ton-Miles includes passenger, freight, express, and mail.

[g] Total revenue ton-miles of freight includes freight, express, and mail.

NOTES

Domestic encompasses operations within and between the 50 states of the United States, the District of Columbia, Puerto Rico, and the Virgin Islands. It also encompasses Canadian and Mexican transborder operations (U.S. airlines only). All other operations are considered international.

Data in the Financial and Performance (excluding International Air Passengers) sectins was revised for 1990 to 2005 to be consistent with the online source as of Nov. 2, 2007.

SOURCES

Unless otherwise noted, refer to chapter tables for sources.

[1] 1960-1970: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969 and 1973* (Washington, DC), pp. 69 and 71. 1980: Civil Aeronautics Board, *Air Carrier Financial Statistics*, December 1981 (Washington, DC), pp. 3/28, 42, and 44. 1990-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Form 41 Air Carrier Financial Reports, Schedules P11 and P12, available at http://www.transtats.bts.gov/databases.asp?Mode_ID=1&Mode_Desc=Aviation&Subject_ID2=0, as of Nov. 2, 2007

[2] 1960: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, http://www.bts.gov/oai/employees/employcov.html as of Oct. 14, 2003. 1970-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, http://www.bts.gov/programs/airline_information/number_of_employees/certificated_carriers/ as of Nov. 2, 2007.

[3] Ibid., personal communication, Oct. 17, 2003, Sept. 10, 2004, Feb. 1, 2007, and Nov. 2, 2007

[4] 1960-1970: Civil Aeronautics Board, *Handbook of Airline Statistics, 1969 and 1973* (Washington, DC), Part III, tables 2, 4, 7, and 13. 1980: Civil Aeronautics Board, *Air Carrier Financial Statistics*, December 1981 (Washington, DC), pp. 2, 5, 46, and 86. 1990-2006: U.S. Department of Transportation, Bureau of Transportation Statistics, *T1: U.S. Air Carrier Traffic and Capacity Summary by Service Class,* available at http://www.transtats.bts.gov/Tables.asp?DB_ID=130&DB_Name=Air%20Carrier%20Summary%20Data%20%28Form%2041%20and%20298C%20Summary%20Data%29&DB_Short_Name=Air%20Carrier%20Summary, as of Nov. 2, 2007

[5] See sources 1 and 4.

[6] 1960-70: U.S. Department of Justice, Immigration and Naturalization Service, *Report of Passenger Travel Between the U.S. and Foreign Countries*, 1960, 1970 (Washington, DC). 1980-2006: U.S. Department of Transportation, Research and Special Programs Administration, *U.S. International Air Travel Statistics* (Washington, DC: Annual issues), tables IIa and IId. 2006: U.S. Department of Commerce, Office of Travel and Tourism Industries, *U.S. International Air Travel Statistics.*

[7] National Transportation Safety Board, Internet site http://www.ntsb.gov/aviation/stats.htm as of November 2007 and personal communication.

Highway Profile

FINANCIAL	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	(R) 2007	2008	2009
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	(R) 138,878	(R) 139,246	145,315	154,690	165,443	193,876	192,718	U
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	(R) 28,344	(R) 29,878	30,911	33,070	34,171	36,134	41,905	U
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	(R) 26,616	27,755	28,576	31,194	32,333	33,568	38,873	U
Other	240	696	2,334	1,196	1,272	1,016	1,160	1,148	1,113	923	1,374	1,305	(R) 1,728	(R) 2,123	2,335	1,876	1,838	2,566	3,032	U
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	(R) 110,534	(R) 109,368	114,404	121,620	131,272	157,742	150,813	U
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	(R) 72,296	(R) 69,633	72,860	77,725	83,685	105,834	97,686	U
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	(R) 38,238	(R) 39,735	41,544	43,895	47,587	51,908	53,127	U
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	(R) 138,639	(R) 143,605	147,489	152,700	161,061	181,061	182,058	U
Federal, total	197	425	874	664	1,306	1,402	1,598	1,315	1,375	1,428	1,680	1,913	(R) 1,841	2,383	3,470	1,902	2,191	2,284	2,906	U
Highway trust fund[a]	27	83	315	358	965	1,092	1,384	1,103	1,170	1,249	1,304	1,463	(R) 1,241	1,685	2,436	758	1,236	1,213	1,532	U
Other[b]	170	342	559	306	341	310	214	212	205	179	376	450	(R) 600	698	1,034	1,144	955	1,071	1,374	U
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	(R) 136,798	(R) 141,222	144,019	150,797	158,870	178,777	179,152	U
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	(R) 85,712	(R) 88,183	88,026	94,484	100,090	114,151	114,153	U
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	(R) 51,086	(R) 53,039	55,993	56,313	58,780	64,626	64,999	U
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	(R) 67,539	69,332	68,605	66,807
Motor fuel tax[2]	3,374	6,433	9,485	19,658	25,860	26,881	27,555	28,477	29,803	30,753	31,981	32,519	33,046	34,016	35,272	35,831	36,632	37,345	36,486	35,392
Other motor fuel receipts[d,2]	22	44	92	220	101	108	63	55	58	134	179	298	297	277	194	202	972	1,181	1,100	718
Motor vehicle registration fees[3]	1,514	2,873	5,173	10,257	12,388	11,942	13,234	13,631	14,552	14,882	13,704	14,437	13,316	13,606	14,443	15,377	16,117	16,524	16,443	16,431
Other motor vehicle fees[e,3]	235	577	1,490	3,353	4,505	4,416	4,689	4,704	5,068	5,350	5,696	5,764	6,077	5,885	6,373	6,451	(R) 6,769	7,000	7,002	6,935
Motor carrier taxes[f,3]	110	176	323	695	875	770	726	729	861	740	784	753	703	709	730	786	(R) 811	828	863	804
Miscellaneous fees[3]	68	181	615	1,761	2,708	3,307	3,489	3,785	4,165	4,410	4,800	4,737	4,860	5,149	5,819	6,154	6,239	6,454	6,712	6,527
INVENTORY																				
Rural / urban mileage by ownership, total [4]	3,545,693	3,730,082	3,859,837	3,866,926	3,906,595	3,912,227	3,919,652	3,944,601	3,906,304	3,917,245	3,936,241	3,948,335	3,966,494	3,974,103	3,981,521	3,995,644	4,016,734	4,032,134	4,042,768	U
Rural mileage, total	3,116,125	3,169,412	3,230,936	3,122,282	3,092,810	3,092,521	3,092,887	3,108,493	3,064,650	3,071,181	3,084,000	3,071,332	3,071,768	3,033,133	3,000,247	2,985,804	2,987,371	2,987,767	2,977,228	U
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	633,933	631,653	U
Under federal control[g]	111,912	187,696	246,130	178,188	173,650	170,568	168,938	167,369	118,369	116,846	116,698	119,270	117,751	120,208	117,740	123,413	123,370	125,761	124,460	U
Under local control	2,345,317	2,274,714	2,234,327	2,241,608	2,228,788	2,231,029	2,232,793	2,248,357	2,285,447	2,293,653	2,305,504	2,288,928	2,291,162	2,260,403	2,233,952	2,226,052	2,228,887	2,228,073	2,221,115	U
County roads	1,742,404	1,732,981	1,542,984	1,616,634	1,624,982	1,626,927	1,627,639	1,642,468	1,647,025	1,649,291	1,656,906	1,637,616	1,628,510	1,623,786	1,608,094	1,598,718	1,605,540	1,599,849	1,593,014	U
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	579,577	577,651	U
Other local roads[h]	64,262	31,559	233,112	187,514	179,898	179,573	178,984	179,456	212,082	54,156	55,975	56,115	56,254	55,792	51,987	51,765	51,425	48,647	50,450	U
Urban mileage, total	429,568	560,670	628,901	744,644	813,785	819,706	826,765	836,108	841,654	846,064	852,241	877,003	894,726	940,970	981,274	1,009,840	1,029,363	1,044,367	1,065,540	U
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	145,198	148,082	U
Under federal control[g]	N	N	1,495	1,024	1,484	1,509	1,470	1,464	1,485	1,503	1,484	2,234	2,819	3,560	3,561	3,783	4,979	5,184	7,070	U
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	893,985	910,388	U
County roads	N	N	71,357	95,929	115,388	117,518	117,181	117,487	117,016	117,105	116,918	144,065	144,615	156,598	175,601	182,696	185,582	186,518	195,027	U
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	701,035	708,794	U
Other local roads[h]	379,410	486,567	421,179	509,161	512,336	528,352	535,264	530,529	537,941	12,245	12,171	12,709	12,695	13,331	13,614	14,111	14,418	6,432	6,567	U
Rural / urban mileage by functional system, total [5]	3,545,693	3,730,082	3,859,837	3,866,926	3,906,595	3,912,226	3,919,652	3,944,597	3,906,292	3,917,240	3,936,222	3,948,335	3,966,485	3,974,107	3,981,512	3,995,635	4,016,741	4,032,126	4,042,778	4,049,829
Rural mileage, total	3,116,125	3,169,412	3,230,936	3,122,282	3,092,810	3,092,520	3,092,887	3,108,488	3,064,649	3,071,181	3,083,979	3,071,331	3,071,761	3,033,138	3,000,236	2,985,796	2,987,375	2,987,758	2,977,222	2,968,458
Interstate	N	N	31,905	33,547	32,457	32,580	32,820	32,819	32,808	32,974	33,048	33,061	32,992	32,048	31,443	30,905	30,586	30,360	30,196	30,142
Other principal arterial	N	N	82,569	83,802	97,175	97,948	98,131	98,257	98,858	98,856	98,919	99,185	98,853	97,038	95,946	95,156	94,937	94,766	94,949	94,051
Minor arterial	N	N	149,057	144,774	138,120	137,151	137,359	137,498	137,308	137,463	137,575	137,587	137,568	135,596	135,449	135,408	135,386	135,296	135,024	135,115
Major collector	N	N	439,000	436,352	431,115	431,712	432,117	432,728	432,408	432,954	433,121	433,284	430,946	424,288	420,046	419,999	419,117	419,437	418,229	415,851
Minor collector	N	N	299,613	293,922	282,011	274,081	273,198	272,350	272,140	271,690	271,803	271,377	270,700	267,524	267,842	264,387	262,841	262,899	262,607	262,710
Local	N	N	2,228,792	2,129,885	2,111,932	2,119,048	2,119,262	2,134,836	2,091,127	2,097,244	2,109,513	2,096,837	2,100,702	2,076,644	2,049,510	2,039,941	2,044,508	2,045,000	2,036,217	2,030,589
Urban mileage, total	429,568	560,670	628,901	744,644	813,785	819,706	826,765	836,109	841,643	846,059	852,243	877,004	894,724	940,969	981,276	1,009,839	1,029,366	1,044,368	1,065,556	1,081,371
Interstate	N	N	9,215	11,527	13,126	13,164	13,217	13,249	13,276	13,343	13,379	13,406	13,491	14,460	15,129	15,703	16,044	16,312	16,555	16,578
Other freeways and expressways	N	N	6,774	7,668	8,994	8,970	9,027	9,062	9,163	9,125	9,140	9,126	9,323	9,870	10,246	10,560	10,748	10,913	11,335	11,399
Other principal arterial	N	N	44,155	51,968	53,110	52,796	52,983	53,230	53,132	53,206	53,314	53,056	53,439	56,870	59,695	61,803	62,830	63,282	64,557	64,524
Minor arterial	N	N	66,377	74,659	87,857	88,510	89,020	89,196	89,496	89,399	89,789	89,962	90,411	93,888	97,433	101,673	102,975	104,033	106,172	108,958
Collector	N	N	68,387	78,254	86,089	87,331	87,790	88,042	88,071	88,008	88,200	88,713	89,247	97,114	102,150	106,109	108,833	109,555	113,848	114,687
Local	N	N	433,993	520,568	564,609	568,935	574,728	583,330	588,505	592,978	598,421	622,741	638,813	668,767	696,623	713,991	727,936	740,273	753,089	765,224
U.S. roads and streets by surface [6]																				
Paved mileage, total	1,230,469	1,658,421	2,072,692	2,254,822	2,342,179	2,378,268	2,380,650	2,409,935	2,420,344	2,451,426	2,501,716	2,523,479	2,577,693	2,612,069	2,577,963	2,601,490	2,629,638	2,635,471	2,734,102	U
Rural	919,082	1,188,080	1,490,050	1,550,283	1,561,649	1,591,334	1,582,166	1,605,804	1,612,251	1,641,877	1,682,140	1,678,795	1,714,714	1,702,175	1,629,423	1,625,390	1,637,819	1,629,207	1,701,343	U
Urban	311,387	470,341	582,642	704,539	780,530	786,934	798,484	804,131	808,093	809,549	819,576	844,684	862,979	909,894	948,540	976,100	991,819	1,006,264	1,032,759	U
Percent paved	34.7%	44.5%	53.7%	58.3%	60.0%	60.8%	60.5%	60.9%	61.3%	62.4%	63.3%	63.7%	64.8%	65.5%	64.5%	64.9%	65.2%	65.1%	67.4%	U
Unpaved mileage, total	2,315,224	2,071,661	1,787,145	1,612,104	1,564,416	1,533,958	1,553,537	1,548,349	1,528,549	1,478,977	1,448,319	1,438,723	1,402,995	1,376,283	1,417,527	1,408,757	1,401,791	1,411,779	1,324,245	U
Rural	2,197,043	1,981,332	1,740,886	1,571,999	1,531,161	1,501,186	1,518,310	1,510,330	1,490,488	1,436,969	1,409,279	1,400,129	1,364,900	1,333,969	1,373,622	1,363,383	1,352,456	1,361,551	1,278,838	U
Urban	118,181	90,329	46,259	40,105	33,255	32,772	35,227	38,019	38,061	42,008	39,040	38,594	38,095	42,314	43,905	45,374	49,335	50,228	45,407	U
Percent unpaved	65.3%	55.5%	46.3%	41.7%	40.0%	39.2%	39.5%	39.1%	38.7%	37.6%	36.7%	36.3%	35.2%	34.5%	35.5%	35.1%	34.8%	34.9%	32.6%	U
Number of employees																				
State and local govt. highways[7]	532,000	607,000	559,000	569,000	544,233	543,143	U	548,486	530,097	542,612	546,215	551,706	545,249	545,617	542,642	546,220	545,089	522,823	523,156	525,869
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	350,800	348,300	344,500	327,300	291,300
PERFORMANCE																				
Vehicle-miles of travel by functional system (millions), total [j,9]	718,762	1,109,724	1,527,295	2,144,362	2,357,588	2,422,696	2,484,080	2,552,233	2,628,148	2,690,241	2,746,925	2,781,462	2,855,756	2,890,893	2,962,513	2,989,807	3,014,116	3,047,462	2,973,509	2,953,501
Rural mileage, total	400,463	539,472	672,030	868,878	908,341	933,289	960,194	999,277	1,032,528	1,062,623	1,083,152	1,105,083	1,128,160	1,085,385	1,070,248	1,037,937	1,037,069	1,035,033	990,418	980,227
Interstate	10,514	79,516	135,084	200,173	215,568	223,382	232,565	240,255	251,520	260,166	268,180	274,024	279,962	269,945	266,996	258,790	257,913	256,438	243,290	241,873
Other principal arterial	N	N	132,958	175,133	207,569	215,567	221,403	228,716	237,704	244,045	248,725	253,056	257,587	245,345	241,046	233,999	231,865	232,054	222,298	221,430
Minor arterial	N	N	129,816	155,733	149,760	153,028	157,444	163,341	165,780	169,275	171,874	173,889	176,218	171,251	168,898	164,933	162,634	161,411	151,975	151,038
Major collector	N	N	150,186	190,512	182,000	186,212	190,923	201,790	203,580	206,831	209,659	211,312	213,503	203,368	200,792	193,288	193,287	193,333	186,139	176,799
Minor collector	N	N	39,282	49,948	48,529	49,936	50,107	52,310	54,288	57,622	57,572	59,650	61,504	60,294	60,139	58,299	58,088	58,181	55,019	53,899
Local	N	N	84,704	97,379	104,915	105,164	107,752	112,865	119,656	124,684	127,142	133,152	139,386	135,182	132,377	128,628	133,282	133,886	131,697	135,189
Urban mileage, total	318,299	570,252	855,265	1,275,484	1,449,247	1,489,407	1,523,886	1,552,956	1,595,620	1,627,618	1,663,773	1,676,379	1,727,596	1,805,508	1,892,265	1,951,870	1,977,047	2,012,429	1,983,091	1,973,274
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	483,315	476,091	474,963

Other freeways and expressways	N	N	79,690	127,465	147,534	151,509	157,502	159,572	165,632	171,515	177,222	182,758	189,634	199,520	207,929	213,727	217,067	220,335	222,624	220,434
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	469,681	462,569	455,918
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	378,114	377,033	375,719
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	174,671	175,389	179,176
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	268,413	269,385	267,064
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	U	U	U	U	U	U	U	U	U	U
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	U	U	U	U	U	U	U	U	U	U
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	199,403	190,049	180,386	152,497	131,568
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	43,510	(R) 42,708	41,259	37,423	33,808
Injured persons	N	N	N	3,231,000	3,266,000	3,465,000	3,483,000	3,348,000	3,192,000	3,236,000	3,189,000	3,033,000	2,926,000	2,889,000	2,788,000	2,699,000	2,575,000	2,491,000	2,346,000	2,217,000
Crashes	N	N	N	6,471,000	6,496,000	6,699,000	6,770,000	6,624,000	6,335,000	6,279,000	6,394,000	6,323,000	6,316,000	6,328,000	6,181,000	6,159,000	5,973,000	6,024,000	5,811,000	5,505,000

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 clos of FY1994 and is shown in FY1995 receipts.

[b] Figures obtained by addition/subtraction and may not appear directly in data source.

[c] Gross amounts collected by state governments from highway users. Does not include tolls. Not all revenues are allocated to highway expenditures.

[d] Includes distributor and dealer licenses, inspection fees, fines and penalties, and miscellaneous receipts.

[e] Includes driver licenses, title fees, special title taxes, fines and penalties; estimated service charges and local collections.

[f] Includes carrier gross receipt taxes; mileage, ton-mile and passenger-mile taxes; special license fees and franchise taxes; and certificate or permit fees.

[g] Mileage in federal parks, forests, and reservations that are not a part of the state and local highway system.

[h] Prior to 1999, mileage for municipal roads is included with the "other local roads" jurisdiction. Mileage for municipal roads is included in "Town, Township and Municipal Road" jurisdiction after 1999.

[i] Data for years 1994 and later are based on the North American Industry Classification System (NAICS). Prior to 1994, data are based on the Standard Industrial Classification System (SIC).

[j] Highway category classifications changed several times before 1980. Actual 1960 data categories were: Main Rural Roads, Local Rural Roads and Urban Streets; 1970 data categories were: Rural Interstate, Rural Other Arterial, Other Rural, Urban Interstate and Other Urban.

NOTES

Total system mileage may differ when categorized by ownership and functional system due to rounding at different levels of aggregation. Additionally, total system mileage categorized by surface type is based on sampling and is not comparable to the totals based on the other categorizations.

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

Earlier editions of NTS, particularly the 1993 Historical Compendium, used crash and injury figures estimated by the National Safety Council, which employed a different 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

[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.

1995-2009: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), tables HF-10A and HF-10, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of July 22, 2011.

[2] 1960-95: Ibid., *Highway Statistics* , *Summary to 1995* , FHWA-PL-97-009 (Washington, DC: July 1997), table MF-201.

1996-2009: Ibid., Highway Statistics (Washington, DC: Annual Isssues), table MF-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of July 22, 2011.

[3] 1960-95: Ibid., *Highway Statistics, Summary to 1995* , FHWA-PL-97-009 (Washington, DC: July 1997), table MV-202.

1996-2009: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table MV-2, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of July 22, 2011.

[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.

1996-2009: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table HM-10, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of July 22, 2011.

[5] 1960-95: Ibid., *Highway Statistics, Summary to 1995* , FHWA-PL-97-009 (Washington, DC: July 1997), tables HM-212 and HM-220.

1996-2009: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table HM-20, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of July 22, 2011.

[6] 1960-95: Ibid., *Highway Statistics* , *Summary to 1995* , FHWA-PL-97-009 (Washington, DC: July 1997), table HM-212.

1996-2009: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table HM-12, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of July 22, 2011.

[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.

1994-2009: U.S. Department of Commerce, U.S. Census Bureau, *State and Local Government Employment and Payroll Data* , (Washington, DC: Annual Issues), available at http://www.census.gov/govs/www/apesstl.html as of July 22, 2011.

[8] 1960-2009: U.S. Department of Labor, Bureau of Labor Statistics, *Employment, Hours, and Earnings from the Current Employment Statistics survey (National)* available at http://www.bls.gov/data/sa.htm as of July 22, 2011.

[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.

1980-2009: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), tables VM-2 and VM-2A, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of July 22, 2011.

[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).

1994-2009: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1 (total fuel consumed in thousands of gallons divided by 42), available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of July 22, 2011.

[11] 1960-80: U.S. Department of Energy, Energy Information Administration,*State Energy Data Report* (Washington, DC: July 1982), p. 13.

1990-2009: U.S. Department of Energy, Energy Information Administration,*Petroleum Supply Annual: Volume 1* (Washington, DC: Annual Issues), table 1, available at http://www.eia.gov/oil_gas/petroleum/data_publications/petroleum_supply_annual/psa_volume1/psa_volume1.html as of July 22, 2011.

[12] 1960-80: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis, NRD-30, personal communication.

1990-2009: Ibid., *Traffic Safety Facts (Early Edition)* (Washington, DC: Annual Issues), tables 1 and 4, available at http://www-nrd.nhtsa.dot.gov/Cats/listpublications.aspx?Id=E&ShowBy=DocType as of July 22, 2011.

General Aviation Profile

INVENTORY	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Number of active aircraft by primary use, total	76,549	131,743	211,045	196,800	176,600	188,089	191,129	192,414	204,710	219,464	217,533	211,446	211,244	209,708	219,426	224,352	221,943	231,607	228,663
Corporate	N	6,835	14,860	10,100	10,200	10,600	9,900	10,411	11,250	10,804	11,003	10,544	10,810	10,493	10,212	10,553	11,054	10,864	11,715
Business	N	26,900	49,391	33,100	26,500	28,300	30,700	27,716	32,611	24,543	25,169	25,525	24,153	25,042	24,189	25,524	24,413	24,993	22,432
Instructional	N	10,727	14,862	18,600	15,100	14,200	12,700	14,663	11,375	16,081	14,883	14,254	13,203	12,714	13,099	13,399	14,316	14,650	14,975
Personal	N	65,398	96,222	112,600	104,100	113,400	113,400	115,630	124,347	147,085	148,192	144,031	145,996	146,722	149,700	151,408	149,026	152,514	154,417
Aerial application	N	5,455	7,294	6,200	4,400	5,000	5,000	4,858	4,550	4,254	4,294	3,779	3,971	3,250	3,202	3,548	3,430	4,164	3,106
Aerial observation	N	N	N	4,900	5,100	4,700	3,000	3,311	3,242	3,240	5,093	5,039	4,535	4,223	4,814	4,663	4,407	5,188	5,304
External load	N	N	N	N	100	200	400	186	313	190	234	202	151	194	215	226	212	188	374
Other work[a]	N	2,054	2,813	1,400	1,200	1,100	1,000	679	1,116	2,363	1,787	1,528	1,733	1,726	930	732	729	936	934
Air taxi / air tours[b]	N	N	N	5,800	3,800	4,000	4,200	4,948	5,190	4,569	4,019	4,004	4,157	2,791	6,550	7,539	7,814	8,822	7,262
Sightseeing[c]	N	N	N	N	1,300	800	700	677	679	832	881	918	641	862	1,050	945	906	1,275	673
Other[d]	N	8,249	17,045	4,100	4,400	5,900	5,600	5,250	6,010	1,200	2,500	2,100	2,642	2,300	5,465	5,817	5,636	8,013	7,470
Public use[e,f]	N	N	N	N	N	N	4,500	4,130	4,029	4,138	N	N	N	N	N	N	N	N	N
PERFORMANCE																			
Number of flight hours by actual use, total (thousands)	13,121	26,030	36,430	30,763	24,092	26,612	26,909	27,713	28,100	31,231	29,960	27,017	27,040	27,329	28,126	26,982	27,705	27,852	26,009
Corporate	N	N	5,332	2,913	2,486	3,069	2,898	2,878	3,213	3,535	3,341	2,657	3,275	3,227	2,849	3,072	3,114	3,214	3,092
Business	5,699	7,204	8,434	4,417	3,012	3,335	3,259	3,006	3,523	3,602	3,588	3,579	3,287	3,377	3,249	3,244	3,234	3,094	2,505
Instructional	1,828	6,791	5,748	7,244	4,382	4,410	4,759	4,956	3,961	5,795	5,050	4,307	4,182	4,393	4,035	3,635	4,322	3,804	4,427
Personal	3,172	6,896	8,894	9,276	8,248	9,659	9,037	9,644	9,781	11,072	11,477	11,266	11,025	11,251	10,239	9,266	9,141	8,676	8,279
Aerial application	N	N	2,044	1,872	1,364	1,526	1,713	1,562	1,306	1,408	1,318	1,038	1,182	1,099	1,142	1,031	946	1,415	922
Aerial observation	N	N	N	1,745	1,746	1,391	1,057	1,261	812	1,244	1,545	1,442	1,366	1,262	1,457	1,265	1,197	1,364	1,427
External load	N	N	N	N	135	128	191	112	153	123	161	131	97	103	125	134	136	152	153
Other work[a]	N	N	1,053	572	241	280	265	139	286	605	496	256	369	414	264	176	198	145	317
Air taxi / air tours[b]	N	N	N	2,249	1,545	1,527	1,834	2,122	2,583	1,985	2,122	1,587	1,495	1,332	2,764	3,210	3,041	3,621	2,642
Sightseeing[c]	N	N	N	N	309	179	195	127	169	218	197	183	134	175	204	191	171	160	152
Other[d]	2,422	5,139	4,925	475	622	1,107	656	819	940	535	665	571	628	697	1,797	1,759	2,205	2,207	2,091
Public use[e,f]	N	N	N	N	N	N	1,047	1,096	1,373	1,109	N	N	N	N	N	N	N	N	N
Fuel consumed, total (million gallons)[g]	242	759	1,286	1,016	731	847	896	934	1,126	1,313	1,305	1,198	1,215	1,205	1,504	1,822	1,926	1,759	1,954
Aviation gasoline	242	551	520	353	266	287	289	292	311	345	333	279	277	272	273	295	283	274	248
Jet fuel	N	208	766	663	464	560	608	642	815	967	972	918	938	932	1,231	1,527	1,643	1,486	1,706
SAFETY																			
Fatalities, total[h]	787	1,310	1,239	770	730	734	636	631	624	621	596	562	581	633	559	563	706	496	494
Corporate	N	28	66	21	6	15	20	3	0	30	13	12	5	5	10	8	3	5	(P) 0
Business	N	148	126	80	64	73	44	45	42	55	43	50	39	33	45	14	37	25	(P) 32
Instructional	N	93	73	62	47	44	40	38	38	38	64	40	42	71	31	45	47	30	(P) 37
Personal	N	726	808	492	472	488	413	432	432	383	386	376	407	444	369	415	369	361	(P) 332
Aerial application	N	41	32	17	17	15	10	17	6	14	19	14	14	6	10	14	8	7	(P) 7
Other	N	174	134	95	138	112	119	106	112	105	87	73	77	84	95	72	234	73	(P) 89
Accidents, total	4,793	4,712	3,590	2,242	2,021	2,055	1,908	1,840	1,902	1,905	1,837	1,727	1,715	1,741	1,617	1,670	1,523	1,652	1,566
Fatal	429	641	618	444	404	412	361	350	364	340	345	325	345	352	314	321	308	288	275
Accident rate (per 100,000 flight hours)[i,j]	36.5	18.1	9.9	7.3	8.4	7.7	7.1	6.6	6.8	6.1	6.1	6.4	6.3	6.4	5.7	6.2	5.5	5.9	6.0
Fatal	3.3	2.5	1.7	1.4	1.7	1.5	1.3	1.3	1.3	1.1	1.2	1.2	1.3	1.3	1.1	1.2	1.1	1.0	1.1

KEY: N = data do not exist; P = preliminary; U = data are unavailable.

[a] In 1960, 1970, 1980, classified as *Industrial*.
[b] Includes *Air tours* done under 14 CFR 135: *Air taxi* operators and commercial operators.
[c] Includes *Sightseeing* done under 14 CFR 91: general operating and flight rules.
[d] The significant decrease in *Other* for 1990 and later can be attributed to a redefinition of the category to only include aerial other, general aviation other, and medical use.
[e] Federal, state or local government-owned or leased aircraft used for the purpose of fulfilling a government fuction.
[f] Beginning in 2000, *Public Use* was included in *Other Work*.
[g] Includes *air taxi* operations. Nautical miles in source multiplied by 1.151 to convert from nautical miles.
[h] The sum of *Fatalities* does not necessarily equal the total due to aircraft involved in midair and on-ground collisions.
[i] Suicide/sabotage cases are included in *Accidents* and *Fatalities* data but are excluded from *Accident rates*.
[j] *Accident rates* are calculated by the Bureau of Transportation Statistics (BTS) using the formula: Accident Rates (per 100,000 flight hours) = Accidents or Fatalities/Flight Hours (thousands)*100.

NOTES

Numbers may not add to totals due to changes in sub-categories reported by the source, due to estmation and due to rounding.

Total fatalities in this profile may not match those in table 2-14 due to when the total fatalities data were received and the data breakdown by type of flying. NTSB constantly updates and reclassifies accident and fatality data.

1994-95 data for active aircraft by use, and flight hours, have been revised to reflect changes in the adjustment for nonresponse bias based on factors from the 1996 telephone survey.

1996 fuel consumption data are estimated using new information on nonrespondents and are not comparable to earlier years.

SOURCES

Inventory:

Number of active aircraft by primary use, total:

U.S. Department of Transportation, Federal Aviation Administration,*General Aviation and Part 135 Activity Surveys* (Washington, DC: 1990-2008 issues), tables 1.1, 1.2 and 1.3, available at http://www.faa.gov/data_research/aviation_data_statistics/general_aviation/ as of Feb. 22, 2010.

Performance:

Number of flight hours by actual use, total:

Ibid., tables 1.4, 1.5 and 1.6 and similar tables in earlier editions.

Fuel consumed, total:

1960-1990: U.S. Department of Transportation, Federal Aviation Administration,*General Aviation and Air Taxi Acitivity and Avionics Survey* (Washington, DC: 1990-2000 issues), table 5.1.

1994-2008: Ibid., *Aviation Forecasts*, (Washington, DC: Annual issues), table 30 and similar tables in earlier editions, available at http://www.faa.gov/data_research/aviation/ as of June 24, 2010.

Safety:

Fatalities, total:

1960-1970: National Transportation Safety Board, RE-50, personal communication.

1980-2006: Ibid., *Annual Review of Aircraft Accident Data*, U.S. General Aviation, Calendar Year 1998 (Washington, DC: July 2000), charts 27, 39, 40, 41, 42 and 43, and personal communications on Sept. 10, 2002, Dec. 22, 2003, Apr. 30, 2004, Mar. 24, 2005, Nov. 7, 2006, and Oct. 30, 2007.

2007-2008: Ibid., *Aviation Accident Statistics*, table 10, available at http://www.ntsb.gov/aviation/stats.htm as of June 24, 2010, and personal communication on Mar. 04, 2010.

Accidents, total:

1960-80: National Transportation Safety Board, RE-50, personal communication.*Annual Review of Aircraft Accident Data*, U.S. General Aviation, Calendar Year 1998 (Washington, DC: July 2000), table 10, available at http://www.ntsb.gov/aviation/ as of July 22, 2004.

1990-2008: Ibid., *Aviation Accident Statistics*, table 10, available at http://www.ntsb.gov/aviation/stats.htm as of June 24, 2010.

Automobile Profile

FINANCIAL	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	(R) 2005	(R) 2006	2007
Personal auto expenditures, total [a] ($ millions)	39,886	73,390	209,563	377,492	442,346	462,166	494,691	519,828	529,047	573,429	628,952	631,527	622,369	646,756	695,320	772,607	828,900	863,036
New and used cars[a,1]	16,600	26,700	57,200	119,000	133,200	132,600	136,000	139,400	147,300	158,400	164,300	162,900	162,100	152,000	152,600	161,600	165,100	158,500
Tires, tubes, accessories, and parts [1]	2,500	6,100	17,900	29,900	36,000	37,800	40,300	41,900	43,900	47,000	49,000	49,100	50,300	52,000	54,400	57,900	59,800	62,800
Gasoline and oil[1]	12,000	21,900	86,700	111,200	116,200	120,200	130,400	134,400	122,400	137,900	175,700	171,600	164,500	192,700	230,400	280,700	318,600	340,600
Tolls[1]	300	700	1,100	2,300	3,400	3,700	4,000	4,400	4,400	4,800	5,100	5,100	5,300	5,500	5,700	6,500	6,900	7,400
Insurance premiums less claims paid [1]	2,000	3,800	9,400	23,500	32,800	34,500	36,700	37,800	40,400	43,200	43,000	44,600	45,800	49,200	53,700	57,800	60,100	59,400
Repair, greasing, washing, parking, storage, rental, and leasing [1]	5,500	12,300	34,000	84,900	112,500	125,500	138,700	152,900	161,100	172,600	183,500	189,100	186,000	186,800	189,500	198,400	208,400	224,200
Auto registration fees[2]	867	1,668	2,893	6,054	7,423	7,043	7,698	8,163	8,630	8,625	7,607	8,278	7,415	7,478	7,826	8,484	8,774	8,916
Driver's license fees[2]	119	222	370	638	823	823	893	865	917	904	745	849	954	1,078	1,194	1,223	1,226	1,220
Taxi expenditures ($ millions) [1]	600	1,200	1,900	2,600	2,800	3,000	3,200	3,300	3,500	3,300	3,100	3,200	3,300	3,500	3,600	3,900	4,200	4,500
INVENTORY																		
Number of vehicle registrations																		
Passenger car[3]	61,671,390	89,243,557	121,600,843	133,700,496	127,883,469	128,386,775	129,728,341	129,748,704	131,838,538	132,432,044	133,621,420	137,633,467	135,920,677	135,669,897	136,430,651	136,568,083	135,399,945	135,932,930
Other 2-axle 4-tire vehicle[3]	e	14,210,591	27,875,934	48,274,555	62,903,589	65,738,322	68,933,798	70,224,082	71,330,205	75,356,376	79,084,979	84,187,636	85,011,305	87,186,663	91,845,327	95,336,839	99,124,775	101,469,615
Motorcycle[4]	574,032	2,824,098	5,693,940	4,259,462	3,756,555	3,897,191	3,871,237	3,826,373	3,879,450	4,152,433	4,346,068	4,903,056	5,004,156	5,370,035	5,767,934	6,227,146	6,686,147	7,138,476
Motor vehicle licensed drivers[5]	87,252,563	111,542,787	145,295,036	167,015,250	175,403,465	176,628,482	179,539,340	182,709,204	184,860,969	187,170,420	190,625,023	191,275,719	194,295,633	196,165,667	198,888,912	200,665,267	202,810,438	205,741,845
Number of employees[6] (based on SIC)																		
Taxicabs	120,700	106,400	52,500	32,400	30,800	30,700	30,500	30,600	31,200	31,600	31,900	31,800	30,800	N	N	N	N	N
Automotive dealers and service stations	1,267,200	1,617,400	1,688,500	2,063,100	2,116,200	2,189,600	2,266,700	2,310,800	2,332,300	2,368,100	2,409,600	2,424,800	2,432,200	N	N	N	N	N
Motor vehicles, parts, and supplies	N	N	434,300	456,000	471,400	492,100	502,800	513,000	516,600	523,700	516,800	502,100	498,000	N	N	N	N	N
Auto repair, services, and parking	N	N	570,900	913,700	968,300	1,020,100	1,080,000	1,119,600	1,145,200	1,196,400	1,234,200	1,257,200	1,263,200	N	N	N	N	N
Number of employees[7] (based on NAICS)																		
Taxi service[h]	N	N	N	33,600	31,600	31,600	31,400	31,600	32,300	32,700	33,100	33,100	31,800	31,400	30,600	30,300	30,600	U
Wholesale motor vehicles and parts	N	N	N	309,400	319,900	334,600	342,500	350,200	353,600	359,500	355,700	347,300	345,600	342,100	340,700	344,200	349,200	342,010
Retail motor vehicle and parts dealers	N	N	N	1,494,400	1,564,700	1,627,100	1,685,600	1,723,400	1,740,900	1,796,600	1,846,900	1,854,600	1,879,400	1,882,900	1,902,300	1,918,600	1,907,900	1,887,020
Gasoline stations	N	N	N	910,200	902,300	922,300	946,400	956,200	961,300	943,500	935,700	925,300	895,900	882,000	875,600	871,100	861,000	855,480
Parking lots and garages[h]	N	N	N	67,600	71,100	74,800	78,400	81,800	84,700	88,900	92,800	95,500	95,900	99,600	101,800	103,400	104,800	U
Automotive repair and maintenance	N	N	N	659,400	701,300	737,900	781,400	810,500	828,300	864,200	888,100	903,900	899,600	894,200	890,600	886,100	887,400	871,800
PERFORMANCE																		
Vehicle-miles, total (millions)	587,012	1,042,965	1,412,745	1,992,392	2,276,275	2,238,120	2,294,701	2,363,376	2,428,135	2,480,706	2,533,815	2,581,178	2,634,060	2,665,750	2,737,177	2,759,927	2,785,074	2,795,883
Passenger car, total[a, 8]	(c) 587,012	(c) 919,679	(c) 1,121,810	(c) 1,417,822	1,501,402	1,438,294	1,468,854	1,502,556	1,549,577	1,569,100	1,600,287	1,628,332	1,658,474	1,672,079	1,699,890	1,708,421	1,690,534	1,670,994
Rural highway, total	(c) 313,623	(c) 424,088	(c) 450,659	(c) 547,910	526,763	523,834	535,951	551,080	574,979	584,765	593,391	604,677	608,939	580,060	564,509	543,179	537,608	529,790
Rural interstate	N	(c) 62,342	(c) 89,488	(c) 117,519	119,535	114,933	119,268	120,045	127,335	130,856	134,466	135,966	138,819	132,101	129,415	122,789	123,847	122,183
Rural other arterial	(c) 233,452	(c) 182,213	(c) 180,857	(c) 211,066	212,418	210,553	216,074	220,180	228,847	231,117	234,743	236,337	238,009	225,437	217,495	210,331	207,029	204,123
Other rural roads	(c) 80,171	(c) 179,533	(c) 180,314	(c) 219,325	194,810	198,348	200,609	210,855	218,797	222,792	224,182	232,374	232,111	222,522	217,599	210,059	206,732	203,484
Urban highway, total[b]	(c) 273,389	(c) 495,591	(c) 671,151	(c) 869,912	974,639	914,460	932,903	951,476	974,598	984,335	1,006,896	1,023,655	1,049,535	1,092,021	1,135,381	1,165,242	1,152,927	1,141,203
Urban interstate	N	(c) 69,369	(c) 124,480	(c) 184,783	217,174	204,035	210,302	214,016	220,487	224,132	230,510	236,983	243,521	251,904	258,666	266,834	267,106	267,558
Other urban	N	(c) 426,222	(c) 546,671	(c) 685,129	757,465	710,425	722,601	737,460	754,111	760,203	776,386	786,672	806,014	840,117	876,715	898,408	885,821	873,645
Other 2-axle 4-tire vehicle, total[9]	e	123,286	290,935	574,570	764,633	790,029	815,935	850,739	868,275	901,022	923,059	943,207	966,034	984,094	1,027,164	1,041,052	1,082,491	1,111,278
Rural highway, total	e	73,591	149,560	227,831	285,325	295,472	306,891	327,316	334,806	351,658	360,355	374,736	384,185	372,891	374,515	361,562	373,037	376,627
Rural interstate	e	6,766	19,952	46,298	60,849	63,329	65,779	69,030	72,343	76,190	79,088	82,356	85,132	82,513	83,181	80,173	81,548	82,030
Rural other arterial	e	29,808	56,137	87,474	113,595	118,305	122,211	129,890	132,043	138,475	141,257	146,525	150,758	148,100	148,802	143,976	145,716	145,985
Other rural roads	e	37,017	73,471	94,059	110,881	113,838	118,901	128,396	130,420	136,993	140,010	145,855	148,295	142,278	142,532	137,413	145,773	148,612
Urban highway, total[b]	e	49,695	141,375	346,739	479,308	494,557	509,044	523,423	533,469	549,364	562,704	568,471	581,849	611,203	652,649	679,490	709,454	734,651
Urban interstate	e	6,252	23,067	71,500	105,317	109,807	112,908	116,680	121,700	124,399	128,291	127,989	130,174	142,472	155,714	160,470	166,660	170,669
Other urban	e	43,443	118,308	275,239	373,991	384,750	396,136	406,743	411,769	424,965	434,413	440,482	451,675	468,731	496,935	519,020	542,794	563,982
Motorcycle, total[a, 8]	f	f	f	f	10,240	9,797	9,912	10,081	10,283	10,584	10,469	9,639	9,552	9,577	10,123	10,454	12,049	13,611
Rural highway, total	f	f	f	f	4,402	4,098	4,069	4,147	4,279	4,448	4,507	4,383	4,445	4,289	4,382	4,335	4,635	5,546
Rural interstate	f	f	f	f	1,279	1,058	1,056	1,050	1,112	1,100	1,164	1,121	1,212	1,279	1,354	1,356	1,367	1,420
Rural other arterial	f	f	f	f	1,698	1,510	1,500	1,552	1,588	1,662	1,680	1,649	1,623	1,472	1,435	1,413	1,602	2,306
Other rural roads	f	f	f	f	1,425	1,530	1,513	1,545	1,579	1,686	1,663	1,613	1,610	1,538	1,593	1,566	1,666	1,820
Urban highway, total[b]	f	f	f	f	5,838	5,699	5,843	5,934	6,004	6,136	5,962	5,256	5,107	5,288	5,741	6,119	7,414	8,065
Urban interstate	f	f	f	f	1,420	1,454	1,516	1,509	1,579	1,690	1,692	1,546	1,670	1,962	2,089	2,270	2,379	2,631
Other urban	f	f	f	f	4,418	4,245	4,327	4,425	4,425	4,446	4,270	3,710	3,437	3,326	3,652	3,849	5,035	5,434
Passenger-miles, total (millions)[3]	1,145,000	1,979,787	2,545,020	3,037,244	3,623,364	3,553,810	3,643,719	3,752,829	3,855,696	3,939,137	4,023,637	4,247,094	4,307,312	4,360,151	4,479,453	(R) 4,517,430	4,562,368	4,584,054
Passenger cars	(a,c) 1,145,000	(a.c) 1,754,174	(a,c) 2,024,246	(c) 2,140,913	(c) 2,600,050	2,286,887	2,335,478	2,389,065	2,463,828	2,494,870	2,544,457	2,556,481	2,620,389	2,641,885	2,685,827	2,699,305	2,658,621	2,640,170
Other 2-axle 4-tire vehicle	e	225,613	520,774	896,331	1,012,050	1,256,146	1,297,337	1,352,675	1,380,557	1,432,625	1,467,664	1,678,853	1,674,792	1,706,103	1,780,771	1,804,848	1,887,997	1,926,597
Motorcycle	f	f	f	f	11,264	10,777	10,904	11,089	11,311	11,642	11,516	11,760	12,131	12,163	12,855	13,277	15,750	17,287
Average miles traveled per vehicle[3]																		
Passenger car	(c) 9,518	(c) 9,989	(c) 8,813	(c) 10,277	(c) 10,759	11,203	11,323	11,581	11,754	11,848	11,976	11,831	12,202	12,325	12,460	12,510	12,427	12,293
Other 2-axle 4-tire vehicle	e	8,676	10,437	11,902	12,156	12,018	11,837	12,115	12,173	11,957	11,672	11,204	11,364	11,287	11,184	10,920	10,986	10,952
Motorcycle	f	f	f	f	2,726	2,514	2,561	2,635	2,651	2,549	2,409	1,966	1,909	1,783	1,755	1,679	1,855	1,907
Fuel consumed (million gallons)[3]																		
Passenger cars	(c) 41,171	(c) 67,879	(c) 70,186	(c) 69,759	(c) 68,079	68,072	68,897	69,892	71,695	73,283	73,065	73,559	75,471	75,455	75,402	77,418	75,009	74,355
Other 2-axle 4-tire vehicle	e	12,313	23,796	35,611	44,112	45,605	47,133	49,388	50,462	52,859	52,939	53,522	55,220	60,758	63,417	58,869	60,685	61,816
Motorcycle	f	f	f	f	205	196	198	202	206	212	209	193	191	192	202	189	221	242
Average fuel consumption per vehicle (gallons)[3]																		
Passenger cars	(c) 668	(c) 737	(c) 551	(c) 506	(c) 517	530	531	539	544	553	547	534	555	556	553	567	554	547
Other 2-axle 4-tire vehicle	e	866	854	738	701	694	684	703	707	701	669	636	650	697	690	617	612	609
Motorcycle	f	f	f	f	55	50	51	53	53	51	48	39	38	36	35	30	33	34
Average miles traveled per gallon of fuel consumed[3]																		
Passenger cars	(c) 14	(c) 14	(c) 16.0	(c) 20.3	(c) 21	21.1	21.3	21.5	21.6	21.4	21.9	22.1	22.0	22.2	22.5	22.1	22.4	22.5
Other 2-axle 4-tire vehicle	e	10.0	12.2	16.1	17.3	17.3	17.3	17.2	17.2	17.0	17.4	17.6	17.5	16.2	16.2	17.7	18.0	18.0

Motorcycle	f	f	f	f	50	50	50	50	50	50	50	50	50	50	50	55.2	56.1	56.2
SAFETY[10]																		
Number of occupants and nonoccupant fatalities																		
Passenger car	N	N	27,449	24,092	21,997	22,423	22,505	22,199	21,194	20,862	20,699	20,320	20,569	19,725	19,192	18,512	17,925	16,520
Light Truck	N	N	(R) 1,262	(R) 705	(R) 670	(R) 648	(R) 621	(R) 723	(R) 742	(R) 759	(R) 754	(R) 708	(R) 689	(R) 726	(R) 766	(R) 804	805	802
Motorcycle	790	2,280	5,144	3,244	2,320	2,227	2,161	2,116	2,294	2,483	2,897	3,197	3,270	3,714	4,028	4,576	4,837	5,154
Bicycle[d]	490	760	965	859	802	833	765	814	760	754	693	732	665	629	727	786	772	698
Pedestrian[d]	7,210	8,950	8,070	6,482	5,489	5,584	5,449	5,321	5,228	4,939	4,763	4,901	4,851	4,774	4,675	4,892	4,795	4,654
Occupant fatality rates																		
Per 100 million vehicle-miles[g]																		
Passenger car	4.7	3.8	(R) 2.5	1.7	1.5	1.5	1.5	1.5	(R) 1.5	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.1	1.0
Light Truck	N	N	2.5	1.6	1.3	1.3	1.3	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1
Motorcycle	N	76.5	50.4	33.9	22.7	22.7	21.8	21.0	22.3	23.5	27.7	33.2	34.2	38.8	39.8	43.8	40.1	37.9
Per 10,000 registered vehicles[g]																		
Passenger car	5.1	3.9	2.6	2.0	1.8	1.8	1.8	1.8	(R) 1.8	1.6	1.6	1.6	1.6	1.5	1.4	1.4	1.3	1.2
Light Truck	N	N	2.5	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.3	1.2
Motorcycle	13.8	8.1	9.0	7.6	6.2	5.7	5.6	5.5	5.9	6.0	6.7	6.5	6.5	6.9	7.0	7.3	7.2	7.2
Fatal Crashes																		
Total Fatal Crashes	U	U	U	39,836	36,254	37,241	37,494	37,324	37,107	37,140	37,526	37,862	38,491	38,477	38,444	39,252	38,648	37,248
Number of vehicles involved in fatal crashes																		
Passenger car	U	U	39,059	34,085	30,273	30,940	30,727	30,059	29,040	28,027	27,802	27,586	27,374	26,562	25,682	25,169	24,260	22,716
Light Truck	U	U	12,680	15,620	16,353	17,587	18,246	18,628	19,363	19,959	20,498	20,831	21,668	22,299	22,486	22,964	22,411	21,686
Motorcycles	U	U	5,194	3,276	2,339	2,268	2,176	2,160	2,334	2,532	2,975	3,265	3,365	3,802	4,121	4,682	4,963	5,286
Vehicle involvement rate (fatal crashes)																		
Per 100 million vehicle-miles[g]																		
Passenger car	N	5.6	3.5	2.4	2.1	2.1	2.1	2.0	1.9	1.8	1.8	1.7	1.7	1.7	1.6	1.6	1.5	1.4
Light Truck	N	N	4.3	2.8	2.3	2.4	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.0	1.9	1.8
Motorcycle	N	22.9	50.9	34.3	22.8	23.2	21.9	21.4	22.7	23.9	28.4	33.9	35.2	39.7	40.7	44.8	41.2	38.8
Per 10,000 registered vehicles[g]																		
Passenger car	N	5.6	3.7	2.8	2.5	2.5	2.5	2.4	2.3	2.2	2.2	2.1	2.1	2.0	1.9	(R) 1.9	1.8	1.6
Light Truck	N	N	4.2	3.1	2.7	2.8	2.8	2.8	2.8	2.7	2.7	2.6	2.6	2.6	2.5	2.4	2.3	2.1
Motorcycle	N	8.2	9.1	7.7	6.2	5.8	5.6	5.6	6.0	6.1	6.8	6.7	6.7	7.1	7.1	7.5	7.4	7.4

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

NOTES

[a] Figures obtained by addition / subtraction and may not appear directly in data source.
[b] Urban consists of travel on all roads and streets in urban places of 5,000 or greater population.
[c] Includes motorcycle data.
[d] Involvement only with motor vehicle.
[e] Included in single-unit 2-axle 6-tire or more truck category.
[f] Included in passenger cars.

[g] Rates come directly from the source and may differ slightly from rates that could be calculated from the information displayed in this table.

[h] 2007 data are based on the May 2008 OES survey data, which uses 2007 NAICS codes. All other years are based on data that uses 2002 NAICS codes, which do not correspond to 2007 NAICS codes. Thus, no comparable data are available in these categories.

SOURCES

Unless otherwise noted, refer to chapter tables for sources.

[1] U.S. Department of Commerce, Bureau of Economic Analysis,*National Income and Product Accounts Tables,* table 2.5.5 available at http://www.bea.gov/national/nipaweb/Index.asp as of September 3, 2009.

[2] 1960-95: U.S. Department of Transportation, Federal Highway Administration (FHWA),*Highway Statistics Summary to 1995,* FHWA-97-009 (Washington, DC: July 1997), table MV-202.

1996-2007: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table MV-2 (revised tables used when applicable).

[3] 1960-94: Ibid., *Highway Statistics Summary to 1995* , FHWA-97-009 (Washington, DC: July 1997), table VM–201A, table revised in June 1999.

1995-2007: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1 (revised tables used when applicable).

[4] 1960-94: Ibid., *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table MV-201.

1995-2007: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table MV-1 (revised tables used when applicable).

[5] 1960-95: Ibid., *Highway Statistics Summary to 1995,* FHWA-PI-97-009 (Washington, DC: July 1997), table DL-201.

1996-2007: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table DL-22 (revised tables used when applicable).

[6] 1960-2002: U.S. Department of Labor, Bureau of Labor Statistics,*BLS Database,* Internet site http://www.bls.gov/data/sa.htm as of April 2004; codes “414120 Taxicabs,” “605500 Automotive Dealers and Service Stations,” “525010 Motor Vehicle Parts, and Supplies” and “807500 Auto Repair, Services, and Parking."

[7] 1990-2007: U.S. Department of Labor, Bureau of Labor Statistics, BLS Database, Internet site http://www.bls.gov/data/sa.htm as of January 2007; codes "48531 Taxi service," "4231 Wholesale motor vehicles and parts," "441 Retail motor vehicle and parts dealers," "447 Gasoline stations," "81293 Parking lots and garages," "8111 Automotive repair and maintenance."

[8] 1960-90: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201.

1994-2007: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1 (revised tables used when applicable).

[9] 1970-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995* , FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201.

1995-2007: Ibid., *Highway Statistics* (Washington, DC: Annual Issues), table VM-1 (revised tables used when applicable).

[10] U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA),*Traffic Safety Facts* (Washington, DC: Annual Issues), tables 1,3, 4, 7, 8, and 10 in *Traffic Safety Facts 2007* and similar tables in previous issues.

Truck Profile

FINANCIAL	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Operating revenues, total[a] (based on SIC) ($ millions)	U	U	U	127,314	155,713	161,806	172,743	183,153	197,490	U	U	U	U	U	U	U	U	U
Local trucking	U	U	U	31,397	40,903	43,830	46,589	49,972	55,553	U	U	U	U	U	U	U	U	U
Trucking, except local	U	U	U	74,465	89,369	91,675	97,586	103,847	109,351	U	U	U	U	U	U	U	U	U
Local trucking with storage	U	U	U	4,115	4,757	5,154	5,502	5,860	6,144	U	U	U	U	U	U	U	U	U
Courier services, except by air	U	U	U	17,337	20,684	21,147	23,066	23,474	26,442	U	U	U	U	U	U	U	U	U
Operating expenses, total[a] (based on SIC) ($ millions)	U	U	U	118,968	145,216	151,628	162,825	170,998	179,907	U	U	U	U	U	U	U	U	U
Local trucking	U	U	U	28,049	36,455	38,695	41,325	43,871	47,478	U	U	U	U	U	U	U	U	U
Trucking, except local	U	U	U	70,965	84,682	88,061	94,390	98,570	101,584	U	U	U	U	U	U	U	U	U
Local trucking with storage	U	U	U	3,885	4,543	4,817	5,121	5,439	5,638	U	U	U	U	U	U	U	U	U
Courier services, except by air	U	U	U	16,069	19,536	20,055	21,989	23,118	25,207	U	U	U	U	U	U	U	U	U
Operating revenues, total[b] (based on NAICS) ($ millions)	U	U	U	U	U	U	U	U	197,314	207,751	223,197	221,355	222,383	228,311	248,191	273,420	293,498	303,611
Truck transportation	U	U	U	U	U	U	U	U	148,121	155,871	165,421	162,871	164,218	168,486	185,945	206,512	221,871	228,907
Couriers and messengers	U	U	U	U	U	U	U	U	49,193	51,880	57,776	58,484	58,165	59,825	62,246	66,908	71,627	74,704
Truck highway-user taxes, total ($ millions)	2,830	5,632	9,888	19,356	23,836	25,117	U	28,010	28,697	30,502	31,769	30,689	30,216	31,266	32,780	35,178	37,351	38,010
State	1,709	3,429	6,731	12,691	13,157	13,844	U	15,750	15,611	16,266	16,476	17,686	16,566	14,312	17,923	18,632	19,573	20,188
Federal	1,121	2,203	3,157	6,665	10,679	11,273	U	12,260	13,086	14,236	15,293	13,003	13,650	16,954	14,857	16,546	17,778	17,822
INVENTORY																		
Number of truck registrations, total	11,914,249	4,586,487	5,790,653	6,195,876	6,587,885	6,719,421	7,012,615	7,083,326	7,732,270	7,791,426	8,022,649	7,857,675	7,927,280	7,756,888	8,171,363	8,481,999	8,819,007	9,027,624
Single-unit truck	U	3,681,405	4,373,784	4,486,981	4,906,385	5,023,670	5,266,029	5,293,358	5,734,925	5,762,864	5,926,030	5,703,501	5,650,619	5,848,523	6,161,028	6,395,240	6,649,337	6,806,630
Combination truck	U	905,082	1,416,869	1,708,895	1,681,500	1,695,751	1,746,586	1,789,968	1,997,345	2,028,562	2,096,619	2,154,174	2,276,661	1,908,365	2,010,335	2,086,759	2,169,670	2,220,995
Number of employees																		
Trucking and courier services, except air (based on SIC)	U	998,500	1,182,000	1,273,900	1,384,200	1,440,000	1,482,100	1,514,200	1,568,800	1,613,700	1,630,500	1,619,800	1,590,000	U	U	U	U	U
Truck transportation (based on NAICS)	U	U	U	1,122,400	1,206,200	1,249,100	1,282,400	1,308,200	1,354,400	1,391,500	1,405,800	1,386,800	1,339,300	1,325,600	1,351,700	1,397,600	1,435,800	1,439,200
Couriers and messengers (based on NAICS)	U	U	U	375,000	466,200	516,800	539,900	546,000	568,200	585,900	605,000	587,000	560,900	561,700	556,600	571,400	582,400	580,700
Truck drivers and sales workers[c] (based on NAICS)	U	U	U	U	U	U	U	U	U	U	U	U	2,867,530	2,869,770	2,899,010	2,963,550	3,012,220	2,998,850
Number of trucking and courier establishments[a]	U	64,756	69,796	90,709	108,971	112,887	116,861	121,111	119,572	120,687	122,713	122,669	124,481	125,744	128,121	131,086	134,053	135,264
PERFORMANCE																		
Vehicle-miles,total rural and urban (millions)	127,404	62,215	108,491	146,242	170,216	178,156	182,971	191,477	196,380	202,688	205,520	209,032	214,603	217,917	220,811	222,524	222,513	226,963
Rural highway, total	84,508	39,244	68,776	89,692	100,865	106,031	109,480	114,698	115,142	117,941	120,410	122,736	125,884	123,689	121,330	119,684	118,346	119,617
Rural interstate	U	10,069	25,111	35,789	40,034	43,351	45,721	49,336	49,896	51,049	52,484	53,225	54,503	52,925	51,296	51,378	50,204	49,819
Rural other arterial	U	17,625	24,789	31,331	35,040	37,056	37,875	39,193	39,724	40,691	41,649	41,838	42,436	41,342	40,690	39,762	39,277	40,037
Other rural roads	U	11,550	18,876	22,572	25,791	25,624	25,884	26,169	25,522	26,201	26,277	27,673	28,945	29,422	29,344	28,544	28,865	29,761
Urban highway, total[d]	42,896	22,971	39,715	56,550	69,351	72,125	73,491	76,779	81,238	84,747	85,110	86,296	88,719	94,227	99,481	102,840	104,167	107,346
Urban interstate	U	5,634	13,135	22,163	25,045	25,639	26,256	28,549	30,193	32,286	32,181	32,690	33,040	35,487	38,083	40,289	40,118	41,405
Other urban streets	U	17,337	26,580	34,387	44,306	46,486	47,235	48,230	51,045	52,461	52,929	53,606	55,679	58,740	61,398	62,551	64,049	65,941
Passenger-miles, total[e](millions)	127,405	62,215	108,491	146,242	170,216	178,156	182,971	191,477	196,380	202,688	205,520	209,032	214,603	217,917	220,811	222,524	222,513	226,963
Single-unit truck[f]	98,551	27,081	39,813	51,901	61,284	62,705	64,072	66,893	68,021	70,304	70,500	72,448	75,866	77,757	78,441	78,496	80,344	81,954
Combination truck	28,854	35,134	68,678	94,341	108,932	115,451	118,899	124,584	128,359	132,384	135,020	136,584	138,737	140,160	142,370	144,028	142,169	145,008
Ton-miles (millions)	U	U	629,675	848,779	987,923	1,034,041	1,061,952	1,110,554	1,139,777	1,176,388	1,192,825	1,213,208	1,245,542	1,264,773	1,281,573	1,291,515	1,294,492	U
Fuel consumed, all trucks (million gallons)	15,882	11,316	19,960	24,490	27,685	28,993	29,601	29,878	31,975	33,909	35,229	35,179	36,800	32,696	33,150	37,190	37,959	38,550
Single-unit truck	U	3,968	6,923	8,357	9,032	9,216	9,409	9,576	6,817	9,372	9,563	9,667	10,321	8,880	8,959	9,501	9,852	10,035
Combination truck	U	7,348	13,037	16,133	18,653	19,777	20,192	20,302	25,158	24,537	25,666	25,512	26,480	23,815	24,191	27,689	28,107	28,515
Average fuel consumption per vehicle, all trucks (gallons)	1,333	2,467	3,447	3,953	4,202	4,315	4,221	4,218	4,135	4,352	4,391	4,477	4,642	4,215	4,057	4,385	4,304	4,270
Single-unit truck	U	1,078	1,583	1,862	1,841	1,835	1,787	1,809	1,189	1,626	1,614	1,695	1,826	1,518	1,454	1,486	1,482	1,474
Combination truck	U	8,119	9,201	9,441	11,093	11,663	11,561	11,342	12,596	12,096	12,241	11,843	11,631	12,479	12,033	13,269	12,954	12,839
Average miles traveled per gallon of fuel consumed, all trucks	8.0	5.5	5.4	6.0	6.1	6.1	6.2	6.4	6.1	6.0	5.8	5.9	5.8	6.7	6.7	6.0	5.9	5.9
Single-unit truck	U	6.8	5.8	6.2	6.8	6.8	6.8	7.0	10.0	7.5	7.4	7.5	7.4	8.8	8.8	8.3	8.2	8.2
Combination truck	U	4.8	5.3	5.8	5.8	5.8	5.9	6.1	5.1	5.4	5.3	5.4	5.2	5.9	5.9	5.2	5.1	5.1
Average miles traveled per vehicle, all trucks	10,693	13,565	18,736	23,603	25,838	26,514	26,092	27,032	25,397	26,014	25,617	26,602	27,071	28,093	27,023	26,235	25,231	25,141
Single-unit truck	U	7,356	9,103	11,567	12,491	12,482	12,167	12,637	11,861	12,199	11,897	12,702	13,426	13,295	12,732	12,274	12,083	12,040
Combination truck	U	38,819	48,472	55,206	64,783	68,083	68,075	69,601	64,265	65,260	64,399	63,404	60,939	73,445	70,819	69,020	65,526	65,290
SAFETY																		
Occupant fatalities, large truck	U	U	1,262	705	670	648	621	723	742	759	754	708	689	726	766	804	805	802
Occupant fatality rate																		
Per 100 million vehicle-miles, large truck	U	U	1.2	0.5	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4
Per 10,000 registered vehicles, large truck	U	U	2.2	1.1	1.0	1.0	0.9	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Vehicle involvement rate (fatal crashes)																		
Per 100 million vehicle-miles, large truck	U	U	5.0	3.3	2.7	2.5	2.6	2.6	2.5	2.4	2.4	2.3	2.1	2.2	2.2	2.2	2.1	2.0
Per 10,000 registered vehicles, large truck	U	U	9.3	7.7	7.0	6.7	6.8	6.9	6.4	6.3	6.2	6.1	5.8	6.1	6.0	5.8	5.4	5.1

KEY: R = revised; U = data are unavailable

[a] **Local trucking (SIC 4212)** - Establishments primarily engaged in furnishing trucking or transfer services without storage for freight generally weighing mor than 100 pounds.

Trucking, except local (SIC 4213) - Establishments primarily engaged in furnishing "over-the-road" trucking services or trucking services and storag services, including household goods either as common carriers or under special or individual contracts or agreements, for freight generally weighing more than 100 pounds.

Local trucking, with storage (SIC 4214) - Establishments primarily engaged in furnishing both trucking and storage services, including household goods.

Courier services, except by air (SIC 4215) - Establishments primarily engaged in the delivery of individually addressed letters, parcels, and package (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 o primarily engaged in furnishing local messenger and delivery services of small items within a single metropolitan area or urban center.

[c] In 1999, the Occupational Employment Statistics survey began using the Standard Occupational Classification (SOC) system to organize occupational data Therefore, estimates from 1999 and subsequent years are not directly comparable to previous occupational data.

[d] Urban consists of travel on all roads and streets in urban places of 5,000 or greater populatior

[e] As cited on the Federal Highway Administration (FHWA), highway passenger-miles are calculated by multiplying vehicle-miles of travel and the averag number of occupants for each vehicle type.

[f] Includes other 2-axle 4-tire vehicle in 1960

NOTES

In 1995, FHWA revised its vehicle type categories. These new categories include passenger car, other 2-axle 4-tire vehicle, single-unit 2-axle 6-tire or more truck, and combination truck. Other 2-axle 4-tire vehicles include vans, pickup trucks, and sport/utility vehicles. In previous years, some minivans and sport/utility vehicles were included in the passenger car category. Single-unit 2-axle 6-tire or more trucks are on a single frame with at least 2 axles and 6 tires. Occupant fatality rates (OFR) for Light Trucks have been removed, but can be found in the Automobile Profile. The remaining fatality rates are calculated by NHTSA and may be different from what would be calculated from the data presented.

Component values may not add to totals due to independent rounding

SOURCES

Unless otherwise noted, refer to chapter tables for sources.

Operating revenues, total and Operating expenses, total (based on SIC):

U.S. Census Bureau, *Transportation Annual Survey* (Washington, DC: December 1998), table 1.

Operating revenues, total (based on NAICS):

U.S. Census Bureau, *Service Annual Survey* (Washington, DC: Annual Issues), table 2.1 and similar tables in earlier editions, available at http://www.census.gov/services/index.html as of July 08, 2009.

Truck highway-user taxes:

1960-1999: American Trucking Association, *American Trucking Trends*, (Washington, DC: Annual issues).

2000-2006: American Trucking Association, *American Trucking Trends,* unpublished data, personal communication, June 30, 2008.

Number of truck registrations:

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

1995-2007: Ibid., Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of July 08, 2009 .

Number of employees: Trucking and courier services, except air (based on SIC):

1960-90: U.S. Department of Labor, Bureau of Labor Statistics, *Employment, Hours and Earnings*, United States, 1909-1994 (Washington, DC: September 1994), SIC 421.

1994-2007: Ibid., *Employment, Hours and Earnings,* available at www.bls.gov as of July 13, 2009, SIC 421.

Number of employees: Truck transportation (based on NAICS) and Couriers and messengers (based on NAICS):

1990-2007: U.S. Department of Labor, Bureau of Labor Statistics, *Database and Tables*, available at http://www.bls.gov/data/ as of July 10, 2009; NAICS codes "484 Truck transportation" and "492 Couriers and messengers."

Number of employees: Truck drivers and sales workers (based on NAICS):

2002-07: U.S. Department of Labor, Bureau of Labor Statistics, Occupational Employment Statistics, *Occupational Employment and Wage estimates,* (Washington, DC: Annual Issues), available at http://www.bls.gov/oes/2008/may/oes_dl.htm#Time as of July 10, 2009.

Number of trucking and courier establishments:

U.S. Bureau of the Census, *County Business Patterns* (Washington, DC: Annual Issues), NAICS 484 and 492/SIC 421, available at http://censtats.census.gov/cbpnaic/cbpnaic.shtml as of September 28, 2009.

Vehicle-miles, total rural and urban:

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

1995-2007: Ibid. Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of July 10, 2009.

Ton-miles:

1980-2007: U.S. Department of Transportation, Bureau of Transportation Statistics, special tabulation, as of July 13, 2009.

Fuel consumed, Average fuel consumption per vehicle, Average miles traveled per gallon of fuel consumed, and Average miles traveled per vehicle:

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

1995-2007: Ibid., Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm as of July 10, 2009.

Safety:

U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2007*, DOT HS 811 002 (Washington, DC: Annual Issues), tables 3 and 9, July 13, 2009.

Bus Profile

FINANCIAL	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Operating revenues ($ thousands)																			
Intercity bus, Class I[a,a]	463,100	721,700	1,397,378	943,268	1,161,479	1,189,235	985,537	1,080,083	1,074,582	1,326,909	1,133,822	1,117,526	1,120,422	1,345,056	U	U	U	U	U
Operating expenses ($ thousands)																			
Intercity bus, Class I[a,a]	405,400	639,000	1,318,372	1,026,213	1,289,834	1,253,537	941,014	1,022,680	1,016,208	1,313,900	1,078,386	1,080,186	1,092,596	1,321,407	U	U	U	U	U
INVENTORY																			
Number of operating companies																			
Intercity bus, Class I[a,a]	143	71	61	31	26	24	20	22	20	18	15	15	16	36	U	U	U	U	U
Number of vehicles, all buses[2]	272,129	377,562	528,789	626,987	670,423	685,503	694,781	697,548	715,540	728,777	746,125	749,548	760,717	776,550	795,274	807,053	821,959	834,436	843,308
Number of employees[3] (SIC based)																			
Intercity and rural bus transportation	40,500	43,400	37,900	26,100	23,600	23,800	23,800	22,200	24,400	23,800	24,700	25,100	23,000	N	N	N	N	N	N
School buses	N	N	79,900	111,200	125,900	131,100	132,200	136,500	141,000	146,100	146,700	147,700	148,700	N	N	N	N	N	N
Number of employees[4] (NAICS based)																			
Interurban and rural bus transportation	38,200	40,900	35,800	24,600	22,300	22,500	22,500	21,000	23,000	22,500	23,400	23,600	22,800	21,900	20,100	20,200	19,600	U	U
School and employee bus transportation	N	N	81,400	114,200	130,000	135,500	136,900	141,500	146,200	151,400	152,000	153,000	161,100	164,800	166,600	168,800	172,300	176,600	182,100
Charter bus industry	N	N	14,800	26,100	28,300	29,200	31,000	32,000	33,900	36,100	38,200	36,800	35,500	33,200	32,200	31,400	31,200	32,300	33,100
PERFORMANCE																			
Vehicle-miles, all buses (millions)[5]	4,346	4,544	6,059	5,727	6,409	6,420	6,535	6,842	7,007	7,662	7,590	7,077	6,845	6,783	6,801	6,980	6,783	6,980	7,114
Rural highway, total	2,332	2,549	3,035	3,444	3,730	3,854	3,933	4,109	4,251	4,667	4,489	4,165	3,941	3,806	3,691	3,667	3,521	3,723	3,819
Interstate rural	N	339	533	567	683	711	742	794	834	971	978	951	943	995	999	946	950	986	1,027
Other arterial rural	N	944	991	995	1,154	1,171	1,186	1,243	1,282	1,375	1,270	1,133	1,104	1,001	992	973	959	1,015	1,020
Other rural	N	1,266	1,511	1,882	1,893	1,972	2,005	2,072	2,135	2,321	2,241	2,081	1,894	1,810	1,700	1,748	1,612	1,722	1,772
Urban highway[b], total	2,014	1,995	3,024	2,283	2,679	2,566	2,602	2,733	2,756	2,995	3,101	2,912	2,904	2,977	3,110	3,313	3,263	3,257	3,295
Interstate urban	N	277	560	455	627	580	599	647	663	752	791	775	803	943	986	1,062	1,024	1,052	1,077
Other urban	N	1,718	2,464	1,828	2,052	1,986	2,003	2,086	2,093	2,243	2,310	2,137	2,101	2,033	2,124	2,251	2,239	2,205	2,218
Passenger-miles (millions), all buses[5]	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	147,992	143,816	147,985	150,827
Number of revenue passengers (thousands)																			
Intercity bus, total[c,c]	366,000	401,000	370,000	334,000	343,200	366,500	347,900	350,600	357,600	358,900	364,600	356,900	585,600	547,500	534,000	U	U	U	U
Average miles traveled per vehicle, all buses[5]	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	8,649	8,253	8,365	8,436
Fuel consumed (million gallons), all buses[5]	827	820	1,018	895	964	968	985	1,027	1,040	1,148	1,112	1,026	1,000	968,945	1,360	1,120	1,148	1,145	1,110
Average fuel consumption per vehicle (gallons), all buses[5]	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	1,388	1,397	1,372	1,316
Average miles traveled per gallon of fuel consumed, all buses[5]	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	7.0	5.0	6.2	5.9	6.1	6.4
Average revenue per passenger-mile (cents) (intercity)[d,d]	U	U	U	9.31	(R) 9.61	(R) 9.36	(R) 9.57	(R) 9.44	(R) 9.31	(R) 8.96	(R) 9.41	(R) 9.54	9.72	10.43	11.12	U	U	U	U
SAFETY																			
Number of fatalities[7]																			
School bus-related	N	N	150	115	104	121	136	128	126	164	143	141	127	138	130	134	150	141	153
School bus occupants	N	N	9	11	3	13	10	10	6	10	20	18	3	11	7	10	8	5	19
Other vehicle																			
Occupants	N	N	88	64	64	71	101	95	90	126	98	95	98	99	90	87	119	112	105
Nonoccupants	N	N	53	40	37	37	25	23	30	28	26	28	26	28	33	37	23	24	29
Occupant fatalities, all buses[7]	N	N	46	32	21	32	21	17	36	58	22	34	45	40	41	58	27	37	67
School buses	N	N	14	13	2	12	10	7	4	8	16	16	2	7	7	8	6	3	14
Cross country buses	N	N	23	2	7	6	3	4	13	32	3	3	20	3	23	33	8	19	13
Transit buses	N	N	6	3	6	0	5	3	2	5	1	4	6	11	1	3	1	6	23
Other and unknown	N	N	3	14	6	14	3	3	17	13	2	11	17	19	17	14	12	9	17
Fatalities in vehicular accidents[4], all buses[8]	N	N	390	340	286	311	367	339	329	373	357	331	331	337	315	340	337	325	307
Occupant fatality rate																			
Per 100 million vehicle-miles, all buses[8,7]	N	N	0.8	0.6	0.3	0.5	0.3	0.2	0.5	0.8	0.3	0.5	0.7	0.6	0.6	0.8	0.4	0.5	0.9
Per 10,000 registered vehicles, all buses[2,7]	N	N	0.9	0.5	0.3	0.5	0.3	0.2	0.5	0.8	0.3	0.5	0.6	0.5	0.5	0.7	0.3	0.4	0.8
Vehicle involvement rate (fatal crashes)																			
Per 100 million vehicle-miles, all buses[8,8]	N	N	6.4	5.9	4.5	4.8	5.6	5.0	4.7	4.9	3.8	3.1	5.0	4.3	4.1	4.0	4.5	4.0	3.5
Per 10,000 registered vehicles, all buses[2,8]	N	N	7.4	5.4	4.3	4.5	5.3	4.9	4.6	5.2	3.9	2.9	4.5	3.7	3.5	3.5	3.7	3.4	2.9

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

[a] In 2003, the Federal Motor Carrier Safety Administration implemented a program to improve reporting by Class I intercity bus carriers. This accounts for the large increase in *Number of operating companies* between 2002 and 2003, and as a result the large increase in *Operating revenues* and *Operating expenses*. For all years, New Jersey Transit has been excluded from the totals because of its status as a publicly run carrier.

[b] Urban consists of travel on all roads and streets in urban places of 5,000 or greater population.

[c] *Number of revenue passengers* data for 1960 to 1980 are for both regular route and charter buses of all classes. 1990 to 2001 data are for regular route and charter Class I Carriers only. For 2002 to 2004, this category includes charter, tour, sightseeing, airport shuttle, contract and private commuters, and scheduled services.

[d] *Average revenue per passenger mile* data for 2002 to 2004 is Greyhound Lines passenger service revenue per passenger-mile.

[e] Includes all fatalities that occurred in an accident in which a bus was involved.

NOTES

See transit profile for transit bus data.

SOURCES

[1] 1960-95: Interstate Commerce Commission, *Annual Report of the ICC* (Washington, DC: Annual Issues), Appendix F, tables 1 and 6.
1996-2002: U.S. Department of Transportation, Bureau of Transportation Statistics, *Selected Earnings Data*, *Class I Motor Carriers of Passengers* (Washington, DC: Annual Issues).
2003: U.S. Department of Transportation, Federal Motor Carrier Safety Administration, personal communication, Feb. 16, 2005.

[2] U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table MV-10, available at http://www.fhwa.dot.gov/policyinformation/ as of July 13, 2010.

[3] 1960-2002: U.S. Department of Labor, Bureau of Labor Statistics, *Employment, Hours, and Earnings from the Current Employment Statistics Survey*, SIC codes: "413 Intercity and rural bus transportation" and "415 School buses," available at http://www.bls.gov/data/archived.htm as of January 2005.

[4] 1960-2008: U.S. Department of Labor, Bureau of Labor Statistics, *Employment, Hours, and Earnings from the Current Employment Statistics Survey* , NAICS codes: "4852 Interurban and rural bus transportation," "4854 School and employee bus transportation," and "4855 Charter bus industry," available at http://www.bls.gov/ces/data.htm as of July 13, 2010.

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[6] 2000-01: Eno Transportation Foundation, *Transportation in America, 20th Edition* (Washington, DC: 2007)

[7] U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts* (Washington, DC: Annual Issues), tables 75 and 95 and similar tables in previous issues, available at http://www-nrd.nhtsa.dot.gov/Cats/listpublications.aspx?Id=E&ShowBy=DocType as of July 13, 2010.

[8] U.S. Department of Transportation, Federal Motor Carrier Safety Administration, *Large Truck and Bus Crash Facts 2008*, table 25, available at http://www.fmcsa.dot.gov/facts-research/art-public-reports.aspx as of Feb. 19, 2010.

Transit Profile

FINANCIAL	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Passenger operating revenues[1], total ($ millions)	1,407	1,707	6,510	16,053	17,968	18,241	17,964	18,357	19,124	20,576	21,979	23,725	24,186	25,826	27,089	28,828	32,186	33,762	36,502	37,490
Operating revenues, total	1,407	1,707	2,805	6,786	7,398	8,069	9,790	10,265	10,658	11,304	11,789	12,082	11,906	13,124	13,468	13,927	16,427	15,391	16,124	16,483
Passenger fares, total	1,335	1,639	2,557	5,891	6,756	6,801	6,965	7,174	7,369	7,680	8,008	8,354	8,144	8,510	9,009	9,470	11,819	10,625	11,426	11,845
Motor bus	910	1,194	1,791	2,967	3,250	3,287	U	U	U	U	U	U	3,603	3,691	3,835	4,044	5,961	4,469	4,726	4,886
Heavy rail	270	369	717	1,741	1,976	2,018	U	U	U	U	U	U	2,492	2,654	2,903	3,007	3,218	3,346	3,639	3,801
Light rail	74	47	31	83	135	127	U	U	U	U	U	U	226	229	233	249	293	309	368	390
Trolley bus	81	30	26	46	55	54	U	U	U	U	U	U	59	53	55	57	60	59	63	68
Demand responsive	U	U	U	41	171	146	U	U	U	U	U	U	184	176	180	193	209	207	216	238
Ferryboat[a]	U	U	U	56	41	60	U	U	U	U	U	U	63	86	91	93	71	117	119	115
Commuter rail	U	U	U	952	1,083	1,078	U	U	U	U	U	U	1,447	1,551	1,614	1,727	1,860	1,979	2,161	2,173
Other[b]	U	U	3	6	46	31	U	U	U	U	U	U	69	69	98	101	148	141	133	174
Other operating revenue	72	68	248	895	642	1,268	2,825	3,091	3,288	3,624	3,781	3,728	3,762	4,615	4,460	4,457	4,609	4,766	4,698	4,637
Operating assistance[2], total	U	U	3,705	9,267	10,570	10,172	8,174	8,092	8,467	9,271	10,190	11,643	12,281	12,702	13,621	14,901	15,759	18,371	20,378	21,008
State and local	U	U	2,611	8,297	9,655	9,355	7,621	7,488	7,725	8,411	9,205	10,525	10,979	11,106	11,597	12,658	13,235	15,831	17,811	17,921
Federal	U	U	1,094	970	916	817	554	604	741	860	984	1,117	1,302	1,596	2,024	2,243	2,523	2,540	2,568	3,086
Operating expenses[2], total ($ millions)	1,377	1,996	(R) 6,247	15,742	17,920	17,849	16,302	16,963	17,580	18,781	20,009	21,529	22,933	24,185	25,427	27,238	29,025	31,304	33,479	34,638
Motor bus	U	U	U	8,903	10,144	10,321	8,996	9,422	9,713	10,342	11,026	11,814	12,613	13,316	13,790	14,666	15,796	16,812	17,963	18,313
Heavy rail	U	U	U	3,825	3,786	3,523	3,402	3,474	3,530	3,693	3,931	4,180	4,267	4,446	4,734	5,145	5,287	5,888	6,129	6,311
Light rail	U	U	U	237	413	376	440	471	493	536	597	676	778	815	887	978	1,070	1,163	1,259	1,393
Trolley bus	U	U	U	109	133	139	135	140	146	167	177	172	187	183	185	196	197	199	214	233
Demand responsive	U	U	U	518	943	1,000	750	873	995	1,104	1,225	1,410	1,636	1,779	1,902	2,071	2,286	2,539	2,861	3,053
Ferryboat[a]	U	U	U	171	200	210	188	201	210	226	242	290	314	318	304	332	367	429	507	500
Commuter rail	U	U	U	1,939	2,228	2,211	2,294	2,275	2,355	2,569	2,679	2,852	2,995	3,173	3,436	3,657	3,765	4,001	4,294	4,538
Other[b]	U	U	U	41	73	69	98	108	137	144	131	133	143	156	188	193	256	274	253	298
Average passenger revenue per passenger-mile[3], all modes ($)	U	U	0.06	0.14	0.17	0.17	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.19	0.19	0.20	0.24	0.20	0.21	0.22
Motor bus	U	U	0.08	0.14	0.17	0.17	U	U	U	U	U	U	0.18	0.19	0.20	0.21	0.29	0.22	0.22	0.23
Heavy rail	U	U	0.07	0.15	0.19	0.19	U	U	U	U	U	U	0.18	0.20	0.20	0.21	0.22	0.21	0.22	0.23
Light rail	U	U	0.08	0.14	0.16	0.15	U	U	U	U	U	U	0.16	0.16	0.15	0.15	0.16	0.16	0.18	0.18
Trolley bus	U	U	0.12	0.24	0.29	0.29	U	U	U	U	U	U	0.32	0.30	0.32	0.33	0.37	0.38	0.39	0.41
Demand responsive	U	U	U	0.09	0.30	0.24	U	U	U	U	U	U	0.28	0.25	0.26	0.26	0.28	0.27	0.26	0.27
Ferryboat[a]	U	U	U	0.20	0.16	0.23	U	U	U	U	U	U	0.21	0.24	0.25	0.26	0.20	0.31	0.31	0.32
Commuter rail	U	U	U	0.13	0.14	0.13	U	U	U	U	U	U	0.15	0.16	0.17	0.18	0.18	0.18	0.20	0.20
Other[b]	U	U	0.01	0.05	0.20	0.11	U	U	U	U	U	U	0.10	0.11	0.13	0.12	0.17	0.15	0.12	0.14
Average passenger fare, per unlinked trip[4], all modes ($)	0.14	0.22	0.30	0.67	0.85	0.88	0.92	0.90	0.91	0.90	0.92	0.93	0.90	0.96	1.01	1.03	1.26	1.07	1.11	1.17
Motor bus	U	U	0.31	0.52	0.67	0.68	U	U	U	U	U	U	0.68	0.72	0.75	0.77	1.13	0.85	0.87	0.91
Heavy rail	U	U	0.34	0.74	0.91	0.99	U	U	U	U	U	U	0.93	0.99	1.06	1.07	1.10	0.97	1.03	1.09
Light rail	U	U	0.23	0.47	0.48	0.50	U	U	U	U	U	U	0.67	0.68	0.67	0.65	0.72	0.74	0.82	0.84
Trolley bus	U	U	0.18	0.36	0.46	0.45	U	U	U	U	U	U	0.51	0.49	0.52	0.54	0.60	0.61	0.63	0.66
Demand responsive	U	U	U	0.60	1.94	1.66	U	U	U	U	U	U	2.33	2.15	2.17	2.22	2.36	2.28	2.26	2.37
Ferryboat[a]	U	U	U	1.12	0.87	1.28	U	U	U	U	U	U	1.25	1.43	1.58	1.59	1.26	1.90	1.94	1.93
Commuter rail	U	U	U	2.90	3.19	3.13	U	U	U	U	U	U	3.49	3.79	3.90	4.08	4.22	4.32	4.58	4.68
Other[b]	U	U	0.75	0.20	1.41	0.95	U	U	U	U	U	U	1.06	1.06	1.15	1.18	1.73	1.67	1.63	1.86
INVENTORY	**1960**	**1970**	**1980**	**1990**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**(P) 2009**
Number of systems[d,5], total	1,286	1,096	1,055	5,078	5,973	5,973	5,973	5,973	5,975	6,000	6,000	6,000	6,000	5,804	6,429	6,429	6,435	7,700	7,700	7,200
Motor bus	1,236	1,075	1,022	2,688	2,250	2,250	2,250	2,250	2,250	2,262	2,262	2,264	2,264	1,982	1,500	1,500	1,500	1,200	1,086	1,088
Heavy rail	31	15	11	12	14	14	14	14	14	14	14	14	14	14	14	15	15	15	15	15
Light rail	–	–	9	17	22	22	22	22	22	24	25	26	27	27	29	29	33	33	33	35
Trolley bus	19	6	5	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	5	5
Demand responsive	U	U	U	3,893	5,214	5,214	5,214	5,214	5,214	5,252	5,252	5,251	5,251	5,346	5,960	5,960	5,960	7,300	7,200	6,700
Ferryboat[a]	U	U	16	27	25	25	25	25	25	30	33	42	42	46	47	47	47	39	32	32
Commuter rail	U	U	18	14	16	16	16	16	18	20	19	21	20	21	21	22	22	22	23	27
Other[b]	U	U	5	35	68	69	73	69	70	81	81	82	82	86	85	87	87	97	100	94
Number of vehicles[6], total	65,292	61,350	75,388	93,430	116,416	116,341	93,675	98,381	100,346	103,308	106,136	111,266	112,104	114,932	117,402	121,912	125,647	125,607	129,286	136,117
Motor bus	49,600	49,700	59,411	58,714	68,123	67,107	53,339	54,946	55,661	57,352	58,578	60,256	60,719	61,659	61,318	62,284	64,025	63,359	63,151	63,343
Heavy rail	9,010	9,338	9,641	10,567	10,282	10,166	10,243	10,228	10,296	10,362	10,311	10,718	10,849	10,754	10,858	11,110	11,052	11,222	11,377	11,461
Light rail	2,856	1,262	1,013	910	1,051	1,048	1,097	1,062	1,061	1,160	1,306	1,359	1,448	1,482	1,622	1,645	1,801	1,802	1,948	2,059
Trolley bus	3,826	1,050	823	610	643	695	675	655	646	657	652	600	616	672	597	615	609	559	590	531
Demand responsive	U	U	U	16,471	28,729	29,352	17,738	19,820	20,042	20,761	22,087	24,668	24,808	25,873	26,333	28,346	29,406	29,433	30,773	34,235
Ferryboat[a]	U	U	U	108	110	112	84	87	97	101	98	109	106	108	115	126	116	130	131	143
Commuter rail[e]	U	U	4,500	4,982	5,126	5,164	5,239	5,425	5,535	5,549	5,497	5,528	5,631	5,866	6,130	6,290	6,300	6,279	6,494	6,722
Other[b]	U	U	U	1,068	2,352	2,697	5,260	6,158	7,008	7,366	7,607	8,028	7,927	8,518	10,429	11,496	12,338	12,823	14,822	17,623
Number of employees[f,7], total	156,400	138,040	(R) 187,000	262,176	294,087	300,491	314,944	320,759	327,752	337,885	347,841	357,266	360,722	337,982	345,871	354,458	357,484	(R) 370,784	387,155	390,326
Motor bus	121,300	101,598	U	162,189	174,373	181,973	190,152	196,861	198,644	204,179	211,095	214,674	214,825	205,478	212,122	217,332	221,302	(R) 186,329	192,213	192,510
Heavy rail	35,100	36,442	U	46,102	51,062	45,644	45,793	45,935	45,163	46,311	47,087	47,865	48,464	48,327	47,211	47,806	48,323	(R) 49,369	49,982	49,741
Light rail	+	+	U	4,066	5,140	4,935	5,728	5,940	6,024	6,058	6,572	7,021	7,598	7,619	8,184	8,181	8,448	(R) 9,250	9,939	10,558
Trolley bus	+	+	U	1,925	1,848	1,871	2,084	2,037	2,053	2,140	2,223	2,008	2,027	1,964	1,928	1,942	1,845	(R) 1,769	1,832	1,986
Demand responsive	U	U	U	22,740	35,450	39,882	44,667	44,029	48,406	51,186	52,021	55,846	56,746	42,935	43,642	46,624	46,178	(R) 91,183	99,323	100,242
Ferryboat[a]	U	U	U	2,813	2,764	2,829	2,932	3,586	3,632	4,125	2,682	4,820	5,441	5,536	5,970	5,871	4,539	4,079	4,165	4,596
Commuter rail	U	U	U	21,443	22,596	22,320	22,604	21,651	22,488	22,896	23,518	23,851	24,391	24,813	25,296	25,321	25,314	(R) 26,272	27,144	28,278
Other[b]	U	U	U	898	854	1,037	984	720	1,342	990	2,643	1,181	1,230	1,312	1,518	1,382	1,535	(R) 2,533	2,557	2,591

PERFORMANCE	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Vehicle-miles[8], total (millions)	2,143	1,883	2,287	3,242	3,468	3,550	3,082	3,201	3,347	3,500	3,605	3,735	3,855	3,915	3,972	4,054	4,127	4,238	4,375	4,475
Motor bus	1,576	1,409	1,677	2,130	2,162	2,184	1,813	1,849	1,904	1,985	2,041	2,104	2,156	2,177	2,169	2,192	2,214	2,241	2,272	2,285
Heavy rail	391	407	385	537	532	537	543	558	566	578	595	608	621	630	642	646	652	657	674	685
Light rail	75	34	18	24	34	35	37	41	43	48	52	54	61	64	67	69	74	84	88	90
Trolley bus	101	33	13	14	14	14	14	14	14	14	15	13	14	14	13	13	12	11	12	13
Demand responsive	U	U	U	306	464	507	363	410	469	494	532	578	613	640	651	683	708	752	803	847
Ferryboat[4]	U	U	2	2	2	3	2	2	2	3	3	2	3	3	3	3	3	3	3	3
Commuter rail	U	U	179	213	231	238	242	251	259	266	271	277	284	286	295	303	315	325	337	337
Other[h]	U	U	13.4	16.3	29.5	34.2	67.7	77.0	89.8	112.2	96.8	99.5	103.9	100.8	130.7	144.3	149.3	163	187	214
Unlinked passenger trips[9], total (millions)	9,395	7,332	8,567	8,799	7,949	7,763	7,565	7,982	8,115	8,523	8,720	9,008	9,018	8,876	8,937	9,176	9,379	9,948	10,257	10,134
Motor bus	6,425	5,034	5,837	5,677	4,871	4,848	4,506	4,602	4,754	4,992	5,040	5,215	5,269	5,146	5,094	5,227	5,274	5,278	5,448	5,359
Heavy rail	1,850	1,881	2,108	2,346	2,169	2,033	2,157	2,429	2,393	2,521	2,632	2,728	2,688	2,668	2,748	2,808	2,927	3,460	3,547	3,490
Light rail	463	235	133	175	284	251	259	259	273	289	316	334	337	338	350	381	407	418	451	464
Trolley bus	657	182	142	126	118	119	117	121	117	120	122	119	116	109	106	107	100	97	101	104
Demand responsive	U	U	U	68	88	88	55	88	66	69	73	77	79	82	83	87	88	91	96	100
Ferryboat[4]	U	U	63	50	47	47	43	42	48	50	47	48	50	60	57	59	56	61	62	59
Commuter rail	U	U	280	328	339	344	352	357	381	396	413	418	414	410	414	423	441	458	471	464
Other[h]	U	U	4	29	33	33	76	83	84	88	76	69	65	65	85	85	86	84	81	94
Passenger-miles[10], total (millions)	U	U	39,854	41,143	39,585	39,808	38,984	40,180	41,605	43,279	45,100	46,508	46,096	45,677	46,546	47,125	49,504	51,873	53,712	53,898
Motor bus	U	U	21,790	20,981	18,832	18,818	16,802	17,509	17,874	18,684	18,807	19,583	19,679	19,179	18,921	19,425	20,390	20,388	21,198	21,100
Heavy rail	U	U	10,558	11,475	10,668	10,559	11,530	12,056	12,284	12,902	13,844	14,178	13,663	13,606	14,354	14,418	14,721	16,138	16,850	16,805
Light rail	U	U	381	571	833	860	955	1,024	1,115	1,190	1,339	1,427	1,432	1,476	1,576	1,700	1,866	1,930	2,081	2,196
Trolley bus	U	U	219	193	187	187	184	189	182	186	192	187	188	176	173	173	164	156	161	168
Demand responsive	U	U	N	431	577	607	391	531	513	559	588	626	651	689	704	738	753	778	844	881
Ferryboat[4]	U	U	N	286	260	260	255	254	280	295	298	295	301	367	357	359	360	381	390	365
Commuter rail	U	U	6,516	7,082	7,996	8,244	8,350	8,037	8,702	8,764	9,400	9,544	9,500	9,555	9,715	9,470	10,359	11,137	11,032	11,129
Other[h]	U	U	390	124	232	273	516	579	654	699	632	668	683	629	745	842	891	966	1,156	1,254
Average trip length[11], all modes (miles)	U	U	4.7	4.7	5.0	5.1	5.2	5.0	5.1	5.1	5.2	5.2	5.1	5.1	5.2	5.1	5.3	5.2	5.2	5.3
Motor bus	U	U	3.7	3.7	3.9	3.9	3.7	3.8	3.8	3.7	3.7	3.8	3.7	3.7	3.7	3.7	3.9	3.9	3.9	3.9
Heavy rail	U	U	5.0	4.9	4.9	5.2	5.3	5.0	5.1	5.1	5.3	5.2	5.1	5.1	5.2	5.1	5.0	4.7	4.8	4.8
Light rail	U	U	2.9	3.3	2.9	3.4	3.7	3.9	4.1	4.1	4.2	4.3	4.3	4.4	4.5	4.5	4.6	4.6	4.6	4.7
Trolley bus	U	U	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Demand responsive	U	U	U	6.3	6.6	6.9	7.2	6.0	7.8	8.1	8.0	8.2	8.3	8.4	8.5	8.5	8.5	8.5	8.8	8.8
Ferryboat[4]	U	U	U	U	5.7	6.0	5.9	6.0	5.8	6.0	6.3	6.1	6.0	6.1	6.2	6.1	6.4	6.2	6.3	6.1
Commuter rail	U	U	23.3	21.6	23.6	24.0	23.7	22.5	22.9	22.1	22.8	22.8	22.9	23.3	23.5	22.4	23.5	24.3	23.4	24.0
Vanpool	U	U	U	U	32.4	35.0	34.6	33.2	36.5	34.4	34.6	38.4	37.2	33.1	30.8	33.9	33.7	34.6	33.2	33.2
Other[g]	U	U	5.8	5.2	0.5	0.7	3.6	3.6	3.7	3.8	3.5	3.7	4.3	3.6	4.1	3.8	3.1	3.0	3.2	3.3
Average vehicle speed[12], all modes (miles per hour)	U	U	U	U	14.7	15.0	14.9	14.9	15.2	14.9	14.7	14.7	14.8	14.7	14.6	14.8	14.7	14.0	14.9	(P) 14.9
Motor bus	U	U	U	U	13.0	13.0	13.1	13.0	13.0	12.9	12.8	12.8	12.8	12.7	12.6	12.7	12.6	12.6	12.6	(P) 12.5
Heavy rail	U	U	U	U	20.7	21.0	20.7	20.7	20.5	20.5	20.4	20.4	20.2	20.6	20.4	20.0	20.0	20.1	20.2	(P) 20.3
Light rail	U	U	U	U	14.4	14.0	14.1	15.5	15.7	15.4	15.3	15.1	15.3	15.7	15.5	14.9	14.7	15.1	15.0	(P) 15.1
Trolley bus	U	U	U	U	8.2	8.0	7.7	7.4	7.7	7.6	7.3	7.1	7.4	7.4	7.9	7.4	7.4	7.2	7.2	(P) 7.2
Demand responsive	U	U	U	U	14.0	15.0	14.7	15.3	16.5	14.7	14.7	14.5	14.7	14.5	14.4	14.7	14.6	12.1	14.6	(P) 14.3
Ferryboat[4]	U	U	U	U	8.4	6.0	7.0	7.0	8.0	8.0	8.0	8.0	8.3	8.7	8.4	8.3	9.1	9.7	9.8	(P) 9.3
Commuter rail	U	U	U	U	33.8	34.0	33.1	33.8	31.8	32.9	28.5	31.6	31.7	31.7	31.5	31.6	31.4	31.4	31.2	(P) 31.2
Vanpool	U	U	U	U	32.6	35.0	37.0	36.0	37.0	38.0	31.0	38.8	38.2	32.7	37.6	38.1	38.3	38.8	39.5	(P) 40.1
Other[g]	U	U	U	U	5.7	6.0	17.6	16.5	18.5	21.1	16.9	21.3	20.8	18.0	20.0	21.8	22.5	15.4	16.5	(P) 14.7
Energy consumption, diesel[13], total (million gallons)	208	271	431	651	678	678	535	539	560	576	591	596	674	555	544	532	545	537	536	658
Motor bus	U	U	U	563	565	564	466	463	468	477	490	492	469	443	443	427	438	426	436	487
Heavy rail	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Light rail	NA	NA	NA	NA	NA	NA	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z
Trolley bus	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Demand responsive	U	U	U	15	30	29	6	7	10	11	13	15	14	26	17	18	18	17	18	45
Ferryboat[4]	U	U	U	20	21	22	20	21	21	23	25	25	25	26	25	25	24	28	26	33
Commuter rail	U	U	U	53	62	63	43	48	62	65	63	64	165	60	59	62	64	66	54	91
Other[h]	U	U	U	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z
Energy consumption, other[14], total (million gallons)	192	(R) 68	(R) 11	33	65	71	37	45	51	56	67	79	100	105	115	123	141	137	144	240
Gasoline and other nondiesel fuels[h]	192	68	11	33	60	61	25	26	22	21	24	26	35	26	28	29	31	29	31	98
Compressed natural gas	U	U	U	U	5	11	11	19	29	35	44	53	66	79	87	94	111	108	113	142
Energy consumption, electric power[15], total (million kWh)	2,908	2,561	2,446	4,837	5,081	5,068	4,923	4,908	4,962	5,126	5,382	5,485	5,529	5,508	5,657	5,765	5,770	6,216	6,337	6,492
Motor bus	NA	NA	NA	NA	NA	NA	Z	Z	Z	Z	Z	Z	3	1	2	1	1	1	Z	Z
Heavy rail	2,098	2,261	U	3,284	3,431	3,401	3,332	3,253	3,280	3,384	3,549	3,646	3,683	3,632	3,684	3,752	3,692	3,800	3,881	3,886
Light rail	393	157	U	239	282	288	319	360	376	408	450	476	503	500	537	554	605	654	682	735
Trolley bus	417	143	U	69	103	100	69	78	74	75	77	74	73	69	68	67	62	61	62	69
Demand responsive	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Z	Z	Z
Ferryboat[4]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Commuter rail	U	U	U	1,226	1,244	1,253	1,186	1,202	1,216	1,241	1,288	1,272	1,252	1,288	1,350	1,375	1,393	1,683	1,694	1,780
Other[h]	U	U	U	19	21	26	16	15	15	16	16	16	16	17	17	16	16	16	17	23

SAFETY[i]	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Fatalities, all modes[16]	U	U	U	339	320	274	264	275	286	299	295	267	280	234	248	236	227	(R) 288	(R) 240	291
Transit highway-rail grade crossing fatalities[j, 17]	U	U	U	U	U	17	7	12	26	21	20	13	24	21	29	23	21	(R) 27	(R) 26	37
Other transit fatalities	U	U	U	U	U	257	257	263	260	278	275	254	256	213	219	213	206	(R) 261	(R) 214	254
Injured persons, all modes[k, 16]	U	U	U	54,556	58,193	57,196	55,288	56,132	55,990	55,325	56,697	53,945	19,260	18,235	18,982	18,131	19,238	20,944	25,584	24,686
Transit highway-rail grade crossing injuries[j, 17]	U	U	U	U	U	195	184	126	58	159	123	74	108	117	153	194	172	224	308	295
Other transit injuries	U	U	U	U	U	57,001	55,104	56,006	55,932	55,166	56574	53871	19152	18118	18,829	17,937	19,066	20,720	25,276	24,391
Incidents, all modes[16]	U	U	U	90,163	70,693	62,471	59,392	61,561	60,094	58,703	59,898	58,149	30,331	19,797	20,939	21,016	22,275	22,718	22,261	23,115
Transit highway-rail grade crossing incidents[j, 17]	U	U	U	U	U	127	134	119	106	140	148	101	398	276	311	504	131	134	245	206
Other transit incidents	U	U	U	U	U	62,344	59,258	61,442	59,988	58,563	59,750	58,048	29,933	19,521	20,628	20,512	22,144	22,584	22,016	22,909
Major incidents[l]	U	U	U	U	U	U	U	U	U	U	U	U	2,282	1,913	2,515	3,335	2,505	2,839	4,300	3,737

KEY: ~ = included in heavy rail figure; + = included in motor bus figure; kWh = kilowatt hours; NA = not applicable; P = preliminary; R = revised; U = data are unavailable; Z = a value to small to report.

[a] Excludes international, rural, rural interstate, island and urban park ferries.
[b] Includes aerial tramway, automated guideway transit, cable car, inclined plane, monorail, publico*vanpool*, jitney and Alaska railroad.
[c] Beginning in 1992, *local operating assistance* and *other revenue* declined by about $500 million due to a change in accounting procedures at the New York City Transit Authority. Beginning in 1992, *total operating expense* declined by about $400 million due to a change in accounting procedures at the New York City Transit Authority.
[d] *Total* is not the sum of all modes since many providers operate more than one mode.
[e] Includes locomotives which make up roughly 10 percent o*commuter rail* vehicles.
[f] Based on employee equivalents of 2,080 hours equals one employee; beginning in 1993, based on number of actual employees. Number of employees are operating employees.

[g] Includes cable car, inclined plane, aerial tramway, monorail, automated guideway, publico, jitney and Alaska railroad.
[h] Liquefied natural gas, liquefied petroleum gas, methanol, propane, and other nondiesel fuels, except compressed natural gas and bio-diesel fuels.
[i] These data are for *motor bus*, *commuter rail*, *heavy rail*, *light rail*, *automated guideway, demand response*, and *vanpool*.
[j] *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.
[k] 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.
[l] From 2002 through 2007, the Federal Transit Administration defined major incidents as safety and/or security incidents resulting in: a fatality, two or more injuries transported for immediat medical treatment away from the scene, grade crossing collisions with injury or $7500 in total damage, rail transit vehicle collisions resulting in one or more injuries, main-line derailments and evacuations due to life safety reasons. Since 2008, reported property damages were equal to or greater than $25,000 and major incidents were reclassified as reportable incidents requiring one or more injuries transported for immediate medical treatment away from the scene.

NOTES

Data may not add to total due to independent rounding.
Beginning in 1996, *Operating expenses, Number of vehicles*, *Vehicle miles*, *Unlinked passenger trips*, *Passenger miles*, *Average trip length* and *Energy consumption* data are obtained from Federal Transit Administration and are not comparable with earlier years.
Beginning in 2002 passenger fare by mode,*Other operating revenue* and *Operating assistance* data are obtained from Federal Transit Administration and are not comparable with earlier years.
Incident figures include collisions with vehicles, objects, and people, derailments / vehicles going off the road. Accident figures do not include fires and personal casualties. The drop in the number of *injuries* and *incidents* in 2002 is largely due to a change in definitions by the Federal Transit Administration, particularly the definition o*injuries*. Beginning in 2002, only*injuries* requiring immediate medical treatment away from the scene qualified as reportable.
Energy consumption for purchased transport is not included.
Other operating revenue includes *other revenue*, *non-transported funds* and *dedicated and other directly generated fund*.
As of 2007, Federal Transit Authority (FTA) collected and made available data for rural agencies. Based on this survey, American Public Transportation Association reassess the distribution of motor bus and paratransit service. Due to this redistribution, number of motor buses, paratransit (demand responsive), other categories and number of employees for these modes are not continuous from 2006 to 2007.
Energy consumption, diesel includes bio-diesel.

SOURCES

[1] 1960-95: American Public Transportation Association,*Public Transportation Fact Book Historical Tables* (Washington, DC: Annual Issues), tables 41, 42 and similar tables in earlier years.
[1] 1996-2009: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, DC.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Jan. 20, 2011.
[2] 1960-95: American Public Transportation Association,*Public Transportation Fact Book Historical Tables* (Washington, DC: Annual Issues), table 38 and similar tables in earlier years.

[2] 1996-2009: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, DC.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Mar. 7, 2011.
[3] 1960-2001: American Public Transportation Association,*Public Transportation Fact Book Historical Tables* (Washington, DC: Annual Issues), tables 45 to 52 and similar tables in earlier years.
[3] 2002-09: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, DC.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Jan. 20, 2011.
[4] 1960-2001: American Public Transportation Association,*Public Transportation Fact Book Historical Tables* (Washington, DC: Annual Issues), tables 45 to 52 and similar tables in earlier years.
[4] 2002-09: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, DC.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Jan. 20, 2011.
[5] American Public Transportation Association,*Public Transportation Fact Book Historical Tables* (Washington, DC: Annual Issues), table 15 and similar tables in earlier years.
[6] 1960-95: American Public Transportation Association,*Public Transportation Fact Book Historical Tables* (Washington, DC: Annual Issues), table 17 and similar tables in earlier years.

[6] 1996-2009: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, DC.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Jan. 20, 2011.
[7] American Public Transportation Association,*Public Transportation Fact Book* (Washington, DC: Annual Issues), tables 13, 27 and similar tables in earlier years; and*Public Transportation Fact Book Historical Tables* (Washington, DC: Annual Issues), table 12 and similar tables in earlier years.
[8] 1960-95: Ibid., American Public Transportation Association,*Public Transportation Fact Book* (Washington, DC: Annual Issues), table 8 and similar tables in earlier years; and*Public Transportation Fact Book Historical Tables* (Washington, DC: Annual Issues), tables 45 to 52 and similar tables in earlier years.
[8] 1996-2009: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, DC.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Jan. 20, 2011.
[9] 1960-95: American Public Transportation Association,*Public Transportation Fact Book* (Washington, DC: Annual Issues), table 5 and similar tables in earlier years; and*2011 Public Transportation Fact Book Historical Tables*, tables 45 to 52.
[9] 1996-2009: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, DC.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Jan. 20, 2011
[10] 1960-95: American Public Transportation Association,*Public Transportation Fact Book* (Washington, DC: Annual Issues), table 6 and similar tables in earlier years; and*2011 Public Transportation Fact Book Historical Tables*, tables 45 to 52.
[10] 1996-2009: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, DC.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Jan. 20, 2011.
[11] 1960-95: American Public Transportation Association,*Public Transportation Fact Book* (Washington, DC: Annual Issues), table 7 and similar tables in earlier years; and*2011 Public Transportation Fact Book Historical Tables*, table 3.
[11] 1996-2009: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, DC.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Jan. 20, 2011.
[12] American Public Transportation Association,*Public Transportation Fact Book* (Washington, DC: Annual Issues), table 8 and similar tables in earlier years; and*Public Transportation Fact Book Historical Tables* (Washington, DC: Annual Issues), table 10 and similar tables in earlier years.
[13] 1960-95: American Public Transportation Association,*2011 Public Transportation Fact Book Historical Tables*, table 30.
[13] 1996-2009: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, DC.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Jan. 20, 2011.
[14] 1960-95: American Public Transportation Association,*2011 Public Transportation Fact Book Historical Tables*, table 31.
[14] 1996-2009: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, DC.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Jan. 20, 2011.
[15] 1960-95: American Public Transportation Association,*2011 Public Transportation Fact Book Historical Tables*, table 29.
[15] 1996-2009: U.S. Department of Transportation, Federal Transit Administration,*National Transit Database* (Washington, DC.: Annual Reports), available at http://www.ntdprogram.gov/ntdprogram/data.htm as of Jan. 20, 2011.
[16] 1960-2006: *Fatalities and Injured persons*: U.S. Department of Transportation, Federal Transit Administration,*Transit Safety and Security Statistics and Analysis Annual Report* (previously Safety Management Information Statistics - SAMIS), available at http://transit-safety.volpe.dot.gov/Data/samis/default.asp as of Feb. 22, 2010. 2007-09: U.S. Department of Transportation, Federal Transit Administration, Office of Program Management, personal communications, Jan. 08, 2010; Sept. 17, 2010 and Feb. 25, 2011.
[16] 1960-2005: *Incidents*: U.S. Department of Transportation, Federal Transit Administration,*Transit Safety and Security Statistics and Analysis Annual Report*(previously Safety Management Information Statistics - SAMIS), available at http://transit-safety.volpe.dot.gov/Data/samis/default.asp as of Feb. 22, 2010. 2006-09: U.S. Department of Transportation, Fede Transit Administration, Office of Program Management, personal communications, Mar. 08, 2010; Sept. 17, 2010 and Feb. 25, 2011.
[17] U.S. Department of Transportation, Federal Transit Administration, Office of Program Management, personal communications, Sept. 5, 2007; Jan. 8, 2010; Mar. 8, 2010; Sept. 17, 2010 and Feb. 25, 2011.

Rail Profile

FINANCIAL	1960	1970[f]	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	(R) 2005	2006
Class I [a,1]																	
Operating revenues, total ($ millions)	9,514	11,992	28,258	28,370	30,809	32,280	32,693	33,118	33,151	33,521	34,102	34,576	35,327	36,639	40,517	46,118	52,152
Passenger	640	421	446	94	88	89	59	60	61	61	62	62	61	62	63	65	70
Freight	8,025	10,922	26,350	27,471	29,931	31,356	31,889	32,322	32,247	32,680	33,083	33,533	34,110	35,413	39,131	44,457	50,315
Other	849	649	1,462	805	790	835	745	736	843	780	957	981	1,155	1,164	1,323	1,597	1,767
Operating expenses ($ millions)[b]	8,775	11,478	26,355	24,652	25,511	27,897	26,331	27,291	27,916	28,011	29,040	29,164	29,592	31,440	35,107	37,843	40,980
Amtrak[c,2]																	
Total revenue ($ millions)	N	162	429	1,308	1,413	1,490	1,550	1,669	2,244	2,011	2,111	2,109	2,228	(R) 1,994	(R) 1,865	1,886	2,042
Total expenses ($ millions)	N	301	1,103	2,012	2,246	2,257	2,258	2,359	2,548	2,660	2,876	3,288	3,224	(R) 3,100	(R) 2,950	2,940	3,005
INVENTORY																	
Class I [a,1]																	
Number of vehicles, total	(R) 1,994,517	(R) 1,811,258	(R) 1,738,921	(R) 1,231,096	(R) 1,210,917	(R) 1,237,739	(R) 1,259,842	(R) 1,290,103	(R) 1,335,928	(R) 1,389,092	(R) 1,400,824	(R) 1,333,881	(R) 1,320,176	(R) 1,299,751	(R) 1,309,935	1,335,024	1,370,239
Class I freight cars	1,658,292	1,423,921	1,168,114	658,902	590,930	583,486	570,865	568,493	575,604	579,140	560,154	499,860	477,751	467,063	473,773	474,839	475,415
Other nonclass I freight cars	307,194	360,260	542,713	553,359	601,482	635,441	669,708	701,926	740,063	789,696	820,642	814,276	821,919	811,917	814,147	837,406	871,092
Number of Locomotives	29,031	27,077	28,094	18,835	18,505	18,812	19,269	19,684	20,261	20,256	20,028	19,745	20,506	20,771	22,015	22,779	23,732
Number of companies	106	71	38	14	12	11	10	9	9	9	8	8	7	7	7	7	7
Number of employees	780,494	566,282	458,994	216,424	189,962	188,215	181,809	177,981	178,222	177,557	168,360	162,155	157,372	154,652	157,699	162,438	167,581
Miles of road owned	207,334	196,479	164,822	119,758	109,332	108,264	105,779	102,128	100,570	99,430	99,250	(R) 97,817	(R) 100,125	(R) 99,126	(R) 97,662	95,830	94,614
Amtrak																	
Number of passenger vehicles[3]																	
Train-cars	N	1,569	2,128	1,863	1,852	1,722	1,730	1,728	1,962	1,992	1,894	2,084	2,896	1,623	1,211	1,186	1,191
Locomotives	N	185	419	318	338	313	299	332	345	329	378	401	372	442	276	258	319
Number of employees[4]	N	1,500	21,416	24,000	25,049	23,646	23,278	23,555	24,528	25,291	25,624	27,316	22,649	20,905	20,938	19,234	18,659
System route mileage[5]	N	N	24,000	24,000	25,000	24,000	25,000	25,000	22,000	23,000	23,000	23,000	23,000	22,675	22,256	22,007	21,708
PERFORMANCE																	
Class I[a]																	
Car mileage, freight (thousands)[1]	28,170,000	29,890,000	29,277,000	26,159,000	28,485,000	30,383,000	31,715,000	31,660,000	32,657,000	33,851,000	34,590,000	34,243,000	34,680,000	35,555,000	37,071,000	37,712,000	38,955,000
Train mileage, freight (thousands)[1]	404,464	427,065	428,498	379,582	440,896	458,271	468,792	474,954	474,947	490,442	504,001	499,546	499,668	515,999	534,696	547,566	562,607
Locomotive mileage, total (thousands)[6]	N	N	1,531,050	1,280,365	1,404,706	1,444,691	1,465,149	1,423,229	1,439,703	1,503,947	1,502,819	1,477,546	1,443,531	1,484,074	1,538,385	U	U
Freight	421,900	1,278,200	1,319,010	1,144,559	1,261,482	1,293,851	1,311,351	1,281,768	1,285,706	1,349,580	1,354,590	1,327,669	1,300,574	1,353,885	1,398,450	U	U
Train and yard switching	N	N	212,040	135,806	143,224	150,840	153,798	141,461	153,997	154,367	148,229	149,876	142,957	130,190	139,935	U	U
Revenue ton-miles of freight (millions)[1]	572,309	764,809	918,958	1,033,969	1,200,701	1,305,688	1,355,975	1,348,926	1,376,802	1,433,461	1,465,960	1,495,472	1,507,011	1,551,438	1,662,598	1,696,425	1,771,897
Average length of haul, freight (miles)[1]	461	515	616	726	817	843	842	851	835	835	843	859	853	862	902	894	906
Fuel consumed in freight service (million gallons)[1]	3,463	3,545	3,904	3,115	3,334	3,480	3,579	3,575	3,583	3,715	3,700	3,710	3,730	3,826	4,059	4,098	4,192
Average miles traveled per vehicle																	
Car	14,124	16,502	16,836	21,249	23,523	24,547	25,174	24,541	24,445	24,369	24,693	25,672	26,269	27,355	28,300	28,248	28,429
Locomotive	N	N	54,497	67,978	75,910	76,796	76,037	72,304	71,058	74,247	75,036	74,831	70,396	71,449	69,879	U	U
Average miles traveled per gallon																	
Car	8.13	8.43	7.50	8.40	8.54	8.73	8.86	8.86	9.11	9.11	9.35	9.23	9.30	9.29	9.13	9.20	9.29
Train	0.12	0.12	0.11	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.14	0.13	0.13	0.13	0.13	0.13	0.13
Amtrak																	
Passenger train car-miles (millions)[7]	N	213	235	301	304	292	276	288	312	342	371	378	379	332	308	265	264
Passenger train-miles (millions)[2]	N	26	30	33	34	32	30	32	33	34	35	36	38	37	37	36	36
Passenger locomotive-miles (millions)[2]	N	N	41	49	51	48	U	U	U	U	U	U	U	U	U	U	U
Revenue passengers carried (millions)[2]	N	17	21	22	21	21	20	20	21	22	23	24	23	25	25	25	25
Revenue passenger-miles (millions)[2]	N	3,039	4,503	6,057	5,921	5,545	5,050	5,166	5,304	5,330	5,498	5,559	5,314	5,680	5,511	5,381	5,410
Average passenger fare (dollars)[2]	N	8.30	17.72	38.50	39.10	39.92	43.31	45.26	44.75	46.85	49.61	51.58	56.05	57.78	56.81	58.29	65.43
Average passenger revenue / passenger-mile (cents)[2]	N	4.5	8.2	14.1	14.0	14.9	16.9	17.7	17.8	18.9	20.3	21.8	24.5	25.0	26.0	27.16	29.69
Average passenger trip length (miles)[2]	N	182.6	217.0	273.0	279.3	267.9	256.3	255.7	251.4	247.9	244.4	236.6	228.4	230.9	218.6	214.6	220.4
Locomotive fuel consumed[8]																	
Diesel (million gallons)	N	N	64	82	75	66	71	75	75	74	76	75	86	78	70	68	U
Electric kWh (millions)	N	N	254	330	309	304	293	282	275	283	350	377	593	666	648	500	U

SAFETY [d,9]																	
Number of fatalities, railroads and grade crossings, total	2,345	2,331	1,424	1,300	1,226	1,146	1,039	1,063	1,008	932	937	971	951	(R) 868	(R) 895	887	910
Passengers on Trains	34	10	4	3	5	0	12	6	4	14	4	3	7	3	3	16	2
Employees on duty	215	179	97	40	31	34	33	37	27	31	24	22	20	19	25	25	16
Employees not on duty	N	N	4	0	0	2	0	0	2	0	1	0	1	1	0	0	0
Trespassers	637	607	566	700	682	660	620	646	644	570	570	673	646	634	(R) 621	600	665
Nontrespassers	1,459	1,535	746	554	505	443	365	363	326	305	(R) 335	269	(R) 267	(R) 206	(R) 242	241	220
Contractor employees	N	N	7	3	3	7	9	11	5	12	3	4	10	5	4	5	7
Grade crossing only	1,421	1,440	772	698	615	579	488	461	431	402	425	421	357	334	(R) 372	358	369
Railroad only[5]	924	785	645	599	611	567	551	602	577	530	512	550	594	(R) 534	(R) 523	529	541

KEY: kWh = kilowatt-hour; N = data do not exist; R = revised; U = data are not available.

[a] Excluding Amtrak and all non-Class I railroads, except for Section IV.
[b] Operating expenses include equipment, joint facility rents, leased roads and equipment, and all taxes except Federal income.
[c] Data for 2003 indicates operating revenues and expenses instead of total revenues and expenses, the data source has changed.
[d] Safety figures from U.S. Department of Transportation, Federal Railroad Administration are for all railroads.
[e] Figures may not appear directly in data source.
[f] Amtrak data in this column are for 1972, Amtrak's first full year of operation.

NOTE
Amtrak figures are based on Amtrak fiscal year (October 1-September 30).

SOURCES
(Unless otherwise noted, refer to chapter tables for sources)

[1] Association of American Railroads,*Railroad Facts 2006* (Washington, DC: 2004), pp. 3, 9, 10, 27, 33, 34, 36, 40, 49, 52, 77 and similar pages in earlier issues.

[2] 1970-2006: Amtrak, *National Railroad Passenger Corporation Annual Report, Statistical Appendix to Amtrak Annual Report,* Annual issues.
[3] 1970-80: Amtrak, *National Railroad Passenger Corporation Annual Report,* 1972, 1980, 1990, and 1993-95. 1990-2000: Ibid., *National Railroad Passenger Corporation Annual Report, Statistical Appendix to Amtrak Annual Report,* Annual issues. 2001-05: Association of American Railroads,*Railroad Facts 2006* (Washington, DC, 2006), p.77.

[4] 1970-90: Amtrak, Public Affairs, personal communication. 1994-1997: Ibid.,*National Railroad Passenger Corporation Annual Report,* 1972, 1980, 1990, and 1993-95. 1998-2005: Association of American Railroads,*Railroad Facts 2006* (Washington, DC: 2006), p. 77 and similar pages in earlier issues.

[5] 1980-90: Amtrak, Route Miles by Railroad, Corp. Planning & Development. 1994-2001: Amtrak,*National Railroad Passenger Corporation Annual Report, Statistical Appendix to Amtrak Annual Report,* Annual issues. 2002-05: Association of American Railroads,*Railroad Facts 2006* (Washington, DC, 2006), p. 77.
[6] 1980-2001: Association of American Railroads,*Analysis of Class 1 Railroads* (Washington, DC: Annual issues). 2002-04: Ibid.,*Railroad Ten-Year Trends* (Washington, DC: 2005), pp. 119 and 121, personal communication, Feb. 16, 2005.

[7] 1970-90: Amtrak, *Train Information System Reports.* 1994-99: Amtrak Corporate Reporting, Route Profitability System, Washington DC, personal communication, August 2001. 2000-05: Association of American Railroads,*Railroad Facts 2006* (Washington, DC: 2006), p. 77 and similar pages in earlier issues.

[8] Amtrak General Accounting, Pennsylvania, personal communication, June 1999. 2002-05: Amtrak, personal communications, Dec. 9, 2005 and Dec. 19, 2007

[9] 1960-80: U.S. Department of Transportation, Federal Railroad Administration, Systems Support Division, RRS-22, personal communication. 1990-94: Ibid.*Accident / Incident Bulletin* (Washington, DC: Annual issues), tables 7 and 9. 1995-2005: Ibid.*Interim Railroad Safety Statistics, Annual Report 2005* (Washington, DC: 2005), table 1-3, and similar tables in earlier editions. 2006: Ibid, Office of Safety Analysis, table 4.08, at http://safetydata.fra.dot.gov/OfficeofSafety/Default.asp as of Dec. 12, 2007.

Water Transport Profile

FINANCIAL	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Operating revenues ($ millions)[1]																	
Domestic freight, total	U	U	U	(R) 23,674	U	(R) 25,162	(R) 23,980	(R) 23,761	(R) 24,766	(R) 26,667	(R) 30,925	(R) 29,575	(R) 28,643	(R) 34,191	(R) 40,612	U	U
Coastal/Great lakes	U	U	U	(R) 7,383	U	(R) 6,781	(R) 6,313	(R) 5,531	(R) 5,033	(R) 4,677	(R) 4,560	(R) 4,361	(R) 4,235	(R) 4,390	(R) 4,483	U	U
Inland waterways	U	U	U	(R) 4,149	U	(R) 4,312	(R) 4,178	(R) 4,139	(R) 4,151	(R) 4,289	(R) 4,259	(R) 4,151	(R) 4,130	(R) 3,918	(R) 3,999	U	U
International freight[a]	U	U	U	(R) 12,142	U	(R) 14,069	(R) 13,489	(R) 14,091	(R) 15,582	(R) 17,701	(R) 22,106	(R) 21,063	(R) 20,278	(R) 25,883	(R) 32,130	U	U
Passenger, total	U	U	U	(R) 3,702	U	(R) 3,988	(R) 4,231	(R) 4,440	(R) 5,237	(R) 6,230	(R) 7,697	(R) 8,270	(R) 8,652	(R) 9,055	(R) 9,438	U	U
Domestic passenger, intercity	U	U	U	(R) 434	U	(R) 437	(R) 440	(R) 442	(R) 448	(R) 479	(R) 520	(R) 551	(R) 571	(R) 624	(R) 632	U	U
International passenger[a]	U	U	U	(R) 3,268	U	(R) 3,551	(R) 3,791	(R) 3,998	(R) 4,789	(R) 5,751	(R) 7,177	(R) 7,719	(R) 8,081	(R) 8,431	(R) 8,806	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[b, 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[c]	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[d,e], 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[f]	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)[g, 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)[h, 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[i,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[j]	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[i,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[j]	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[g]	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] Revenues paid by American travelers to U.S. and foreign flag carriers.
[b] Does not include vessel operators whose primary area of operation is fishing, towing, passenger transport, ferrying, or crew boat utility service.
[c] 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.

[d] 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.
[e] 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.
[f] Freighters data include bulk carriers prior to calendar year 1983.
[g] 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.
[h] Does not include intraterritorial traffic (traffic between ports in Puerto Rico and the Virgin Islands, which are considered a single unit).
[i] 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.
[j] Mobile Offshore Drilling Units.

SOURCES

Unless otherwise noted, refer to chapter tables for sources.
[1] Eno Transportation Foundation Inc., *Transportation in America, 2007* (Washington, DC: 2007), pp. 32, 33, and 34.
[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., available at http://www.bls.gov as of November 2007.
[5] U.S. Department of Transportation, Maritime Administration, *U.S. Merchant Marine Data Sheet* (Washington, DC: Annual issues).
[6] 1960-1998: U.S. Army Corps of Engineers, *Summary of U.S. Flag Passenger & Cargo Vessels* (New Orleans, LA: Annual issues). 1999-2005: Ibid., *Waterborne Transportation Lines of the United States* (New Orleans, LA: Annual issues) part 1, section 1, table 1 and 2.
[7] U.S. Department of Transportation, Maritime Administration, *Merchant Fleets of the World* (Washington, DC: Annual issues), and unpublished revisions.
[8] U.S. Coast Guard, *Boating Statistics* (Washington, DC: Annual issues).
[9] U.S. Army Corps of Engineers, *Waterborne Commerce of the United States* (New Orleans, LA: Annual issues), part 5, section 1, tables 2, 3, and 4.

[10] 1970-A321990: U.S. Coast Guard, Office of Investigations and Analysis, G-MAO-2, personal communication. 1994-2006: Ibid., Data Administration Division (G-MRI-1), personal communication, Feb. 13, 2002, July 2, 2003 and August 29, 2007.

Oil Pipeline Profile

FINANCIAL	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Operating revenues, total ($ millions)	U	U	U	(R) 7,149	7,281	(R) 7,711	(R) 7,321	(R) 7,215	(R) 6,890	(R) 7,220	(R) 7,483	(R) 7,730	(R) 7,812	(R) 7,704	(R) 8,020	7,917	8,517	8,996	9,244	9,987
INVENTORY																				
Number of FERC-regulated companies	87	101	130	150	158	161	160	U	U	184	U	U	U	195	195	197	U	U	195	U
Number of employees, pipeline companies [a]	23,100	17,600	21,300	18,500	17,100	15,100	14,500	14,200	13,800	13,060	13,230	13,680	12,360	12,500	12,840	13,040	12,770	13,080	14,220	15,270
Miles of pipeline (statute miles) [b], all lines	U	U	U	168,364	158,512	177,224	169,435	160,176	157,234	154,361	152,005	154,877	149,614	139,901	142,200	131,348	140,861	147,235	146,822	148,622
Crude lines	U	U	U	87,853	82,170	93,943	89,014	85,953	74,603	69,323	68,073	69,663	69,063	64,336	65,942	46,234	47,617	46,658	50,214	49,585
Product lines	U	U	U	80,511	76,342	83,281	80,421	74,223	82,631	85,038	83,932	85,214	80,551	75,565	76,258	71,310	81,103	85,666	84,914	87,788
PERFORMANCE																				
Intercity ton-miles, total (millions)	U	U	U	584,100	591,400	601,100	619,200	616,500	619,800	617,700	577,300	576,100	586,200	590,200	599,600	607,500	581,300	557,700	629,900	U
Crude oil	U	U	U	334,800	322,600	335,900	338,300	337,400	334,100	321,100	283,400	277,000	286,600	284,500	283,700	293,500	300,500	266,600	330,700	U
Petroleum products	U	U	U	249,300	268,800	265,200	280,900	279,100	285,700	296,600	293,900	299,100	299,600	305,700	315,900	314,000	(R) 280,900	291,100	299,200	U
Tons transported (millions)	U	U	U	1,598.9	U	1,798.5	U	U	U	U	2,003.7	1,864.4	1,862.1	1,846.8	1,860.9	U	U	U	U	U
SAFETY																				
Fatalities	N	4	4	3	1	3	5	0	2	4	1	0	1	0	5	2	0	4	2	4
Injured persons [c]	N	21	15	7	7	11	13	5	6	20	4	10	0	5	16	2	2	10	2	4
Incidents [u]	N	351	246	180	245	188	194	171	153	167	146	130	(R) 460	(R) 435	(R) 377	(R) 369	(R) 354	(R) 331	(R) 376	338

KEY: FERC = Federal Energy Regulatory Commission; N = data do not exist; R = revised; U = data are unavailable.

[a] Includes companies whose pipelines carry crude petroleum, petroleum products, and nonpetroleum pipeline liquids.

[b] Mileages of oil pipeline for years 1960-2000 include regulated and unregulated trunk and gathering crude lines, as well as refined oil trunk lines. Beginning in 2001, data include information for FERC-regulated oil pipeline companies only. For years 2005 and after, total miles of pipeline include both trunk and gathering lines, whereas the individual components, namely, crude and product lines, include the mileages of trunk lines only. Thus, details do not add to the total for this period.

[c] *Injured persons* does not include the 1,851 injuries that required medical treatment, caused by severe flooding near Houston, Texas, reported for October, 1994.

[d] The reporting criteria changed in 2002 adding small spills down to 5 gallons. The change was instituted on Feb. 7, 2002. For continuity with past trending, the data from post-2/7/2002 accidents used in the statistical summary includes only accidents meeting the reporting criteria: Accidents with gross loss greater than or equal to 50 barrels; those involving any fatality or injury; fire/explosion not intentionally set; Highly Volatile Liquid releases with gross loss of 5 or more barrels; or those involving total costs greater than or equal to $50,000.

NOTES

The Interstate Commerce Committee regulated oil pipelines in the 1960s and 1970s.

Data for Operating revenue are only for FERC-regulated oil pipeline.

SOURCES

Financial:

Operating revenues, total:

PennWell Corporation, *Oil and Gas Journal: Transportation Special Report* (Houston, TX: September 2000 and November 2010 Issues), pp. 74 and 106.

Inventory:

Number of FERC-regulated companies:

1960-96: Federal Energy Regulatory Commission, personal communication.

1999: Ibid., available at www.ferc.fed.us/oil/oil_list.htm as of June 21, 2001.

2003: Ibid., available at www.ferc.gov/industries/oil/gen-info/reg-central.asp as of Aug. 26, 2004.

2004: Ibid., available at www.ferc.gov/industries/oil/gen-info/reg-central.asp as of Mar. 16, 2005.

2005: Ibid., available at www.ferc.gov/industries/oil/gen-info/reg-central.asp as of Oct. 27, 2006.

2008: Ibid., available at www.ferc.gov/industries/oil/gen-info/reg-central.asp as of Mar. 09, 2010.

Number of employees, pipeline companies:

1960-80: U.S. Department of Labor, Bureau of Labor Statistics, *Employment, Hours and Earnings, United States, 1909-94* (Washington, DC: September 1994), SIC 46.

1990-94: Ibid., *Hours and Earnings, United States, 1988-1996* (Washington, DC: July 1996), SIC 46.

1995-98: Ibid., SIC 46, available at www.bls.gov as of Apr. 19, 1999.

1999-2001: Ibid., SIC 46, available at http://www.bls.gov/oes/oes_doc.htm, as of Feb. 22, 2010.

2002-09: Ibid, Occupational Employment Statistics, NAICS 486100 and 486900, available at http://www.bls.gov/oes/oes_doc.htm, as of Aug. 11, 2011.

Miles of pipeline (statute miles), all lines:

1990-2004: Eno Transportation Foundation, Inc., *Transportation In America 2007* (Washington, DC: 2007), p. 42.

2005-09: PennWell Corporation, *Oil and Gas Journal: Transportation Special Report* (Houston, TX), p. 76 and similar table in earlier editions.

Performance:

Intercity ton-miles:

Association of Oil Pipe Lines, *Shifts in Petroleum Transportation* (Washington, DC: January 2011), tables 1, 2 and 3, available at http://www.aopl.org/publications/ as of Aug. 12, 2011.

Tons transported:

1990-2004: Eno Transportation Foundation, Inc., *Transportation In America 2007* (Washington, DC: 2007), p. 60.

Safety:

1970 and 1980: U.S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety, personal communication.

1990-2009: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety *Hazardous Liquid Pipeline Operators Accident Summary Statistics* (Annual Issues) available at http://ops.dot.gov/stats/lq_sum.htm as of Aug. 12, 2011.

Natural Gas Pipeline Profile

FINANCIAL ($ millions)	1960	1970	1980	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
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	15,364	15,846	18,186	13,127
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	10,783	11,016	12,904	9,091
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	6,027	5,982	7,231	4,698
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	5,495	5,412	6,529	4,166
Maintenance expenses	64	109	405	629	578	558	488	406	351	325	292	347	322	344	373	548	532	570	702	532
Taxes (federal, state, local)	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	2,849	3,043	3,437	2,646
Federal taxes [b]	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	1,966	2,082	2,411	1,866
State and local taxes	96	174	664	477	585	534	558	455	525	536	541	610	530	485	601	813	883	961	1,026	780
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	40,410	51,022	48,942	(R) 46,064	56,092	44,937
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	37,330	46,811	45,868	42,697	52,155	40,302
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	32,149	42,000	40,154	37,173	46,148	34,371
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	31,355	41,114	39,261	36,283	45,075	33,372
Maintenance expenses	N	N	252	524	589	596	868	767	687	1,956	821	710	753	757	794	886	893	890	1,073	999
Taxes (federal, state, local)	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	2,901	3,231	3,188	3,052	3,273	3,210
Federal taxes [b]	N	N	351	580	703	720	1,041	849	1,250	883	1,033	1,216	891	1,108	1,096	1,071	1,053	1,172	1,215	1,231
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	1,805	2,160	2,135	1,880	2,058	1,979
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	80,331	102,061	97,197	(R) 97,236	109,600	87,457
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	71,699	89,315	86,992	85,143	97,666	76,163
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	59,952	77,624	73,494	71,043	82,428	61,894
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	58,277	75,633	71,465	69,012	80,042	59,567
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	1,675	1,991	2,027	2,031	2,387	2,328
Taxes (federal, state, local)	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	6,420	7,454	7,292	7,861	8,432	7,780
Federal taxes [b]	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	3,188	3,676	3,431	3,840	4,405	4,045
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	3,232	3,778	3,861	4,021	4,027	3,735
INVENTORY																				
Pipeline mileage, total [4]	630,950	913,267	1,051,774	1,270,374	1,335,530	1,331,676	1,314,663	1,331,775	1,372,644	1,364,336	1,377,320	1,413,555	(R) 1,462,585	(R) 1,432,209	(R) 1,484,945	(R) 1,484,552	(R) 1,504,318	(R) 1,523,943	1,533,239	1,544,759
Transmission	183,700	252,200	266,500	291,990	301,545	296,947	292,186	294,370	302,714	296,114	298,957	290,456	(R) 303,330	(R) 301,616	(R) 303,005	(R) 300,452	(R) 300,338	(R) 301,066	303,282	304,406
Distribution	391,400	594,800	701,800	945,964	1,002,669	1,003,798	992,860	1,002,942	1,040,765	1,035,946	1,050,802	1,101,485	1,136,479	1,107,559	(R) 1,156,989	(R) 1,160,484	(R) 1,183,277	(R) 1,202,893	1,209,358	1,219,801
Field and gathering	55,800	66,300	83,500	32,420	31,316	30,931	29,617	34,463	29,165	32,276	27,561	21,614	(R) 22,776	(R) 23,034	(R) 24,951	(R) 23,616	(R) 20,703	(R) 19,984	20,599	20,552
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	124,000	118,000	122,000	121,000
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	111,000	106,000	111,000	110,000
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	25,000	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	51,000	47,000	53,000	52,000
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	4,000	4,000	3,000	3,000
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	31,000	30,000	30,000	30,000
Number of interstate natural gas pipeline companies [e, 6]	87	89	91	132	79	92	84	101	97	108	107	106	109	107	114	114	117	125	130	139
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	19,517,491	18,927,095	19,409,674	20,196,346	21,112,053	21,604,158
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	20,782,693	20,437,798	20,680,843	21,539,964	20,495,108	21,227,015	20,562,727	20,724,883	20,315,054	19,958,451	21,249,389	21,400,397	20,965,704
Consumed, total	11,966,537	21,139,386	19,877,293	19,173,556	21,247,098	22,206,889	22,609,080	22,737,342	22,245,956	22,405,151	23,333,121	22,238,624	23,007,017	22,276,502	22,388,975	22,010,596	21,684,641	23,097,140	23,268,056	22,839,158
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	566,187	584,026	584,213	621,364	647,956	598,216
SAFETY [8]																				
Fatalities	N	26	15	6	21	18	48	10	19	18	37	7	(R) 11	12	18	12	21	11	7	9
Injured persons	N	233	177	69	113	53	114	72	75	88	77	51	49	66	44	46	34	43	58	63
Incidents	N	1,077	1,524	199	222	161	187	175	236	172	234	211	(R) 184	238	(R) 297	352	287	285	289	287

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

[a] Total does not sum from components due to the omission of a 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 total due to independent rounding.
Gas utility industry totals include employees of privately owned companies.
Pipeline mileage data for 1990 and later years are obtained from the Pipeline and Hazardous Material Safety Administration and data for these years are not comparable with prior years or with numbers published in the previous NTS reports.

SOURCES

[1] 1960-70: American Gas Association, *Gas Facts, 1979* (Arlington, VA: 1980), table 134. 1980-2009: Ibid., *Gas Facts,* (Washington, DC: Annual Issues), table 11-2 and similar tables in earlier editions.
[2] 1980: American Gas Association, *Gas Facts, 1979* (Arlington, VA: 1980), table 134. 1990-2009: Ibid., *Gas Facts,* (Washington, DC: Annual Issues), table 11-1 and similar tables in earlier editions.
[3] 1980-2009: 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.
[4] 1960-70: American Gas Association, *Gas Facts, 1979* (Arlington, VA: 1980), table 44. 1980: Ibid., *Gas Facts* (Washington, DC: Annual Issue), tables 5-1 and 5-3.

[4] 1990-2009: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, available at http://ops.dot.gov/stats.htm as of July 14, 2011.
[5] 1960-80: American Gas Association, *Gas Facts, 1979* (Arlington, VA: 1980), table 153.
[5] 1990-2009: Ibid., Gas Facts, (Washington, DC: Annual Issues), 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), available at http://www.ferc.gov/industries/gas/gen-info/fastr/index.asp as of Feb. 18, 2004.
[6] 1990-2009: Federal Energy Regulatory Commission, Office of External Affairs, personal communication, Aug. 8, 2011.

[7] 1960-95: U.S. Department of Energy, Energy Information Administration *Natural Gas Annual, 1998* (Washington, DC: October 1999), table 98. 1996-2009: Ibid., *Natural Gas Annual,* (Washington, DC: Annual Issues), table 1, available at http://www.eia.doe.gov/oil_gas/natural_gas/data_publications/natural_gas_annual/nga.html as of July 14, 2011.

[8] U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, available at http://ops.dot.gov/stats.htm as of July 14, 2011.

Source and Accuracy Statements

Appendix E
Data Source and Accuracy Statements

Chapter 1 Extent, Condition, and Performance

TABLE 1-1. System Mileage Within the United States

Highway

The Highway Performance Monitoring System (HPMS) is the source of road mileage data and is considered reliable. (See box 1-1 for detailed information about the HPMS.) The Federal Highway Administration (FHWA) of the U.S. Department of Transportation (USDOT) collects and reviews state-reported HPMS data for completeness, consistency, and adherence to specifications. Some inaccuracy may arise from variations across states in their adherence to federal guidelines in the Traffic Monitoring Guide and the *Highway Performance Monitoring System Field Manual for the Continuing Analytical and Statistical Database*.

Beginning with the 1997 issue of *Highway Statistics*, FHWA instituted a new method for creating mileage-based tables derived from the HPMS. Previously, adjustments to tables developed from sample data were made using area-wide mileage information provided by states. These adjustments are now being made using universe totals from the HPMS dataset. In addition, FHWA has discontinued the process of spreading rounding and other differences across table cells. Thus, users may note minor differences in table-to-table totals. FHWA considers mileage totals from table HM-20, "Public Road Length, Miles by Functional System" to be the controlling totals should a single value be required.

Reliability may be diminished for comparisons with pre-1980 data, which were collected via different methods and special national studies. For instance, pre-1980 mileage data included some nonpublic roadways (95,000 miles in 1979) while post-1980 data reports only public road mileage (roads or streets governed and maintained by a public authority and open to public travel).

Class I Rail

These data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 1999, the adjusted threshold for Class I railroads was $258.5 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

To obtain railway mileage, AAR subtracts trackage rights from miles of rail traveled on line 57 in the Schedule 700 report. Historical reliability may vary due to changes in the railroad industry, including bankruptcies, mergers, and declassification by the STB. Small data errors may also exist because of because of independent rounding of this series by AAR.

Amtrak

These statistics originate from the Statistical Appendix to *Amtrak's Annual Report*. Amtrak estimates track mileage based on point-to-point city timetables that railroad companies provide for engineers. The figures are estimates, but are considered reliable.

Transit

These data are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database (NTD). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit

agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including vehicle inventories and directly operated mileage. Transit operators that do not report to FTA are those that do not receive Urbanized Area Formula Funding, typically private, small, and rural operators. The data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data definitions.

Navigable Channels

These statistics originate from a mid-1950s U.S. Army Corps of Engineers (USACE) estimate that there were approximately 25,000 miles of commercially important navigable channels in the United States. That number has been adjusted from time to time, for example, by addition of the 234-mile Tennessee-Tombigbee Waterway in the early 1980s. The 25,000 plus mile number has been universally quoted for decades, but has definitional and methodological uncertainties. USACE is currently developing a rigorous, Global Information System (GIS)-based approach to facilitate tabulation of the lengths of shallow and deep-draft commercially navigable waterways in the United States; this calculation will be available in several years.

Oil Pipeline

The data are from *Transportation in America*, published by the Eno Transportation Foundation, Inc. (Eno). The numbers reprinted here for 1960, 1965, 1970, and 1975 are Eno estimates from the U.S. Department of Energy (DOE) Energy Data Report issues labeled "Crude-oil and Refined Products Mileage in the United States." Eno estimated the 1980 number based on the assumption that refinement of old, less profitable, and smaller lines exceeded in mileage the construction of new, larger, and more profitable lines. Post-1985 data were calculated using a base figure reported in a 1982 USDOT study entitled *Liquid Pipeline Director* and then combined with data from the Association of Oil Pipe Lines and the Oil Pipeline Research Institute. Lack of additional information raises definitional and methodological uncertainties for the data's reliability. Moreover, the three different information sources introduce data discontinuities, making time comparisons unreliable.

Gas Pipeline

These statistics originate from annual editions of *Gas Facts*, published by the American Gas Association (AGA). The data reported by the AGA are based on gas utilities participation and reporting to the *Uniform Statistical Report*. Utilities reporting represented 98 percent of gas utility industry sales while the remaining 2 percent was estimated for nonreporting companies based on recent historical experience. Varying percentages of nonreporters from year to year introduce minor reliability problems for time-series comparisons.

TABLE 1-2. Number of Air Carriers, Railroads, Interstate Motor Carriers, Marine Operators, and Pipeline Operators

Air Carriers

The data are from the *Air Carrier Financial Statistics Quarterly*, published by the Office of Airline Information of the U.S. Department of Transportation, Bureau of Transportation Statistics (BTS). The Alphabetical List of Air Carriers by Carrier Group at the beginning of each fourth quarter edition is used to determine the number of major air carriers and other air carriers in operation at the end of each calendar year. The publication draws its data from the T-100 and T-100(f) databases maintained by BTS. These databases include data obtained from a 100-percent census of BTS Form 41 schedule submissions by large certificated air carriers, which are carriers that hold a certificate issued under section 401 of the Federal Aviation Act of 1958 and that (1) operate aircraft designed to have a maximum passenger seating capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds or (2) that conduct international operations. Carriers are grouped as major, national, large regional, or medium regional based on their annual operating revenues. The thresholds were last adjusted July 1, 1999 and the threshold for major air carriers is currently $1 billion. The table combines the number of national, large regional, and medium regional air carriers into the other air carrier category.

Railroads

The Association of American Railroads (AAR)'s *Railroad Ten-Year Trends* series is the source for the number of railroads. The number of Class I railroads is based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

The Association of American Railroads determines the number of non-Class I railroads through an annual survey sent to every U.S. freight railroad. By following up with nonrespondents, the AAR obtains essentially a census of railroads. Use of the current survey instrument began in 1986.

Interstate Motor Carriers

The Motor Carrier Management Information System (MCMIS), maintained by the U.S. Department of Transportation, Federal Motor Carrier Safety Administration, contains information on the safety of all commercial interstate motor carriers and hazardous material (HM) shippers subject to the Federal Motor Carrier Safety Regulations and the Hazardous Materials Regulations. All carriers operating in interstate or foreign commerce within 90 days of beginning operations must submit a Form MCS-150, Motor Carrier Identification Report. Carriers may also use the form to update their information. The Motor Carrier Safety Improvement Act of 1999 requires that reports be periodically updated, but not more than once every two years. MCMIS is updated as soon as information is provided and verified, and periodic archives are made. Historical data are available from summary information previously prepared, including tables and reports. MCMIS began operations in 1980. Safety data since 1990 are available to the public.

Marine Vessel Operators

The U.S. Army Corps of Engineers (USACE) provides the data for marine vessel operators through the *Waterborne Transportation Lines of the United States*. Data are collected by the USACE's Navigation Data Center (NDC) by various means, including the U.S. Coast Guard's registry, maritime service directories, and waterway sector publications. However, an annual survey of companies that operate inland waterway vessels is the principle source of data. More than 3,000 surveys are sent to these companies and response rates are typically above 90 percent. However, a USACE official did report that less than 10 percent of the total number of companies operating inland water vessels either did not receive or respond to the annual survey.

Pipeline Operators

The Office of Pipeline Safety (OPS) in the U.S. Department of Transportation's Research and Special Programs Administration collects annual report data from natural gas transmission and distribution operators as required by 49 CFR 191.17 and 191.11, respectively. Annual data must be submitted by March 15 of the following calendar year. No annual report is required for hazardous liquid pipeline operators. However, information is available through the pipeline safety program. Since 1986, the program has been funded by fees assessed to each OPS-regulated pipeline operator based on per-mile of hazardous pipeline operated. Data for each operator and each mile of pipeline are stored in the OPS user-fee database, which is revised annually as updated fees are assessed.

Totals for pipeline operators in this table will differ from those in other tables due to differences in the regulatory authority of USDOT and the Federal Energy Regulatory Commission (FERC). FERC regulates only interstate pipelines, whereas DOT regulates both interstate and intrastate pipelines, except for rural gathering lines and some offshore pipelines, which fall under jurisdiction of the U.S. Coast Guard or the U.S. Department of the Interior's Minerals Management Service. An OPS official stated that FERC regulates about two-thirds the amount of pipeline mileage that USDOT regulates.

TABLE 1-3. Number of U.S. Airports

The Federal Aviation Administration (FAA), Office of Airport Safety and Standards *Administrator's Fact Book* (annual issues) furnished the data shown in this table and includes airports certified for air carrier operations with aircraft that seat 30 or more passengers. These airports include civil and joint civil-military use airports, heliports, STOLports (short takeoff and landing), and seaplane facilities. The FAA obtained this data via physical inspections and mail

solicitations of all federally regulated landing facilities. Since this is a census of all U.S. airports, reliability should be high. Data, however, may be subject to reporting errors typical of administrative recordkeeping.

TABLE 1-4. Public Road and Street Mileage in the United States by Type of Surface

TABLE 1-5. U.S. Public Road and Street Mileage by Functional System

TABLE 1-6. Estimated U.S. Roadway Lane-Miles by Functional Class

The Highway Performance Monitoring System (HPMS) is the source of road mileage data and is considered reliable.(See box 1-1 for detailed information about the HPMS.) The U.S. Department of Transportation, Federal Highway Administration collects and reviews state-reported HPMS data for completeness, consistency, and adherence to specifications. Some inaccuracy may arise from variations across states in their adherence to federal guidelines in the Traffic Monitoring Guide and the *Highway Performance Monitoring System Field Manual for the Continuing Analytical and Statistical Database*.

Beginning with the 1997 issue of *Highway Statistics*, FHWA instituted a new method for creating mileage-based tables derived from the HPMS. Previously, adjustments to tables developed from sample data were made using area-wide mileage information provided by states. These adjustments are now being made using universe totals from the HPMS dataset. In addition, FHWA has discontinued the process of spreading rounding and other differences across table cells. Thus, users may note minor differences in table-to-table totals. FHWA considers mileage totals from table HM-20, "Public Road Length, Miles by Functional System" to be the controlling totals should a single value be required.

Lane-miles are calculated by multiplying the centerline length by the number of through lanes. Because the HPMS requires that the number of lanes be reported for all principal arterials, other National Highway System (NHS) roads, and all standard samples, lane length can be computed for the Interstate, other principal arterials, and the NHS on a 100-percent basis. For minor arterials, rural major collectors, and urban collectors, lane length is calculated based on standard sample sections using the reported number of through lanes, length of section, and an expansion factor. FHWA uses the expanded sample to check that the centerline length of a state's functional system matches the universe functional system length. If the centerline length and functional system length do not match, FHWA may ask a state to make adjustments.

Reliability may be diminished for comparisons with pre-1980 data, which were collected via different methods and special national studies. For instance, pre-1980 mileage data included some nonpublic roadways (95,000 miles in 1979) while post-1980 data reports only public road mileage (roads or streets governed and maintained by a public authority and open to public travel).

TABLE 1-7. Number of Stations Served by Amtrak and Rail Transit, Fiscal Year

These numbers originate from Amtrak's Statistical Appendix to *Amtrak's Annual Report* and the U.S. Department of Transportation, Federal Transit Administration's National Transit Database.

Amtrak maintains a computer database with a record of every station, locomotive, and car it operates. Those records include for each vehicle the year built, its service status (operating or not on a daily basis), and location. These data should be considered very reliable.

TABLE 1-8. ADA Accessible Rail Transit Stations by Agency

TABLE 1-9. ADA Lift- or Ramp-Equipped Transit Buses

These data are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database (NTD). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including certain aspects of station and vehicle accessibility. Transit operators that do not report to FTA are those that do not receive Urbanized Area Formula Funding, typically private, small, and rural operators. The data are generally considered accurate because FTA reviews and validates information submitted by individual transit

agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data definitions.

TABLE 1-10. U.S. Oil and Gas Pipeline Mileage

Oil Pipeline

The data are from *Transportation in America*, published by the Eno Transportation Foundation, Inc. (Eno). The numbers reprinted here for 1960, 1965, 1970, and 1975 are Eno estimates from the U.S. Department of Energy's *Energy Data Report* issues labeled "Crude-oil and Refined Products Mileage in the United States." Eno estimated the 1980 number based on the assumption that refinement of old, less profitable, and smaller lines exceeded in mileage the construction of new, larger, and more-profitable lines. Figures from 1985 and later years are calculated from a base figure that Eno obtained from the 1982 U.S. Department of Transportation study *Liquid Pipeline Director* and then incorporated that figure with data from the Association of Oil Pipe Lines and the Oil Pipeline Research Institute. Lack of additional information raises definitional and methodological uncertainties for the data's reliability. Moreover, the three different information sources introduce data discontinuities making time comparisons less reliable.

Gas Pipeline

These statistics originate from annual editions of *Gas Facts* published by the American Gas Association (AGA). The data reported by AGA are based on gas utilities participation and reporting to the Uniform Statistical Report. Utilities reporting in 1991 represented 98 percent of total gas utility industry sales while the remaining 2 percent was estimated for the nonreporting companies based on recent historical experience. Varying percentages of nonreporters from year to year introduce minor reliability problems for time-series comparisons.

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

TABLE 1-12. Sales or Deliveries of New Aircraft, Vehicles, Vessels, and Other Conveyances

Civilian Aircraft

The Aerospace Industries Association (AIA) provided this data in their annual issues *Aerospace Facts and Figures*, "Civil Aircraft Shipments." AIA collects their data from aircraft company reports, the General Aviation Manufacturers Association (GAMA), and the U.S. Department of Commerce's (DOC) International Trade Administration. DOC data provide total number of shipments and exports, and the difference computed by AIA equals domestic shipments. DOC collects shipments data separately for individual factories or establishments and not at the company level. A potential limitation of this approach is when a factory producing aircraft for shipment also makes aircraft parts. If the establishment has 80 percent of its production in aircraft and 20 percent in parts, all of the output is attributed to aircraft shipments.

Transport

The Aerospace Industries Association (AIA) is the source of these data. AIA obtains quarterly data from Boeing Corp., now the sole U.S. manufacturer of transport aircraft, and publicly available financial disclosure information filed with the U.S. Securities and Exchange Commission (SEC) via Form 10-k. SEC requires a publicly traded company to file an annual report 90 days after the end of the company's fiscal year to provide an overview of that business.

Helicopters

AIA surveyed and received data from all 10 major helicopter manufacturers on their sales and deliveries.

General Aviation

The general aviation figures are taken from the *General Aviation Statistical Databook* published by the GAMA. General aviation refers usually to the small aircraft industry in the United States. GAMA collects quarterly data from the 10 to 14 manufacturers who nearly equal a census of the general aviation sector.

Passenger Car, Truck, Bus, and Recreational Vehicles

Ward's *Motor Vehicle Facts and Figures* is the source of these data. Ward's obtains sales data directly from manufacturers. Readers should note that automobile manufacturers have inflated sales figures in the past, but Ward's does contact companies to verify numbers that appear too high or low.

Motorcycle

The Motorcycle Industry Council, Inc. (MIC) publishes the *Motorcycle Statistical Annual*, which is the source for these data. MIC derived the estimate for new retail motorcycle sales for each state from the *MIC Retail Sales Report*, and adjusted for total retail sales. Motorcycle company reports provided sales data. Prior to 1985, all-terrain vehicles (ATVs) were included in the motorcycle total. In 1995, the Motorcycle Industry Council revised its data for the years 1985 to present to exclude all terrain vehicles from its totals.

Bicycle

The National Bicycle Dealers Association (NBDA) reported these data, which are based on Bicycle Manufacturers Association (BMA) information through 1996. BMA stopped reporting members' shipments in 1996. Moreover, BMA represents the largest bicycle manufacturers (Huffy, Roadmaster, and Murray), and thus the data do not reflect specialty bike makers or other manufacturers. The Bike Council estimated 1997 through 2001 figures in the table. According to a Bicycle Council representative, the estimates are a combination of domestic forecasts produced by a panel of industry experts and import data from monthly U.S. census databases.

Transit

The American Public Transit Association provided these figures, which are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database. These data are generally considered accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or misinterpret data. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private, very small, and rural operators).

Class I Rail

The data are from Railroad Facts, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the threshold for Class I railroads was $261.9 million. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated. Historical reliability may vary due to changes in the railroad industry, including bankruptcies, mergers, and declassification by the STB. Small data errors may also have occurred because of independent rounding in this series by the AAR.

Amtrak

Amtrak maintains a computer database with a record of every locomotive and car it operates. For each vehicle, those records include the year built, its service status (operating or not on a daily basis), and location. These data should be considered very reliable.

Water Transportation

U.S. Department of Transportation, Maritime Administration (MARAD), which classifies vessels as merchant based on size and type, reports these data in annual issues of its *Merchant Fleets of the World*. MARAD compiles these figures from a data service provided by Lloyd's Maritime Information Service. The parent company, Lloyd's Register (LR), collects data from several sources: its 200 offices worldwide, data transfers and agreements with other classification societies, questionnaires to ship owners and shipbuilders, feedback from government agencies, and input from port agents. According to an LR official, consistent data gathering methods have been maintained for more

than 30 years but cautioned that inconsistencies may occur in groupings of ship types over time. For example, tank barges are now included in the tanker ship-type grouping rather than the barge grouping.

TABLE 1-13. Active Air Carrier and General Aviation Fleet by Type of Aircraft

Air Carrier, Certificated, All Services

Prior to 1995, data originated from the U.S. Department of Transportation, Federal Aviation Administration (FAA), FAA *Statistical Handbook of Aviation*. Later data are from the Aerospace Industries Association (AIA), *Aerospace Facts and Figures*. However, Aerospace Facts and Figures is compiled from the FAA *Statistical Handbook of Aviation*. U.S. air carrier fleet data are based on reports collected by FAA field offices from carriers. The reports include information on the number of aircraft by type used in air carrier service. The FAA points out that this information is not an inventory of the aircraft owned by air carriers, but represents the aircraft reported to the FAA as being used in air carrier fleet service. The reported aircraft are all aircraft carrying passengers or cargo for compensation or hire under 14 CFR 121 and 14 CFR 135.

General Aviation

The 1960-1980 figures originated from the FAA *Statistical Handbook of Aviation*. Later data are from FAA annual issues of the *General Aviation* and *Air Taxi Activity* (GAATA) Survey report, table 3.1.The FAA collects both aircraft registration data and voluntary information about aircraft operation, equipment, and location. Before 1978, the FAA mandated owners to annually register their aircraft for the Aircraft Registration Master File. This was a complete enumeration of operating aircraft. Registrants were also asked to voluntarily report information on hours flow, avionics equipment, base location, and use. The FAA changed their data collection methodology in 1978. The annual registration requirement became triennial and the General Aviation Activity and Avionics Survey was initiated to sample aircraft operation and equipment data.

The General Aviation Activity and Avionics Survey was renamed the General Aviation and Air Taxi Activity Survey in 1993 to reflect the fact that the survey includes air taxi aircraft. This survey is conducted annually and encompasses a stratified, systematic design from a random start to generate a sample of all general aviation aircraft in the United States. It is based on the FAA registry as the sampling frame. FAA established three stratification design variables in the survey: 1) the average annual hours flown per aircraft by aircraft type, 2) the aircraft manufacturer/model characteristics, and 3) the state of aircraft registration.

Data Reliability

Because of the change in 1978, the reliability of comparisons over time will be affected. The FAA asserted that the change to a triennial registration deteriorated the Aircraft Registration Master File in two ways. First, the resulting lag in registration updates caused the number of undeliverable questionnaires to steadily increase over the three-year period. Second, inactive aircraft would remain in the registry, inflating the general aviation fleet count. In addition, a new regulation added two categories of aircraft to the general aviation fleet. However, FAA concluded that these changes resulted in no more than a five-percent error in the fleet population estimate.

The reliability of the GAATA survey can be impacted by two factors: sampling and nonsampling error. A measure, called the standard error, is used to indicate the magnitude of sampling error. Standard errors can be converted for comparability by dividing the standard error value by the estimate (derived from sample survey results) and multiplying it by 100.This quantity, referred to as the percent standard error, totaled seven-tenths of a percent in 1997 for the general aviation fleet. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision.

Nonsampling errors could include problems such as nonresponse, respondent's inability or unwillingness to provide correct information, differences in interpretation of questions, and data-entry mistakes. Readers should note that non-response bias might be a component of reliability errors in the data from 1980 to 1990.The FAA conducted telephone surveys of nonrespondents in 1977, 1978, and 1979 and found no significant differences or inconsistencies in respondents' and nonrespondents' replies. The FAA discontinued the telephone survey of nonrespondents in 1980 to save costs. Nonresponse surveys were resumed in 1990, and the FAA found notable differences and thus adjusted its fleet estimates. The 1991 through 1996 data have been revised to reflect nonresponse bias. In 1997, a sample of 29,954 aircraft was identified and surveyed from an approximate population of 251,571 registered general aviation aircraft. Just over 65 percent of the sample responded to the survey.

Highway, Total (registered vehicles)

The 1960 to 1980 figures are from the U.S. Department of Transportation, Federal Highway Administration (FHWA) document, *Highway Statistics, Summary to 1985,* table MV-201 and related tables. Data quality and consistency will be less reliable for these years because of a diversity of registration practices from state to state. Users should recognize that motor vehicle statistical information is not necessarily comparable across all states or within a state from year to year. For instance, the FHWA reported that separate data on single-unit trucks and combinations was unobtainable from all states in 1990.

After 1980, the FHWA began to use the Highway Performance Monitoring System (HPMS) database, which improved data reliability. FHWA reviews state-reported HPMS data for completeness, consistency, and adherence to these specifications. Some inaccuracy may arise from variations across states in their adherence to federal guidelines in the *Highway Performance Monitoring System Field Manual for the Continuing Analytical and Statistical Database*.

If choosing to compare state data, the FHWA recommends that users carefully select a set of peer states that have characteristics similar to the specific comparison. Improperly selected peer states are likely to yield invalid data comparisons. Characteristics that a user needs to consider in determining compatibility of a peer state include similarities and differences in urban/rural areas, population densities, degrees of urbanization, climate, geography, state laws and practices that influence data definitions, administrative controls of public road systems, state economies, traffic volumes, and degrees of centralization of state functions. The FHWA has developed a set of variables that users may use to determine appropriate peer states.

Other 2-Axle 4-Tire Vehicle (truck)

Sources for these figures included FHWA's *Highway Statistics, Summary to 1995* (table VM-201A) and annual issues of *Highway Statistics* (table VM-1). FHWA compiles these figures from the U.S. Bureau of the Census' Truck Inventory and Use Survey (TIUS). Since 1963, Census has conducted the TIUS every five years with the last survey completed in 1997.The Census Bureau changed the name of the survey to the Vehicle Inventory and Use Survey (VIUS) in 1997. The VIUS collects data and the physical and operational characteristics of the nation's truck population. In 1997, 131,000 trucks were surveyed from an estimated universe of over 75 million trucks. Chronological reliability may be diminished due to sampling design changes in 1977, 1982, and 1992. In 1977, the sampling universe was first stratified by the number of trucks in a state: large (> 1.5 million trucks), medium (700,000 to 1.5 million), and small (< 700,000); and then by two truck sizes.

Stratification in 1982 was then based on body type rather than vehicle weight. In 1992 and 1997, the sampling universe was first subdivided geographically and then into five strata: 1) pickups, 2) vans, 3) single-unit light, 4) single-unit heavy, and 5) truck tractor. Cases were then selected randomly within each stratum.

Census delivered a mail-out/mail-back survey to the owner identified in the vehicle registration records. Data collection is staggered as state records become available. Owners report data only for the vehicles selected. In the 1992 survey, a method was employed to also collect data on new truck purchases in the latter half of the year to estimate the fleet for the calendar year. This adjustment in the sampling frame had not been done in previous surveys and may diminish chronological reliability. The sample for 1997 was some 22,500 vehicles smaller than for 1992. The 1997 VIUS had two sampling stages. For the first stage, the Census Bureau surveyed about 131,000 trucks registered as of July 1, 1997.The second stage sampled a total of 3,000 truck owners with state mailing addresses different from the state of truck registration.

The accuracy and reliability of the VIUS survey depends jointly on sampling variability and nonsampling errors. Standard errors arising from sampling variability can be converted for comparability by dividing the standard error value by the estimate and multiplying it by 100. This quantity, referred to as the percent standard error, totaled two-tenths of a percent in 1992 and 1997 for the VIUS sample. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. The 1992 TIUS achieved over 90.2 percent reporting and the 1997 response rate equaled 84.5 percent, thus reliability may have decreased in the most recent survey.

Transit

The American Public Transit Association (APTA) provided these data, which are based on the Federal Transit Administration (FTA), National Transit Database. These data are generally accurate because the FTA reviews and

validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private, very small, and rural operators).

Railroad (all categories)

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. Thus, data estimates are considered very reliable. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

AAR determines the number of non-Class I railroads through an annual, comprehensive survey sent to every U.S. freight railroad. By following up with nonrespondents, the AAR obtains essentially a 100 percent census of all railroads. Use of the current survey instrument began in 1986.

Amtrak

Amtrak maintains a computer database with a record of every locomotive and car it operates. For each vehicle, those records include the year built, service status (operating or not operating on a daily basis), and location. This data should be considered very reliable.

Water Transportation

The source for Inland Nonself-Propelled Vessels, Self-Propelled Vessels, and flag passenger and cargo vessels is the U.S. Army Corps of Engineers (USACE), *Waterborne Transportation Lines of the United States*, annual issues. Data are collected by the USACE's Navigation Data Center (NDC) by various means, including the U.S. Coast Guard's registry, maritime service directories, and waterway sector publications. However, an annual survey of companies that operate inland waterway vessels is the principle source of data. More than 3,000 surveys are sent to these companies, and response rates are typically above 90 percent. However, a USACE official did report that less than 10 percent of the total number of companies operating inland vessels either did not receive or respond to the annual survey.

Oceangoing Steam Motor Ships

Merchant Fleets of the World, published annually by the U.S. Department of Transportation, Maritime Administration (MARAD), is the source of these data. MARAD, which classifies vessels as merchant based on size and type, compiles these figures from a data service provided by Lloyd's Maritime Information Service (LMIS).The parent company, Lloyd's Register (LR), collects data from 200 offices worldwide, from data transfers and agreements with other classification societies, from questionnaires to ship owners and ship builders, from feedback from government agencies, and from input from port agents. According to an LR official, consistent data-gathering methods have been maintained for more than 30 years. The same official did caution that there are sometimes inconsistencies in groupings of ship types over time. For example, propelled tank barges are now included in the tanker ship-type grouping.

Recreational Boats

Boating Statistics, published annually by the U.S. Coast Guard (USCG), is the source. The USCG derives these figures from state and other jurisdictional reporting of the actual count of valid boat numbers issued. In accordance with federal requirements, all 55 U.S. states and territories require motor-powered vessels to be numbered. However, over half the states do not require nonpowered vessels to be numbered. Accuracy can also be diminished by noncompliance of boat owners with numbering and registration laws. In 1996, the USCG estimated that approximately eight million recreational boats are not numbered and, thus, are excluded from the reported number of recreational vessels. The USCG did not provide estimates for the number of boats without numbering in their reports

after 1996. Some jurisdictions fail to report by publication deadlines, and the USCG provided estimates based on the previous year's estimate.

TABLE 1-14. U.S. Automobile and Truck Fleets by Use

These statistics originate from two sources. The R.L. Polk Co. provides numbers for commercial fleet vehicles from state registrations. Bobit Publishing Co. also obtains fleet vehicle sales data from automobile manufacturers. These two sources cover nearly 100 percent of fleet vehicles in the United States. Thus, the data should be very accurate.

TABLE 1-15. Annual U.S. Motor Vehicle Production and Factory (Wholesale) Sales

TABLE 1-16. Retail New Passenger Car Sales

TABLE 1-17. New and Used Passenger Car Sales and Leases

TABLE 1-18. Retail Sales of New Cars by Sector

The U.S. Department of Commerce, Bureau of Economic Analysis, uses data from Ward's Automotive Reports. The sectoral break down is derived from registration data obtained from R.L. Polk. Ward's obtains sales data directly from manufacturers. Readers should note that automobile manufacturers have inflated sales figures in the past, but Ward's does contact companies to verify numbers that appear too high or low.

TABLES 1-20 and 1-21. Period Sales, Market Shares, and Sales-Weighted Fuel Economies of New Domestic and Imported Automobiles and Light Trucks, Selected Sales Periods

These data originate from Oak Ridge National Laboratory's (ORNL) Light-Duty MPG and Market Shares System database, which relies on information from monthly Ward's Automotive Reports. Comparisons and observations are made on sales and fuel economy trends from one model year to the next. ORNL has adopted several conventions to facilitate these comparisons, such as the use of sales-weighted average to estimate fuel economy and vehicle characteristics. For example, "sales-weighted" miles per gallon refers to a composite or average fuel economy based on the distribution of vehicle sales. ORNL's methodology for sales-weighting can be found in the Appendix of the *Highway Vehicle MPG and Market Shares Report: Model Year 1990* (the latest published report). The method was changed dramatically in 1983, and data reliability prior to that year is questionable. This information is now published annually in ORNL's *Transportation Energy Data Book.*

TABLE 1-22. Number of Trucks by Weight

These data are derived from the Vehicle Inventory and Use Survey (VIUS) conducted in 1997 by the U.S. Bureau of the Census. This survey, formerly known as the Truck Inventory and Use Survey (TIUS), has been conducted every 5 years since 1963. The VIUS collects data and the physical and operational characteristics of the nation's truck population. In 1997, 131,000 trucks were surveyed from an estimated universe of over 75 million trucks. Chronological reliability may be diminished due to sampling design changes in 1977, 1982, and 1992. In 1977, the sampling universe was first stratified by the number of trucks in a state: large (> 1.5 million trucks), medium (700,000 to 1.5 million), and small (< 700,000); and then by two truck sizes.

Stratification in 1982 was then based on body type rather than vehicle weight. In 1992 and 1997, the sampling universe was first subdivided geographically and then into five strata: 1) pickups, 2) vans, 3) single-unit light, 4) single-unit heavy, and 5) truck tractor. Cases were then selected randomly within each stratum.

Census delivered a mail-out/mail-back survey to the owner identified in the vehicle registration records. Data collection is staggered as state records become available. Owners report data only for the vehicles selected. In the 1992 survey, a method was employed to also collect data on new truck purchases in the latter half of the year to estimate the fleet for the calendar year. This adjustment in the sampling frame had not been done in previous surveys and may diminish chronological reliability. The sample for 1997 was some 22,500 vehicles smaller than for 1992. The 1997 VIUS had two sampling stages. For the first stage, the Census Bureau surveyed about 131,000 trucks registered as of July 1, 1997.The second stage sampled a total of 3,000 truck owners with state mailing addresses different from the state of truck registration.

The accuracy and reliability of the VIUS survey depends jointly on sampling variability and nonsampling errors. Standard errors arising from sampling variability can be converted for comparability by dividing the standard error value by the estimate and multiplying it by 100. This quantity, referred to as the percent standard error, totaled two-tenths of a percent in 1992 and 1997 for the VIUS sample. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. The 1992 TIUS achieved over 90.2 percent reporting and the 1997 response rate equaled 84.5 percent, thus reliability may have decreased in the most recent survey.

TABLE 1-23. World Motor Vehicle Production, Selected Countries

Motor Vehicle Production, Factory Sales, and New Passenger Car Retail Sales

Ward's Motor Vehicle Facts & Figures is the source of these data. Ward's obtains sales data directly from manufacturers. Readers should note that automobile manufacturers have inflated sales figures in the past, but Ward's does contact companies to verify numbers that appear too high or low.

Used Passenger Car Sales and Leased Passenger Cars

ADT Automotive Used Car Market Report is the source of these data. The Wall Street Journal (WSJ) is the original source of 1999 data. According to an ADT representative, publishing deadlines require ADT to use WSJ numbers until they can be replaced with National Automotive Dealers Association data. ADT Automotive's Market Analysis Department also gathers figures from CNW Marketing/Research and the R.L. Polk Co. CNW estimates used car sales volumes by collecting state title transfer data and determining if a transaction was made between private individuals or between a consumer and a franchised or independent dealer. This estimate is evaluated by comparing total transactions with state automobile sales revenues. Polk, an additional source of data, maintains a state vehicle registration database. For 1998, the ADT representative stated that Polk's data were within 5 percentage points of CNW estimates.

TABLE 1-24. Number and Size of the U.S. Flag Merchant Fleet and Its Share of the World Fleet

The U.S. Department of Transportation, Maritime Administration, which classifies vessels as merchant based on size and type, compiles these figures from a data service provided by Lloyd's Maritime Information Service. The parent company, Lloyd's Register (LR), collects data from several sources: its 200 offices worldwide, data transfers and agreements with other classification societies, questionnaires to ship owners and shipbuilders, feedback from government agencies, and input from port agents. According to an LR official, consistent data gathering methods have been maintained for more than 30 years, but cautioned that inconsistencies may occur in groupings of ship types over time. For example, tank barges are now included in the tanker ship-type grouping rather than the barge grouping.

TABLE 1-25. U.S. Airport Runway Pavement Conditions

These data originate from the U.S. Department of Transportation, Federal Aviation Administration (FAA), National Plan of Integrated Airport Systems (NPIAS). The NPIAS includes all commercial service airports, all reliever airports, and selected general aviation airports. It does not include more than 1,000 publicly owned public use landing areas, privately owned public use airports, and other civil landing areas not open to the general public. NPIAS airports serve 92 percent of general aviation aircraft (based on an estimated fleet of 200,000 aircraft). In 1998, the NPIAS encompassed 3,344 of the 5,357 airports with public access. Runway pavement condition is classified as follows:

Good: All cracks and joints are sealed.

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

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

On a rotating basis, the FAA arranges annual inspections for about 2,000 of the approximately 4,700 public-use airports. The inspections are based on funding availability and not on statistical criteria, and nearly all runways are inspected every two years. Inspections are primarily made to collect information for pilots on airport conditions. The FAA relies on state and local agencies to perform inspections, so some inaccuracy may arise from variation in their

adherence to federal guidelines regarding pavement condition reporting. In 1998, the U.S. General Accounting Office found that Pavement Condition Index information was available for about 35 percent of NPIAS airports (GAO/RCED-98-226).

TABLE 1-26. Median Age of Automobiles and Trucks in Operation in the United States

The R.L. Polk Co. is a private enterprise that purchases state registration data to maintain a database of operational vehicles. Its data represent a near census of registered vehicles in the United States, and the age estimate should be considered very reliable.

TABLE 1-27. Condition of U.S. Roadways by Functional System

U.S. Department of Transportation, Federal Highway Administration (FHWA) collects pavement condition data from each state through the Highway Performance Monitoring System. The FHWA uses two rating schemes-the Present Serviceability Rating (PSR) and the International Roughness Indicator (IRI). IRI is used to measure the condition of Interstates, other principal arterials, rural minor arterials, and other National Highway System roadways. PSR is used to measure the condition of rural major collectors and urban minor arterials and collectors. Rural minor collectors are not measured. Where IRI data are not reported for sampled sections, the PSR data are collected. Using the PSR, values range from 0.1 to 5.0, where 5.0 denotes new pavement in excellent condition and 0.1 denotes pavement in extremely poor condition. On the IRI scale however, lower values indicate smoother roads (e.g., <60 for interstate pavement in very good condition to >170 for interstate pavement in poor condition).

The IRI is an objective measure of pavement roughness developed by the World Bank. The PSR is a more subjective measure of a broader range of pavement characteristics and therefore less comparable. Prior to 1993, all pavement conditions were evaluated using PSR values. Beginning with data published in *Highway Statistics 1993*, the FHWA began a transition to the IRI, which should eventually replace the PSR. The change from PSR to IRI makes comparisons between pre-1993 pavement condition data and 1993 and later pavement condition data difficult. Thus, trend comparisons should be made with care.

FHWA indicates that the protocol of measuring pavement roughness is not followed by all states, and some did not report for all required mileage. Totals only reflect those states reporting usable or partially usable data. Column percentages may not sum to 100 and may differ slightly from percentages in source tables, which were adjusted so that they would add to 100.FHWA believes that the IRI data are of "reasonably good quality."

TABLE 1-28. Condition of U.S. Bridges

These figures are from the U. S. Department of Transportation, Federal Highway Administration (FHWA), National Bridge Inventory Database. State highway agencies are required to maintain a bridge inspection program and inspect most bridges on public roadways at a minimum of every two years. With FHWA approval, certain bridges may be inspected less frequently. A complete file of all bridges is collected and maintained, representing a very reliable assessment of bridge conditions. However, some inaccuracy may be attributable to variations in state inspector's adherence to the National Bridge Inspection Standards.

TABLE 1-29. Average Age of Urban Transit Vehicles

TABLE 1-30. Condition of Urban Bus and Rail Transit Maintenance Facilities

TABLE 1-31. Condition of Rail Transit Infrastructure

These figures are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database. The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including vehicle inventories. Transit operators that do not report to FTA are those that do not receive Urbanized Area Formula Funding, typically private, small, and rural operators. The data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data definitions.

TABLE 1-32. Class I Railroad Locomotive Fleet by Year Built

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). Figures reported by AAR are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the threshold for Class I railroads was $261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

TABLE 1-33. Age and Availability of Amtrak Locomotive and Car Fleets

Amtrak maintains a computer database with a record of every locomotive and car it operates. For each vehicle those records include the year built, its service status (operating or not on a daily basis), and location. These data should be considered very reliable.

TABLE 1-34. U.S. Flag Vessels by Type and Age

The data are from the U.S. Army Corps of Engineers (USACE), *Waterborne Transportation Lines of the United States* (WTLUS), annual issues. The WTLUS database contains information on vessel operators and characteristics and descriptions for all domestic vessel operations. Data are collected by the USACE's Navigation Data Center, primarily through a survey of vessel operating companies. More than 3,000 surveys are sent to these companies and response rates are typically above 90 percent. However, a USACE official did report that less than 10 percent of the total number of companies operating inland vessel fleets either did not receive and/or did not respond to the annual survey.

TABLE 1-35. U.S. Vehicle-Miles

TABLE 1-36. Roadway Vehicle-Miles Traveled (VMT) and VMT per Lane-Mile by Functional Class

TABLE 1-40. U.S. Passenger-Miles

Air Carrier, Certificated, Domestic, All Services

The U.S. Department of Transportation (USDOT), the Bureau of Transportation Statistics, Office of Airline Information, reports aircraft revenue-miles and passenger-miles in its publication *Air Traffic Statistics*. These numbers are based on 100-percent reporting of passengers and trip length by large certificated air carriers. Minor errors arise from nonreporting but amount to less than 1 percent of all air carrier passenger-miles. The figures do not include data for all airlines, such as most scheduled commuter airlines and all nonscheduled commuter airlines. These, if added, may raise total air passenger-miles by about 5 percent.

General Aviation

Passenger-mile numbers for 1975 to present are calculated by adjusting the Interstate Commerce Commission's 1974 figure for air passenger-miles by the percentage change in annual hours flown by general aviation aircraft as published in the USDOT, Federal Aviation Administration (FAA), *FAA Statistical Handbook of Aviation*. Numbers in the handbook are based on the General Aviation and Air Taxi Survey (GAATA). In 1993, the GAATA stopped including commuter aircraft. Commuter-miles collected before 1993 by the GAATA were, according to one FAA official, woefully underreported. Therefore, problems with the estimate of general aviation aircraft include: a break in the series between 1992 and 1993, a possible outdated factor used to calculate passenger-miles, and the classification of commuter operations.

Highway

Highway vehicle-miles of travel (vmt) are estimated using data from the Highway Performance Monitoring System (HPMS), a database maintained by FHWA that contains information on highway characteristics supplied by individual states. Annual vmt by highway functional system is calculated as the product of the annual average daily traffic (AADT) along each highway section, the centerline length of each highway section, and the number of days in the

year. Also, expansion factors are used for roadways that are sampled rather than continuously monitored. Vmt by vehicle type is estimated using vehicle share estimates supplied by states.

FHWA has established methods for collecting, coding, and reporting HPMS data in two manuals: *Traffic Monitoring Guide* (TMG) and *Highway Performance Monitoring System Field Manual*. The prescribed sampling process for collecting highway volume data, which is used to estimate AADT, is based on statistical methods. However, in practice, several factors affect the ultimate quality of the data. FHWA discusses many of these issues in their annual *Highway Statistics* report and other publications. However, BTS is not aware of any study or report that has statistically quantified the accuracy of vmt estimates. Some of the primary issues related to data quality are noted here.

1. The sampling procedures suggested in the TMG and HPMS *Field Manual* are designed to produce traffic volume estimates with an average precision level of 80-percent confidence with a 10-percent allowable error at the state level. FHWA provides additional guidance to states through annual workshops and other avenues to help them follow these procedures as closely as possible. However, the actual data quality and consistency of HPMS information are dependent on the programs, actions, and maintenance of sound databases by numerous data collectors, suppliers, and analysts at the state, metropolitan, and other local area levels. Not all states follow the recommended sampling, counting, and estimating procedures contained in the *Traffic Monitoring Guide*, and the exact degree to which the states follow these guidelines overall is unknown. However, FHWA believes that most states generally follow the guidelines.

2. Estimates for higher-level roadway systems are more accurate than those for lower level ones, since traffic volumes on higher-level roadways are sampled at a higher rate. The TMG recommends that traffic counts be collected for all Interstate and principal arterial sections on a three-year cycle. Under this scheme, about one-third of the traffic counts for these roadway sections in a given year are actually measured, while volumes on the remainder are factored to represent present growth. Although some States collect data at all traffic count locations every year, most use some variation of the TMG data collection guidelines. Volumes on urban and rural minor arterials, rural major collectors, and urban collectors are collected using a sampling procedure. States are not required to report volumes for rural/urban local systems and rural minor collectors, though most do so. However, the methods used to estimate travel on these roadways vary from state to state since there are no standard guidelines for calculating travel on these roadways.

3. Vmt estimates by vehicle type are less accurate than are estimates for total motor vehicle vmt for several reasons:1) vehicle classification equipment can frequently misclassify vehicles (see B.A. Harvey et al, *Accuracy of Traffic Monitoring Equipment*, GDOT 9210, (Georgia Tech Research Institute:1995)); 2) vehicle shares are often determined by methods or by special studies that are not directly compatible with HPMS data definitions and/or purposes, and observed local-level vehicle classification counts are difficult to apply on a statewide basis; and 3) vehicle type definitions can vary among states.

4. Vmt estimates for combination trucks in HPMS differ from survey-based estimates from the Truck Inventory and Use Survey (TIUS), as much as 50 percent for some categories of combination trucks. Much of this discrepancy appears to be due to differences in truck classification definitions and biases introduced by data collection practices. See R.D. Mingo et al.1995. *Transportation Research Record*, No. 1511 (Washington, DC: National Academy Press), pp. 42-46.

5. FHWA adjusts questionable data using a variety of standard techniques and professional judgement. For example, national average temporal adjustment factors developed from HPMS and other national highway monitoring programs are applied to State data, when necessary, to compensate for temporal deficiencies in sampling practices. Also, in estimating vmt by vehicle type, FHWA employs an iterative process to reconcile vmt, fuel economy (miles per gallon), fuel consumption, and vehicle registration estimates. Fuel consumption, total vmt by highway functional class, and registrations by vehicle group are used as control totals. This process limits the size of errors and ensures data consistency.

6.Passenger-miles of travel (pmt) are calculated by multiplying vmt estimates by vehicle loading (or occupancy) factors from various sources, such as the Nationwide Personal Transportation Survey conducted by FHWA and TIUS. Thus, pmt data are subject to the same accuracy issues as vmt, along with uncertainties associated with estimating vehicle-loading factors.

Transit

The American Public Transit Association (APTA) figures are based on information in USDOT, Federal Transit Administration (FTA), National Transit Database. Transit data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. However, reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA adjusts the FTA data to include transit operators that do not report to the FTA database (private, very small, and rural operators).

Class I Rail (vehicle-miles)

Data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report* required of Class I railroads. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 1999, the adjusted threshold for Class I railroads was $258.5 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

Intercity Train

The AAR passenger-miles number is based on an almost 100-percent count of tickets and, therefore, is considered accurate.

TABLE 1-38. Average Length of Haul: Domestic Freight and Passenger Modes

Freight

Air Carrier and Truck

The Eno Transportation Foundation, Inc. estimated these figures.

Class I Rail

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report* required of Class I railroads. The STB defined Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 1percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

Water

The data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report their domestic waterborne traffic movements to USACE via ENG Forms 3925 and 3925b.Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between points of loading and unloading.

Oil Pipeline

The Eno Transportation Foundation, Inc., provided these figures, which are estimates based on U.S. Department of Energy and Association of Oil Pipe Lines reports. Figures are derived by dividing estimated pipeline ton-miles by estimated crude and petroleum products tonnage.

Passenger

Air Carrier

The U.S. Department of Transportation (USDOT), the Bureau of Transportation Statistics, Office of Airline Information, reports average trip length in its publication *Air Traffic Statistics*. These numbers are based on 100-percent reporting of passengers and trip length by large certificated air carriers via BTS Form 41.The figures do not include data for all airlines, such as most scheduled commuter airlines and all nonscheduled commuter airlines.

Bus

The Eno Transportation Foundation, Inc. estimated these figures based on Class I carrier passenger data and vehicle-miles data from *Highway Statistics*, an annually published report of the USDOT, Federal Highway Administration.

Commuter Rail

The American Public Transit Association (APTA) provided these data, which are based on the USDOT, Federal Transit Administration's (FTA's), National Transit Database. Transit data are generally accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private, very small, and rural operators).

Intercity/Amtrak

The Statistical Appendix to the Amtrak Annual Report is the source of these data. Amtrak data are based on 100 percent of issued tickets, and thus should be accurate.

TABLE 1-42. Long-Distance Travel in the United States by Selected Trip Characteristics: 1995

TABLE 1-43. Long-Distance Travel in the United States by Selected Traveler Characteristics: 1995

The data presented in these tables are estimates derived from the 1995 American Travel Survey (ATS) conducted for the U.S. Department of Transportation, Bureau of Transportation Statistics. The survey's estimation procedure inflates unweighted sample results to independent estimates of the total population of the United States. Values for missing data are estimated through imputation procedures.

Since ATS estimates come from a sample, they are subject to two possible types of error: nonsampling and sampling. Sources of nonsampling errors include inability to obtain information about all sample cases, errors made in data collection and processing, errors made in estimating values for missing data, and undercoverage.

The accuracy of an estimate depends on both types of error, but the full extent of the nonsampling error is unknown. Consequently, the user should be particularly careful when interpreting results based on a relatively small number of cases or on small differences between estimates.

Standard errors for ATS estimates that indicate the magnitude of sampling error as well as complete documentation of the source and reliability of the data may be obtained from detailed ATS reports. Because of methodological differences, users should use caution when comparing these data with data from other sources.

TABLE 1-44. Passengers Boarded at the Top 50 U.S. Airports

The *Airport Activity Statistics of Certificated Air Carriers* (AAS) is the source of these data. Published by USDOT, Bureau of Transportation Statistics, Office of Airline Information (OAI), the AAS presents traffic statistics for all scheduled and nonscheduled service by large certificated U.S. air carriers for each airport served within the 50 states, the District of Columbia, and other U.S. areas designated by the Federal Aviation Administration. The publication draws its data from the T-100 and T-3 databases maintained by OAI. These data are based on a 100-

percent reporting of enplanements, departures, and tonnage information by large certificated U.S. air carriers via BTS Form 41.

Prior to 1993, the AAS included all scheduled and some nonscheduled enplanements for certificated air carriers but did not include enplanements for air carriers offering charter service only. Prior to 1990, the freight category was divided into both freight and express shipments and the mail category was divided into U.S. mail (priority and nonpriority) and foreign mail. Beginning in 1990, only aggregate numbers were reported for freight and mail.

TABLE 1-45. Air Passenger Travel Arrivals in the United States from Selected Foreign Countries

TABLE 1-46. Air Passenger Travel Departures from the United States to Selected Foreign Countries

The International Trade Administration in the U.S. Department of Commerce publishes the *U.S. International Air Travel Statistics Report* annually. The passenger data is based on information collected by the U.S. Immigration and Naturalization Service using the INS Form I-92. All passengers on international flights must complete the I-92 form with the exception of those passengers on flights arriving or departing from Canada.

The international passenger arrivals and departures data for Canada is obtained from *Air Carrier Traffic at Canadian Airports*, which is published by Statistics Canada. Three surveys are conducted by Statistics Canada in order to collect the necessary passenger data. Since all data is not received by the time of publication and data is occasionally updated or resubmitted by the participating carriers, data should be considered preliminary for the years referenced in the source publication.

TABLE 1-49. U.S. Ton-Miles of Freight

Air Carrier

Air Carrier Traffic Statistics, published by the U.S. Department of Transportation, Bureau of Transportation Statistics (BTS), Office of Airline Information (OAI), is the source of these data. Large certificated U.S. air carriers report domestic freight activities to OAI via BTS Form 41.The information reported in the table represents transportation of freight (excluding passenger baggage), U.S. and foreign mail, and express mail within the 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands. It also covers transborder traffic to Canada and Mexico by U.S. carriers. The data does not include information on small certificated air carriers, which represent less than 5 percent of freight ton-miles.

Intercity Truck

The data are estimates from *Transportation in America*, published by the Eno Transportation Foundation, Inc. (Eno). Eno's estimates of intercity truck ton-miles are based on historic data from the former Interstate Commerce Commission (ICC), estimates from the American Trucking Association, and other sources. Eno supplements its estimates by using additional information on vehicle-miles of truck travel published in Highway Statistics by the Federal Highway Administration. Users should note that truck estimates in the tables do not include local truck movements.

Class I Rail

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB). The data represent all revenue freight activities of the Class I railroads and are not based on information from the Rail Waybill Sample. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

Domestic Water Transport

The data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report their domestic waterborne traffic movements to USACE via ENG Forms 3925 and 3925b.Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between the points of loading and unloading.

Oil Pipeline

The data for 1960, 1965, and 1970 are from *Transportation in America*, published by the Eno Transportation Foundation, Inc., and the data for 1975 to 1998 are from *Shifts in Petroleum Transportation*, by the Association of Oil Pipe Lines (AOPL). Eno's data are based on information from the former Interstate Commerce Commission's *Transport Economics*. Common carrier oil pipelines reported all freight activities to the ICC.

AOPL obtains barrel-miles from the Federal Energy Regulatory Commission (FERC), which requires petroleum shippers to report annual shipments. AOPL then coverts barrel-miles to ton-miles using conversion figures in the American Petroleum Institute's (API's) *Basic Petroleum Data Book*. Since 16 percent of pipeline shipments are intrastate and not subject to FERC reporting requirements, AOPL makes adjustments to FERC data.

TABLE 1-51. Top U.S. Foreign Trade Freight Gateways by Value of Shipments: 2001

The value of U.S. air, maritime, and land imports and exports are captured from administrative documents required by the U.S. Departments of Commerce and Treasury. In 1990, the United States entered into a Memorandum of Understanding with Canada concerning the exchange of import data. As a consequence, each country is using the other's import data to replace its own export data. U.S. international merchandise trade statistics, therefore, are no longer derived exclusively from the administrative records of the Departments of Commerce and Treasury, but from Revenue Canada. Import value is for U.S. general imports, customs value basis. Export value is FAS (free along ship) and represents the value of exports at the U.S. port of export, including the transaction price and inland freight, insurance, and other charges. Trade levels reflect the mode of transportation as a shipment entered or exited a U.S. Customs port.

Truck, rail pipeline, mail, and miscellaneous modes are included in the total for land modes. Data present trade activity between the United States, Puerto Rico, and the U.S. Virgin Islands and Canada and Mexico. These statistics do not include traffic between Guam, Wake Island, and America Samoa and Canada and Mexico. These statistics also exclude imports that are valued at less than $1,250 and for exports that are valued at less than $2,500.

TABLE 1-56. U.S. Waterborne Freight

The data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report their domestic waterborne traffic movements to USACE via ENG Forms 3925 and 3925b. Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between points of loading and unloading.

Foreign waterborne statistics are derived from Census Bureau and U.S. Customs data, which excludes traffic between Guam, Wake Island, and American Samoa and any other foreign country, and imports and exports used by U.S. Armed Forces abroad. Individual vessel movements with origins and destinations at U.S. ports, traveling via the Panama Canal are considered domestic traffic.

TABLE 1-57. Tonnage of Top 50 U.S. Water Ports, Ranked by Total Tons

Data on the weight of U.S. maritime imports and exports are captured from administrative documents required by the U.S. Departments of Commerce and Treasury. In 1990, the United States entered into a Memorandum of Understanding with Canada concerning the exchange of import data. As a consequence, each country is using the other's import data to replace its own export data. The United States' merchandise trade statistics, therefore, are no

longer derived exclusively from U.S. government administrative records, but from Revenue Canada. Maritime weight data are initially processed and edited by the Foreign Trade Division, U.S. Census Bureau (Census) as part of the overall edits and quality checks performed on all U.S. international merchandise trade data. After Census processing, the U.S. Army Corps of Engineers (USACE) and the Maritime Administration (MARAD) perform additional maritime-specific processing and quality edits on maritime-related data elements, including the weight of maritime imports and exports. The USACE and MARAD began performing this function in October 1998 after the Foreign Waterborne Trade data program was transferred from the Census Bureau. Prior to October 1998, the USACE historically performed additional specialized edits at the port level, including reassignment of some tonnage data to the actual waterborne port rather than the reported U.S. Customs port.

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

TABLE 1-59. Value, Tons, and Ton- Miles of Freight Shipments within the United States by Domestic Establishment, 2007

TABLE 1-62. U.S. Hazardous Materials Shipments by Transportation Mode, 2007

TABLE 1-63. U.S. Hazardous Materials Shipments by Hazard Class, 2007

These data are collected via the 1997 Commodity Flow Survey (CFS) undertaken through a partnership between the U.S. Department of Commerce, Census Bureau (Census), and the U.S. Department of Transportation, Bureau of Transportation Statistics. For the 1997 CFS, Census conducted a sample of 100,000 domestic establishments randomly selected from a universe of about 800,000 multiestablishment companies in the mining, manufacturing, wholesale trade, and selected retail industries. It excluded establishments classified as farms, forestry, fisheries, governments, construction, transportation, foreign, services, and most retail.

Reliability of the Estimates

An estimate based on a sample survey potentially contains two types of errors-sampling and nonsampling. Sampling errors occur because the estimate is based on a sample, not on the entire universe. Nonsampling errors can be attributed to many sources in the collection and processing of the data and occur in all data, not just those from a sample survey. The accuracy of a survey result is affected jointly by sampling and nonsampling errors.

Sampling Variability

Because the estimates are derived from a sample of the survey population, results are not expected to agree with those that might be obtained from a 100-percent census using the same enumeration procedure. However, because each establishment in the Standard Statistical Establishment List had a known probability of being selected for sampling, estimating the sampling variability of the estimates is possible. The standard error of the estimate is a measure of the variability among the values of the estimate computed from all possible samples of the same size and design. Thus, it is a measure of the precision with which an estimate from a particular sample approximates the results of a complete enumeration. The coefficient of variation is the standard error of the estimate divided by the value being estimated. It is expressed as a percent. Note that measures of sampling variability, such as the standard error or coefficient of variation, are estimated from the sample and are also subject to sampling variability. Standard errors and coefficients of variation for CFS data presented in this report are given in Appendix B of the 1997 Economic Census report, and are available online www.census.gov/econ/wwwse0700.html.

Nonsampling Errors

In the CFS, as in other surveys, nonsampling errors can be attributed to many sources, including 1) nonresponse; 2) response errors; 3) differences in the interpretation of questions; 4) mistakes in coding or recoding the data; and 5) other errors of collection, response, coverage, and estimation.

A potentially large source of nonsampling error is due to nonresponse, which is defined as the inability to obtain all intended measurements or responses from selected establishments. Nonresponse is corrected by imputation.

TABLE 1-60. Value of U.S. Land Exports to and Imports from Canada and Mexico by Mode

The Transborder Surface Freight Data (TSFD) is derived from official U.S. international merchandise import and export data. (For a description of U.S. merchandise trade statistics, see www.census.gov/foreign-trade/www/index.html.) As of December 1995, about 96 percent of the value of all U.S. imports has been collected electronically by the Automated Broker Interface System. About 55 percent of the value of all U.S. exports is collected electronically through the U.S./Canada Data Exchange and the Automated Export Reporting Program. The balance is collected from administrative records required by the U.S. Departments of Commerce and Treasury.

The TSFD incorporates all data, by surface mode, on shipments entering or exiting the United States from or to Canada or Mexico. Prior to January 1997, this dataset also included transshipments-shipments entering or exiting the United States by way of U.S. Customs ports on the northern or southern borders even when the actual origin or final destination of the goods was other than Canada or Mexico. (In other U.S. Bureau of the Census trade statistics, transshipments through Canada and Mexico are credited to the true country of origin or final destination.) To make this dataset more comparable to other U.S. Census Bureau trade statistics, detailed information on transshipments has been removed. The TSFD presents a summary of transshipments by country, direction of trade, and mode of transportation. Shipments that neither originate nor terminate in the United States (i.e., intransits) are beyond the scope of this dataset because they are not considered U.S. international trade shipments.

In general, the reliability of U.S. foreign trade statistics is very good. Users should be aware that trade data fields (e.g., value and commodity classification) are typically more rigorously reviewed than transportation data fields (e.g., the mode of transportation and port of entry/exit). Users should also be aware that the use of foreign trade data to describe physical transportation flows may not be accurate. For example, this dataset provides surface transportation information for individual U.S. Customs districts and ports on the northern and southern borders. However, because of filing procedures for trade documents, these ports may or may not record where goods physically cross the border. This is because the information filer may choose to file trade documents at one port while shipments actually enter or exit at another port. The TSFD, however, is the best publicly available approximation for analyzing transborder transportation flows. Since the dataset was introduced in April 1993, it has gone through several refinements and improvements. When improbabilities and inconsistencies were found in the dataset, extensive analytical reviews were conducted and improvements made. However, accuracy varies by direction of trade and individual field. For example, import data are generally more accurate than export data. This is primarily because the U.S. Customs Bureau uses import documents for enforcement purposes while it performs no similar function for exports. For additional information on TSFD, the reader is referred to the U.S. Department of Transportation, Bureau of Transportation Statistics Internet site at www.bts.gov/transborder.

TABLE 1-61. Crude Oil and Petroleum Products Transported in the United States by Mode

Pipelines

The Association of Oil Pipelines (AOPL) obtains barrel-miles from the Federal Energy Regulatory Commission (FERC), which requires petroleum shippers to report annual shipments. AOPL then coverts barrel-miles to ton-miles using conversion figures in the American Petroleum Institute's (API's) *Basic Petroleum Data Book*. Since 16 percent of pipeline shipments are intrastate and not subject to FERC reporting requirements, AOPL makes adjustments to FERC data to include intrastate shipments. AOPL also conducts periodic studies to estimate intrastate shipments.

Water Carriers

Data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report domestic freight and tonnage information to USACE via ENG Forms 3925 and 3925b.Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between the points of loading and unloading.

Motor Carriers

AOPL estimates ton-miles by multiplying tons by the average length of haul. For crude, the tonnage of the prior year is projected by using a growth rate established by data from the U.S. Department of Energy, Energy Information Administration's *Petroleum Supply Annual*, vol. 1, table 37. For products, the same calculation is made but with a growth rate estimated by the American Trucking Association in *Financial and Operating Statistics, Class I and II,*

Motor Carriers, Summary table VI-B. Average length of haul is determined from the prior six years of data for ton-miles and tonnage of crude and petroleum products moved by motor carriers.

Railroad

AOPL calculates ton-miles by multiplying tonnage by average length of haul. Tonnage data for crude and products comes from the Association of American Railroad's *Freight Commodity Statistics*, U.S. Class I Railroads. The U.S. Department of Transportation, Federal Railroad Commission provides the average length of haul for crude and products in its Carload Way Bill Statistics.

TABLE 1-64. Passengers Denied Boarding by the Largest U.S. Air Carriers

TABLE 1-65. Mishandled-Baggage Reports Filed by Passengers with the Largest U.S. Air Carriers

TABLE 1-66. Flight Operations Arriving On Time for the Largest U.S. Air Carriers

These numbers are based on data filed with the U.S. Department of Transportation on a monthly basis by the largest U.S. air carriers - those that have at least one percent of total domestic scheduled-service passenger revenues. Data cover nonstop scheduled service flights between points within the United States (including territories). The largest U.S. carriers account for more than 90 percent of domestic operating revenues. They include Alaska Airlines, America West Airlines, American Airlines, Continental Airlines, Delta Air Lines, Northwest Airlines, Trans World Airlines, Southwest Airlines, United Airlines, and US Airways. However, there are other carriers offering domestic scheduled passenger service that are not required to report. In some cases, major airlines sell tickets for flights that are actually operated by a smaller airline that is not subject to the reporting requirement.

TABLE 1-67. FAA-Cited Causes of Departure and En route Delays

The source of these data, the U.S. Department of Transportation (USDOT), Federal Aviation Administration (FAA), counts a flight as delayed if it departed or arrived more than 15 minutes after its scheduled gate departure and arrival times. FAA calculates delayed departures based on the difference between the time a pilot requests FAA clearance to taxi and the time an aircraft's wheels lift off the runway, minus the airport's standard unimpeded taxi-out time. Users should note that taxi-out time varies by airport due to differences in configurations. The cause of delay is also recorded, e.g., weather, terminal volume, closed runways, etc.

USDOT guidance defines departure as the time the aircraft parking brake is released and gate arrival as the time the brake is set. According to the USDOT's Office of the Inspector General (OIG), FAA's omission of part of a plane's ground movement compromises the data's validity. A recent OIG report noted that the FAA tracks ground time only after a pilot requests clearance and fails to track a plane's time in the ramp area. OIG found that ramp time comprised 28.7 percent to 40.5 percent of the average taxi-out time at the three major New York area airports (OIG Audit Report CR-2000-112), and would not be counted as an FAA delay.

Reliability

Several data collection changes complicate comparisons over time. For example, FAA modified its method for calculating volume-related delays that resulted in a 17 percent drop in such delays. Decreases in volume-related delays from 1998 to 1999 totaled less than one percent. Moreover, prior to 1999, USDOT did not provide a clear definition of what a departure was. An OIG Audit (CE-1999-054) report noted that air carriers used four different departure events: 1) rolling of aircraft wheels; 2) release of parking brake; 3) closure of passenger and/or cargo doors; and 4) a combination of door closures and release of the parking break. The same report also noted errors in the reporting of departure times by the air carriers.

Data are now manually entered in FAA's Operations Network (OSPNET) database, and reporting errors may arise and decrease reliability. The FAA monitors data quality assurance by spot checking the reported delay data and requesting that discrepancies be reviewed by the responsible facility. According to an OIG Audit (CR-2000-112), however, mistakes are not reliably corrected and many air traffic controllers suggested that delays are underreported sometimes by as much as 30 percent.

TABLE 1-68. Major U.S. Air Carrier Delays, Cancellations, and Diversions

A second data source for air-carrier delay is the USDOT, Bureau of Transportation Statistics, Office of Airline Information (OAI). This information originates from the Airline Service Quality Performance data. These figures are collected from the largest airlines-those that have at least one percent or more of total domestic scheduled service passenger revenues. Delays are categorized by phase of flight (i.e., gate-hold, taxi-out, airborne, or taxi-in delays). These data differ from FAA's OSPNET information due to differences in definition of delay.

While the FAA tracks delays on the taxiway, runway, and in the air, BTS tracks delays at the departure and arrival gates. OAI calculates delays as the difference between scheduled and actual gate departure. If a flight leaves the gate within 15 minutes of its scheduled time, then OAI would record it as departed on-time even if it sat for several hours on the ramp or runway, in which case the delay would be accounted for as a late arrival.

TABLE 1-69. Annual Person-Hours of Delay Per Auto Traveler

TABLE 1-70. Travel Time Index

TABLE 1-71. Annual Roadway Congestion Index

TABLE 1-72. Annual Congestion Index and Cost Values

The Texas Transportation Institute's (TTI) *Urban Roadway Congestion Annual Report* provided figures for tables 1-60through 62.TTI relies on data from the U.S. Department of Transportation, Federal Highway Administration, Highway Performance Monitoring System database (HPMS). TTI utilizes these data as inputs to its congestion estimation model. Detailed documentation for the TTI model and estimations can be found at this website http://mobility.tamu.edu.

Structure, Assumptions, and Parameters

Urban roadway congestion levels are estimated using a formula measuring traffic density. Average travel volume per lane on freeways and principal arterial streets are estimated using area wide estimates of vehicle-miles of travel (vmt) and lane miles of roadway. The resulting ratios are combined using the amount of travel on each portion of the system so that the combined index measures conditions on the freeway and principal arterial street systems. Values greater than one are indicative of undesirable congestion levels. Readers seeking the algorithm for the congestion index should examine this website http://mobility.tamu.edu.

Annual person-hours of delay results from the multiplication of daily vehicle-hours of incident and recurring delay times 250 working days per year times 1.25 persons per vehicle. Two types of costs are incurred due to congestion: time delay and fuel consumption. Delay costs are the product of passenger vehicle hours of delay times $12.85 per hour person time value times 1.25 occupants per vehicle. Fuel costs are calculated for passenger and commercial vehicles from the multiplication of peak period congestion speeds, the average fuel economy, fuel costs, and vehicle-hours of delay.

In previous reports, the TTI methodology assumed that 45 percent of all traffic, regardless of the urban location, occurred in congested conditions. TTI indicated that this assumption overestimated travel in congested periods. Thus, their 2002 estimates now vary by urban area anywhere from 18 percent to 50 percent of travel that occurs in congestion. TTI's model structure applies to two types of roads: freeways and principal arterial streets. The model derives estimates of vehicle traffic per lane and traffic speed for an entire urban area. Based on variation in these amounts, travel is then classified under 5 categories: uncongested, moderately congested, heavily congested, severely congested, and extremely congested (a new category in 1999). The threshold between uncongested and congested was changed in 2002. Previous editions classified congested travel when areawide traffic levels reached 14,000 vehicles per lane per day on highways and 5,500vehicles per lane per day on principal arterial streets. For the current edition, these values are 15,500 and 5,500 vehicles per lane per day, respectively. Previous years values have been re-estimated based on these new assumptions. Readers should refer to the TTI Internet site for more detailed algorithms and estimation procedures at http://mobility.tamu.edu.

TTI reviews and adjusts the data used in their models. State and local officials also review the TTI data and estimations. Some of the limitations acknowledged in the TTI report include the macroscopic character of the index. Thus, it does not account for local variations in travel patterns that may affect travel times. The index also does not

account for local improvements, such as ramp metering or travel speed advantages obtained with transit or carpool lanes.

TABLE 1-73. Amtrak On-Time Performance Trends and Hours of Delay by Cause

Amtrak determines on-time performance through its computer system maintained at the National Operations Center (NOPS) in Wilmington, Delaware. If a train is delayed, a call is made to the NOPS for recordkeeping. These data can be supplemented with computer entries made for locomotive or car malfunctions that cause delays. These data should be considered reliable.

Appendix E
Data Source and Accuracy Statements

Chapter 2 Safety

AIR DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Injured Persons by Transportation Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-7. Transportation-Related Occupational Fatalities

TABLE 2-9. U.S. Air Carrier Safety Data

TABLE 2-10. U.S. Commuter Air Carrier Safety Data

TABLE 2-11. U.S. Air Carrier Fatal Accidents by First Phase of Operation

TABLE 2-12. U.S. Commuter Air Carrier Fatal Accidents by First Phase of Operation

TABLE 2-13. U.S. On-Demand Air Taxi Safety Data

TABLE 2-14. U.S. General Aviation Safety Data

National Transportation Safety Board investigators perform onsite and offsite investigations of all accidents involving U.S. registered air carriers operating under 14 CFR 121, 14 CFR 135, and general aviation U.S. Department of Transportation (USDOT), Federal Aviation Administration (FAA) regulations. The investigators compile information on fatalities and injuries for all accidents. The counts for fatalities and serious injuries are expected to be extremely accurate. (See glossary for serious injury definition.)

Exposure data (aircraft-miles, aircraft-hours, and aircraft-departures) are obtained from the FAA, which in turn gets some of its exposure data from the USDOT, Bureau of Transportation Statistics, Office of Airline Information (OAI) and other exposure data from its own General Aviation and Air Taxi Activity and Avionics (GAATAA) Survey. The OAI data represent 100 percent reporting by airlines. Tables that include air carriers (14 CFR 121, scheduled and nonscheduled service) and commuter air carriers (14 CFR 135, scheduled service only) use OAI exposure data. Tables that include on-demand air taxi (14 CFR 135, nonscheduled service) and general aviation use GAATAA Survey results. For information about the GAATA Survey, please refer to the chapter 1 data accuracy statement for table 1-9.

The coefficients of variation for aircraft-hours vary by year, but are usually in the 9 to 10 percent range for on-demand air taxi and are approximately 2 percent for general aviation.

TABLE 2-15. Number of Pilot-Reported Near Midair Collisions by Degree of Hazard

Near Midair Collision reports are provided voluntarily by air carriers, general aviation companies, and the military, and this information is added to the Near Midair Collisions System database. Factors that may influence whether or not a near midair collision is reported include the pilot's or other crew members' perception of whether a reportable near

midair collision occurred, which in turn can depend on factors such as visibility conditions; the reporter's flying experience; or the size of the aircraft involved. A reportable incident is one in which an aircraft is within 500 feet of another aircraft and a possibility of collision existed.

HIGHWAY DATA

TABLE 2-1.Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-5. Highway-Rail Grade-Crossing Safety Data and Property Damage

TABLE 2-7. Transportation-Related Occupational Fatalities

TABLE 2-17. Motor Vehicle Safety Data

TABLE 2-18. Motor Vehicle Fatalities, Vehicle-Miles, and Associated Rates by Highway Functional System

TABLE 2-19. Occupant Fatalities by Vehicle Type and Nonoccupant Fatalities

TABLE 2-20. Occupant and Nonmotorist Fatalities in Crashes by Number of Vehicles and Alcohol Involvement

TABLE 2-21. Passenger Car Occupant Safety Data

TABLE 2-22. Motorcycle Ride Safety Data

TABLE 2-23. Truck Occupant Safety Data

TABLE 2-24. Bus Occupant Safety Data

TABLE 2-26. Fatalities by Highest Blood Alcohol Concentration in Highway Crashes

TABLE 2-28. Motor Vehicle Fatal Crashes by Day of Week, Time of Day, and Weather and Light Conditions

TABLE 2-29. Motor Vehicle Fatal Crashes by Posted Speed Limit

Fatalities

Highway fatality data come from the Fatality Analysis Reporting System (FARS), which is compiled by trained FARS analysts at USDOT, National Highway Traffic Safety Administration (NHTSA) regional offices. Data are gathered from a census of police accident reports (PARs), state vehicle registration files, state drivers licensing files, state highway department data, vital statistics, death certificates, coroner/medical examiner reports, hospital medical reports, and emergency medical service reports. A separate form is completed for each fatal crash. Blood alcohol concentration (BAC) is estimated when not known. Statistical procedures used for unknown data in FARS can be found in the NHTSA report: *Transitioning to Multiple Imputation - A New Method to Impute Missing Blood Alcohol Concentration (BAC) values in FARS*, DOT HS 809 403 (Washington, DC: January 2002).

Data are collected from relevant state agencies and electronically submitted for inclusion in the FARs database on a continuous basis. Cross-verification of PARs with death certificates ensures that undercounting is rare. Moreover,

when data are entered, they are checked automatically for acceptable range values and consistency, enabling quick corrections when necessary. Several programs continually monitor the data for completeness and accuracy. Periodically, sample cases are analyzed for accuracy and consistency.

Note that the FARS data do not include motor vehicle fatalities on nonpublic roads. However, previous NHTSA analysis found that these fatalities account for 2 percent or fewer of the total motor vehicle fatalities per year. (See glossary for highway fatality definition.)

Injuries and Crashes

NHTSA's General Estimates System (GES) data are a nationally representative sample of police-reported crashes that contributed to an injury or fatality or resulted in property damage, and involved at least one motor vehicle traveling on a trafficway. Trained GES data collectors randomly sample PARs and forward copies to a central contractor for coding into a standard GES system format. Documents such as police diagrams or supporting text provided by the officers may be further reviewed to complete a data entry.

NHTSA suggests that about half of motor vehicle crashes in the United States are not reported to police and that the majority of these unreported crashes involve minor property damage and no significant personal injury. A NHTSA study of injuries from motor vehicle crashes estimated the total count of nonfatal injuries at over 5 million compared with the GES's estimate of 3.2 million in 1998. (See glossary for highway crash and injury definitions.)

(See U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2008*, DOT HS 811 170 (Washington, DC: 2009), appendices B and C for further information on GES, including a table of standard errors applicable to GES data.)

TABLE 2-30. Safety Belt and Motorcycle Helmet Use

The National Occupant Protection Use Survey (NOPUS), conducted biennially between 1994 and 2010 by the U.S. Department of Transportation, National Highway Traffic Safety Administration is the source for these data.

In 1994 and 1996, NOPUS consisted of three separate studies: 1) the Moving Traffic Study, which provides information on overall shoulder belt use, 2) the Controlled Intersection Study, which provides more detailed information about shoulder belt use by type of vehicle, characteristics of the belt users, and child restraint use, and 3) the Shopping Center Study, which provides information on rear-seat belt use and shoulder belt misuse. In 1998, the Shopping Center Study was dropped from the survey. The Controlled Intersection Study includes the collection of license plate information to link seat belt use to vehicle type. As the results of the Controlled Intersection Study for 2000 were not available prior to publication, only the Moving Traffic Study data were used in this table.

In 1998, NOPUS separated pickups from the light truck category, thereby creating three categories of passenger vehicles: passenger cars, pickup trucks, and other passenger vehicles. Other passenger vehicles include vans, minivans, and sport utility vehicles. In this table, 1998 and 2000 data for pickup trucks and other passenger vehicles are combined into the light truck category to allow comparison to data from the earlier surveys. Since 2003, however, the National Highway Traffic Safety Administration (NHTSA) no longer computes an overall light truck belt use estimate. Instead, belt use is computed separately for motorists in: (1) vans and sport utility vehicles, and (2) pickup trucks. Additionally, NHTSA no longer reports separate statistics for passengers and drivers, except at the overall level.

In 1994, operators and riders wearing any type of helmet were counted as helmeted. In 1996, 1998, and 2000, motorcycle helmets that meet USDOT standards are counted as valid protection, whereas those that do not meet USDOT standards were treated as if the operator/rider were not wearing a helmet.

Data collection from the Moving Traffic Study was conducted at 1,823 sites across the country in 2009. Shoulder belt use was obtained for drivers and right-front passengers only. Three observers (two observers in 1994 and 1996) were stationed for 30 minutes at interstate/highway exit ramps, controlled (intersections with stop signs or traffic signals), and uncontrolled intersections. Every day of the week and all daylight hours (7 a.m. to 6 p.m.) were covered in each survey. Commercial and emergency vehicles were excluded.

NOPUS was designed as a multistage probability sample to ensure that the results would represent occupant protection use in the country. In the first stage, counties were grouped by regions (northeast, midwest, south, west), level of urbanization (metropolitan or not), and level of belt use (high, medium, or low). Fifty counties or groups of counties were selected based on vehicle miles of travel in those locations. In the next stage, roadways were selected from two categories: major roads and local roads. Of the originally selected sites, some were found to be ineligible during mapping and data collection, and at some sites no vehicles were observed. In 2006, a newly designed sample of observation sites emerged; subsequent years' NOPUS surveys used a combination of sites from the old and new samples. In 2009, a blend of 65 percent of sites were determined using the new methodology and 35 percent of sites were obtained from the old methodology. In 2009, a total of 100,000 passenger vehicles were observed, down from 116,000 in 2008. 947 motorcycles were also observed during the 2009 NOPUS.

Each reported estimate has been statistically weighted according to the sample design. Two kinds of error can be attributed to all survey research: sampling and nonsampling. A measure, called the standard error, is used to indicate the magnitude of sampling error. The source information provides two standard errors along with each estimate. Nonsampling errors could include problems such as vehicles not counted, incorrect determination of restraint use, and data entry mistakes, among others.

TABLE 2-31. Estimated Number of Lives Saved by Use of Restraints

The U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA) uses data obtained from the Fatality Analysis Reporting System to calculate the number of lives saved by the use of restraints. The methodology used is outlined in a NHTSA report, *Research Note, Estimating Lives Saved by Restraint Use in Potentially Fatal Crashes* (Washington, DC: June 1995). The general approach is to adjust the observed number of fatalities by a determined effectiveness rate for each type of restraint. This equates to subtracting the actual fatalities from the potential fatalities to determine the number of lives saved. This method is more accurate than earlier estimation methods since all calculations are derived from NHTSA's count of fatalities in which restraints were used. Reported restraint use is believed to be accurate for fatalities.

The key to NHTSA's calculations is the effectiveness estimate for preventing fatalities for each type of restraint. With the exception of an adjustment in the effectiveness estimate for front outboard air bag-only restraint use in passenger cars (NHTSA, *Fourth Report to Congress, Effectiveness of Occupant Protection Systems and Their Use*, Washington, DC, May 1999), a list of effectiveness estimates can be found in a NHTSA report, *Estimating Alcohol Involvement in Fatal Crashes in Light of Increases in Restraint Use*, published in March 1998.This report also includes additional references describing the determination of these effectiveness estimates.

TRANSIT DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-32. Transit Safety and Property Damage Data

TABLE 2-33. Transit Safety Data by Mode for All Reported Accidents

TABLE 2-34. Transit Safety Data by Mode for All Reported Incidents

TABLE 2-38. Reports of Violent Crime, Property Crime, and Arrests by Transit Mode

The data for this report are obtained from the U.S. Department of Transportation, Federal Transit Administration's (FTA's) National Transit Database (NTD) Reporting System. Transit agencies are required to file an NTD report at regular intervals if they are recipients of Urbanized Area Formula Funds. In 2008, 692 agencies reported to the NTD. Of that total, 101 transit agencies received exemptions from detailed reporting because they operated 9 or fewer

vehicles, and 15 were deleted because their data were incomplete. Thus, 576 individual reporters were included in the NTD, accounting for 90 to 95 percent of passenger-miles traveled on transit.

Transit operators report fatalities, injuries, accidents, incidents, and property damage in excess of $1,000. Electronic reporting has recently been implemented for the NTD. Certification from a company's Chief Executive Officer must accompany all NTD reports along with an independent auditor's statement. Upon receipt, an NTD report is reviewed and outstanding items noted in writing to the agency that submitted the form. (See glossary for transit fatality, injury, and accident definitions.)

Four major categories of transit safety are collected: 1) collisions, 2) derailments/buses going off the road, 3) personal casualties, and 4) fires. These major categories are divided into subcategories. The collisions category comprises collisions with vehicles, objects, and people (except suicides). Of the four major categories, only the first two are included in the definition of transit accidents adopted in this report (see glossary). Understanding this definition of accident is relevant to understanding how double counting is removed in the grand total of U.S. transportation fatalities and injuries. (See cross modal comments in box 2-1.)

Transit data submitted to the NTD are generally considered accurate because the FTA reviews and validates information submitted by individual transit agencies. However, reliability may vary because some transit agencies cannot obtain accurate information or misinterpret data.

Security

FTA collects security data from transit agencies serving urbanized areas of over 200,000 in population, using Form 405, and manages it in the National Transit Database (NTD). The reporting of security data follows the FBI *Uniform Crime Reporting Handbook* (Washington, DC: 1984) and is divided into two categories: 1) Reported Offenses, including violent and property crime, and 2) Arrests, consisting of less serious crimes. The figures for violent and property crime are based on records of calls for service, complaints, and/or investigations. They do not reflect the findings of a court, coroner, jury, or decision of a prosecutor. Security data were first reported in 1995 and were not compiled for earlier years.

In 2008, the number of agencies reporting to this database was 692. Of that, 101 transit agencies received exemptions from detailed reporting because they operated nine or fewer vehicles, and 15 were deleted because their data were incomplete. Thus, 576 individual reporters are included in the full database in 2000.

RAILROAD DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-5. Highway-Rail Grade-Crossing Safety Data and Property Damage

TABLE 2-7. Transportation-Related Occupational Fatalities

TABLE 2-39. Railroad and Grade-Crossing Fatalities by Victim Class

TABLE 2-40. Railroad and Grade-Crossing Injured Persons by Victim Class

TABLE 2-41. Train Fatalities, Injuries, and Accidents by Type of Accident

TABLE 2-42. Railroad Passenger Safety Data

TABLE 2-39. Railroad System Safety and Property Damage Data

TABLE 2-40. Fatalities and Injuries of On-Duty Railroad Employees

Railroads are required to file a report for each train accident resulting in property damage in excess of $9,200 (2010 threshold), each highway-rail accident, and each incident involving the operation of a railroad resulting in a fatality or a reportable injury. (See glossary for reportable injury, train accident and incident, and nontrain incident definitions.)

Reporting requirements, which are fixed in law, are very broad and encompass events not strictly related to transportation. For example, if a passenger falls on a staircase and breaks a leg in the station while going to a train, the injury would be reported and appear in the data as a rail injury.

WATERBORNE TRANSPORTATION DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-7. Transportation-Related Occupational Fatalities

TABLE 2-45. Waterborne Transportation Safety Data and Property Damage Related to Vessel

Casualties

TABLE 2-46. Waterborne Transportation Safety Data Not Related to Vessel Casualties

U.S. waterborne fatality and injury data are based on reports required by CFR Part 4.05-10. This code requires that the owner, agent, master, operator, or person in charge file a written report of any marine casualty or accident within five days of the accident. Reports must be delivered to Investigative Officers (IOs) at a U.S. Coast Guard Marine Safety Office or Marine Inspection Office at the U.S. Department of Transportation, who use these reports as guides to investigate the marine casualty or accident. The IO ensures that all the entries on the forms are filled out and errors are corrected. Regulations require IO notification of marine casualties for certain circumstances, including loss of life; injuries that require medical treatment beyond first aid; and, for individuals engaged or employed onboard a vessel in commercial service, injuries that render a person unfit to perform routine duties.

Incidents requiring an investigation include death, injury resulting in substantial impairment, and other incidents determined important to promoting the safety of life or property or to protect the marine environment. These incidents are investigated in accordance with procedures set forth in the regulations. Furthermore, the Federal Water Pollution Control Act mandates that certain incidents be reported to the U.S. Coast Guard. The reports are entered into the Marine Safety Information System, which is later analyzed and transferred to the Marine Safety Management System maintained in Washington, DC.

RECREATIONAL BOATING DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-47. Recreational Boating Safety, Alcohol Involvement, and Property Damage Data

TABLE 2-48. Personal Watercraft Safety Data

TABLE 2-49. U.S. Coast Guard Search and Rescue Statistics, Fiscal Years

Operators of boats involved in an accident resulting in 1) a fatality, 2) an injury requiring medical treatment beyond first aid, 3) damage to the vessel or other property greater than $25,000 or complete loss of vessel, or 4) the disappearance of a person from the vessel under circumstances indicating death or injury are required to file a report with the U.S. Coast Guard. If a person dies within 24 hours of the occurrence, requires medical treatment beyond first aid, or disappears from the vessel, reports must be made within 48 hours of the occurrence. In cases involving only damage to the vessel and/or property, reports are to be submitted within 10 days of the occurrence. Although there is no quantitative estimate of the response rate, there may be considerable underreporting, especially of nonfatal accidents, because of the difficulty of enforcing the requirement and because boat operators may not always be aware of the law.

NATURAL GAS AND LIQUID PIPELINE DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-6. Hazardous Materials Safety Data and Property Damage Data

Incidents resulting in certain unintentional releases of hazardous materials must be reported under 49 CFR 171.16. Each carrier must submit a report to the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA) within 30 days of the incident, including information on the mode of transportation involved, results of the incident, and a narrative description of the accident. These reports are made available on the incident database within 60 days of receipt.

Fatalities and injuries are counted only if they are directly due to a hazardous material. For example, a truck operator killed by impact forces during a motor vehicle crash would not be counted as a hazardous-material fatality. PHMSA verifies all reported fatalities and injuries by telephone with the carrier submitting the report.
Possible sources of error include a release going undetected; even if subsequently detected and reported, it may not be possible to accurately reconstruct the accident. Although PHMSA acknowledges that there is some level of underreporting, it believes that the underreporting is limited to small, nonserious incidents. As incident severity increases, it is more likely that the incident will come to PHMSA's attention and will ultimately be reported. Additionally, the reporting requirements were extended to intrastate highway carriers on October 1, 1998, and the response rate from this new group is expected to increase over time. Property damage figures are estimates determined by the carrier prior to the 30-day reporting deadline and are generally not subsequently updated. Property damage figures, therefore, may underestimate actual damages.

TABLE 2-50. Hazardous Liquid and Natural Gas Pipeline Safety and Property Damage Data

U.S. fatality and injury data for natural gas pipelines are based on reports filed with the U.S. Department of Transportation (USDOT), Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS). Accidents must be reported as soon as possible, but no later than 30 days after discovery. Reports are sent to the Information Systems Manager at the OPS. Possible sources of error include a release going undetected; even if subsequently detected and reported, it may not be possible to accurately reconstruct the accident. Property damage figures are estimates. (See glossary for gas and liquid pipeline fatality data and injury definitions.)

Appendix E
Data Source and Accuracy Statements

Chapter 3 Transportation and the Economy

TABLE 3-1 & 3-2. U.S. Gross Domestic Product Attributed to For-Hire Transportation Services (Current and chained 2005 dollars)

TABLE 3-3 & 3-4. U.S. Gross Domestic Product Attributed to Transportation-Related Final Demand (Current and chained 2005 dollars)

TABLE 3-5 & 3.6. U.S. Gross Domestic Demand Attributed to Transportation-Related Final Demand (Current and chained 2005 dollars)

TABLE 3-7 & 3-8. Contributions to Gross Domestic Product: Selected Industries (Current and chained 2005 dollars)

TABLE 3-9. Gross Domestic Product by Major Social Function

Tables 3-1 through 3-8 present data on transportation's contributions to the economy through consumption (or the money spent on transportation activity). The *Survey of Current Business* (SCB) published by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA). The SCB is a monthly journal that contains estimates of U.S. economic activity, including industry contributions to the Gross Domestic Product (GDP). GDP is defined as the net value of the output of goods and services produced by labor and property located in the United States. BEA constructs two complementary measures of GDP-one based on income and the other on expenditures (product). Together, they represent the National Income and Product Accounts (NIPA), our nation's principle framework for macroeconomic estimates. The product side results from the addition of labor, capital, and taxes for producing output. Consumption derives from household, business, and government expenditures and net foreign purchases.

Tables 3-5 and 3-6 present transportation's economic impact in a different form, Gross Domestic Demand (GDD). Also derived from the national accounts, GDD is the sum of personal consumption, gross private domestic investment, and government purchases. GDD includes imports, but excludes exports, thus counting only what is consumed, purchased, or invested in the United States.

GDP Methodology

The 1960 through 1985 data in table 3-1 are from the November 1993 issue of the SCB. The 1990 through 1991 data and 1992 through 1996 data are from an August 1996 and November 1997 SCB issue respectively. The October 1999 issue introduced a revised methodology for GDP estimates (Yuskavage 1996). This section describes BEA's methodology for estimating transportation's share of GDP.

BEA's current-dollar estimates of GDP by industry rely on several sources, including the Bureau of Labor Statistics (BLS), the Health Care Financing Administration, and the Internal Revenue Service (IRS). Some of the tables in this chapter report chained-dollar figures. BEA derived chained dollars by using the Fisher Ideal Quantity Index to calculate changes between adjacent years (Parker and Triplett 1996; Landerfeld and Parker 1997). Annual changes are then chained to form a time series that incorporates the effects of relative price and output composition changes. Please refer to page 142 of the August 1996 issue of the *Survey of Current Business* for the mathematical formulas (Yuskavage 1996). This method produced separate estimates of gross output and intermediate inputs for a sector's GDP calculation. BEA updated the reference year for the chained-dollar estimates from 1992 to 1996.

Transportation GDP in chained dollars was estimated using the double-deflation method, which relies on a chain-type quantity index formula, and requires gross output and intermediate input information. Principal source data for the transportation categories include: 1) operating revenues of air carriers and Federal Express from the U.S. Department of Transportation and public sources (air); 2) operating revenues for Class I motor carriers from historical records of the Interstate Commerce Commission and Census Bureau annual surveys (trucking and warehousing); 3)

BEA personal consumption expenditures (PCE), BLS, and trade sources (local and interurban passenger transit); 4) operating revenues for Class I railroads and Amtrak (rail); and 5) other trade sources (pipelines).Data sources for water were not provided (Yuskavage, 1996).

Table 3-1 reported current dollar estimates from various SCB issues. BEA derived the 1991 data and subsequent years in four steps:

1. BEA's benchmark input-output (I-O) tables produced input compositions for 1977, 1982, and 1987.
2. BEA estimated 1978 through 1981 and 1983 through 1986 input compositions by interpolating the 1977, 1982, and 1987 figures.
3. BEA estimates the 1977 through 1987 imported and domestically imported shares of each detailed input.
4. BEA estimates the 1988 through 1994 input compositions based on the 1987 figures and the Economic Censuses of 1992.

For intermediate input estimations, BEA deflates each of the current-dollar inputs. (BEA deflates import and domestic production separately.) For deflation, quantities are approximated by real values (expressed at present with 1996 as the base period) that are calculated by dividing the current-dollar value of the component by its price index. BEA develops estimates for import prices with data from a variety of sources, but primarily from the BLS import price series.

Reliability and Accuracy

BEA views GDP as a reliable measure of output because of the source data underlying the estimates. The following reliability comments are based on the Valliant (1993) SCB article and Ritter (2000). GDP data originate from three types of sources. The foundational data come first from the economic censuses conducted every five years. These approach complete enumerations of sectoral activity in state and local governments, manufacturing, services, retail trade, wholesale trade, construction, transportation, communications and utilities, mining, finance, insurance, and real estate. Annual estimates form the second tier of GDP data and emanate form sources such as IRS tax returns and smaller surveys of establishments. The Annual Retail Trade Survey, for instance, forms one of the major components of the annual estimates. The U.S. Census Bureau collects sales and end-of-year inventory data from about 22,000 retail firms totaling $2 trillion of the $8.8 trillion GDP amount. While considered reliable by many economists, sampling variability may introduce errors into these annual estimates. Moreover, the Census Bureau imputes (substitutes estimates for missing or clearly incorrect data) about 11 percent of reported national annual retail sales because of accounting inconsistencies or raw survey data errors. The third component of the GDP flows from quarterly estimates.

In the October 1993 SCB, Valliant described the reliability and accuracy of the quarterly estimates of GDP, providing insights into the pre-1985 data in terms of dispersion and bias. BEA followed a schedule that produced three successive "current" estimates; advanced, preliminary, and final. BEA analysts developed a dispersion and bias measure based on the difference between these three estimates.

Dispersion is the average of the absolute values of the revisions, or, the difference between P, representing the percentage change in the current estimates, and L representing the percentage change in the latest available estimates, divided by n, representing the number of quarterly changes. Bias is the average of the revisions. According to the October 1993 SCB, dispersion averaged 1.6 percent from 1958 to 63 and dropped to 1.1 percent for 1968 to 1972. BEA stated that these declines in dispersion correspond with more accurate initial and final estimates subsequent to the late 1950s.For years after 1973 until 1991, the BEA concluded that more accurate source data for preliminary and final estimates did not improve reliability by much. BEA also determined that bias was not large enough from 1978 to 1991 to be significant under normality assumptions at the five- percent confidence level. Overall, for the period beginning in 1978 and covering the 1985 data from table 3-1, the BEA concluded there was no evidence of reliability increases. BEA also questioned its own estimating procedures and, in particular, the use of disparate sources of data, which may explain why reliability levels have not increased.

The NIPA framework also undergoes major updates referred to as comprehensive, or benchmark revisions. Eleven of these have been completed including one in 1996 and most recently on October 28, 1999 that provided the data for tables 3-1 through 3-8.The major change encompassed a definitional change reflecting our evolving economic system. Software became a business investment rather than just a "purchased input," or the equivalent of raw material. Unless the company increased the price of its product to cover software purchases, no impact registered in the GDP. With this benchmark revision, the Census Bureau increased the 1996 estimate by $115 billion, or 1.5

percent--the amount of software investments made in that year. Another change involved the Census Bureau's interpretation of the value of "unpriced" banking services such as ATM (automatic teller machine) contributions to an establishment's productivity. Previously, banking service productivity relied only on an index constructed from labor input. Economists argued that this ignored productivity gains from technological improvements such as ATMs and electronic banking. The BLS developed a productivity based instead of bank transactions, and this was used in the 1999 revision. For more detail, readers should refer to Moulton and Seskin (1999).

Sources of Error for GDP Estimates

The GDP estimates can contain several kinds of error. One source of error arises from estimates based on preliminary or incomplete tabulations of source data or BEA judgment in the absence of data. Errors may also arise because of sampling errors and biases in monthly, quarterly, annual, or periodic tabulations. Another source of potential error may arise when data are seasonally adjusted. Readers should refer to the October 1993 SCB issue for more detail (Young 1993).

NIPA and Transportation-Related Final Demand

For tables 3-7 and 3-8, transportation-related final demand (TRFD) is from NIPA reported in the SCB. It represents the sum of all consumer and government expenditures for transportation purposes, plus the value of goods and services purchased by business as investment for transportation purposes. Since TRFD includes only expenditures on the final products of the economy, it is comparable to GDP and provides a measure of transportation's importance from a consumption perspective.

NIPA tables report the composition of production and the distribution of incomes earned in production. The totals of these produce a GDP estimate that should theoretically be equal, but there is always a difference referred to as the "statistical discrepancy." NIPA is based on four subaccounts of national economic activity. These include 1) the personal income and outlay account, 2) the gross savings and investment account, 3) the government receipts and expenditures account, and 4) the foreign transactions account.

Personal Consumption Expenditures (PCE) for transportation include 1) road motor vehicles, such as new and used automobiles, and motorcycles; 2) motor vehicle parts, such as tires, tubes, accessories; 3) motor fuels and lubricants; and 3) transportation services, such as repair, greasing, washing, parking, storage, rental, leasing, tolls, insurance, and purchased local and intercity transportation services. Motor vehicles used primarily for recreation, boats, noncommercial trailers, and aircraft are excluded.

Gross private domestic fixed investment in transportation includes private purchases of transportation structures and equipment. Transportation structures include railroads and petroleum pipelines. Transportation equipment consists of automobiles, trucks, buses, truck trailers, aircraft, ships and boats, and railroad equipment.

Goods and services that are counted as part of transportation-related exports include 1) civilian aircraft, engines, and parts; 2) road motor vehicles, engines, and parts; 3) passenger fares, including receipts of U.S. air and ocean/cruise carriers for transporting non-U.S. residents between the United States and foreign countries or between two foreign points; and 4) other transportation. The total for road motor vehicles, engines and parts excludes boats, aircraft, and noncommercial trailers. Other transportation includes 1) the freight revenues of U.S.-operated ocean, air, and other carriers (e.g., rail, pipeline, and Great Lakes shipping) for international transport of U.S. exports and for transporting foreign freight between foreign points; 2) port expenditure receipts (representing payments for goods and services purchased in the United States by foreign-operated carriers); and 3) receipts of U.S. owners from foreign operators for the charter of vessels and rental of freight cars and containers.

Goods and services that are counted as part of transportation-related imports include 1) civilian aircraft, engines, and parts; 2) road motor vehicles, engines, and parts; 3) passenger fares, including payments to foreign air and ocean/cruise carriers for the transportation of U.S. residents between the United States and foreign countries or between two foreign points; and 4) other transportation. The total for road motor vehicle, engines and parts excludes boats, aircraft, and non-commercial trailers. Other transportation includes 1) freight revenues of foreign-operated ocean, air, and other carriers (e.g., rail, pipeline, and Great Lakes shipping) for international transport of U.S. imports and for the transportation of foreign freight between foreign points; 2) port expenditure receipts (representing payments for goods and services purchased in foreign countries by U.S.-operated carriers); and 3) payments to foreign owners from U.S. operators for the charter of vessels and rental of freight cars and containers.

Transportation-related government purchases include federal, state, and local purchases of transportation services, and government expenditures on transportation-related structures and equipment. Federal, state, and local purchases represent the sum of consumption expenditures and gross inventory. Defense-related purchases include expenditures on the transportation of materials (care and movement of goods by water, rail, truck, and air); the rental of trucks and other transportation equipment and warehousing fees; and travel of persons (care and movement of Department of Defense military civilian employees), including tickets for all modes of travel, per diem, taxi fares, automobile rental, and mileage allowances for privately owned vehicles.

Further References

This data source and accuracy statement is based on several papers that have appeared in the SCB. Data users who desire more methodological detail can refer to the list of references at the end of this chapter.

TABLE 3-10. National Transportation and Economic Trends

The *Statistical Abstract of the United States* published by the U.S. Department of Commerce, Census Bureau, is the source of the population data. The *Current Population Reports* are the source of the Abstract's data that are collected through the *Current Population Survey* (CPS). This is a monthly survey administered by the Census Bureau of a scientifically selected sample representative of the noninstitutional civilian population in 754 areas covering every state and the District of Columbia. Like other surveys, the CPS is subject to sampling error. Readers should note that estimates based on the CPS may not agree with census counts because different procedures are used. Changes in the CPS also mean that annual comparisons must be made with caution. For instance, in 1994, the CPS methodology was dramatically changed, and the estimates began to incorporate 1990 census population controls, adjusted for the estimated undercount.

Industrial production data come from the Industrial Production Index, produced by the Board of Governors of the Federal Reserve System and published in the *Economic Report of the President*. For annual figures, individual industrial production (IP) indexes are constructed from a variety of sources, including the quinquennial Censuses of Manufactures and Mineral Industries; the Annual Survey of Manufactures, prepared by the Census Bureau; the Minerals Yearbook, prepared by the U.S. Department of the Interior; and publications of the U.S. Department of Energy. The Federal Reserve Board (FRB) uses these data in a modeling framework to produce estimates of industrial production. Below are brief discussions on three major sources for the IP indexes; the survey of manufactures, the census of manufactures, and the electric utility survey.

Annual Survey of Manufacturers

The Census Bureau conducts a mail survey of approximately 55,000 manufactures with three different sample strata. The sampling frame is based on previously surveyed firms and is updated annually based partially on IRS administrative records and other sources. Large manufactures (shipments > $500 million, and > 250 employees), some computer manufacturing firms, and all remaining firms with at least 250 employees are selected. Establishments with employment generally ranging from 20 to 250 employees are sampled with a probability proportional to a composite measure of establishment size. Approximately 5,000 of the smallest firms (5 to 20 employees) are also sampled and receive a shorter survey instrument. Additional information on the survey, readers should refer to www.census.gov/econ/www/ma0300.html.

Census of Manufacturers

The Census of Manufactures collects data through mail surveys from approximately 237,000 multiunit and single-unit firms with a minimum payroll figure. This census is supplemented by IRS administrative data from over 142,000 firms not contacted by mail. For additional information on the census, readers should refer to www.census.gov/econ/www/ma0100.html.

Electric Utility Survey

Since 1971, the FRB has conducted the *Monthly Survey of Industrial Electricity Use* based on responses from utilities and manufacturing and mining firms that are cogenerators. This survey is the basis for estimates of the amount of electricity power used by 120 industrial sectors. More than 40 industrial production series estimates are based on data from this survey and compose 28 percent of the Industrial Production Index in 1994 value-added proportions.

Survey responses are voluntary and are gathered from a panel of 175 utilities and 186 cogenerating companies with a monthly response rate near 95 percent. In 1992, an additional 71 new cogenerators joined the panel. This resulted, according to an FRB statistical analysis, in a decrease of the standard deviation of errors for electricity growth rates from 3.0 to 1.9 percentage points. Overall, the estimates for total power use produce a standard error of about 0.5 percentage points. The panel accounts for approximately 73 percent of industrial electric power use in the United States.

The *Survey of Current Business*, published by the U.S. Department of Commerce, Bureau of Economic Analysis, is the source of GDP estimates. Readers should refer to the source and accuracy statement for tables 3-1 through 3-5 for information on GDP estimates.

TABLE 3-11. Sales Price of Transportation Fuel to End-Users

The U.S. Department of Energy, Energy Information Administration's (EIA's) *Monthly Energy Review*, tables 9.4 and 9.7, provided price data, except for railroad fuel. Pre-1981 data were reported by the EIA from Bureau of Labor Statistics reports. Beginning in 1983, the EIA administered a series of surveys to collect data on petroleum prices, market distribution, supply, and demand. The EIA-782 series encompasses three surveys: 1) Form EIA-782A, Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report; 2) Form EIA-782B, Resellers'/Retailers' Monthly Petroleum Product Sales Report; and 3) Form EIA-782C, Monthly Report of Prime Supplier Sales of Petroleum Products Sold for Local Consumption.

EIA developed a method for comparing data from the new surveys with older information gathered by various methods. As a result, a number of adjustment factors were developed and used to "backcast" price estimates. Readers who require a more detailed description of this methodology should refer to EIA's petroleum data publications web page (www.eia.doe.gov/oil gas/petroleum/pet frame.html) and the explanatory notes section.

Changes in sample elements or collection methods may affect data continuity. Two regulatory changes affected data collection in October 1993.The Clean Air Act Amendments of 1990 required that oxygenated gasoline be sold in the winter months in ozone nonattainment areas. Thus, the EIA-782 forms were modified to collect information on fuels divided among conventional, oxygenated, and reformulated categories. Second, requirements for the production and selling of low-sulfur diesel were required and necessitated the separation of diesel fuel into high- and low-sulfur categories. Moreover, surveys prior to October 1993 did not include propane. The EIA followed several different sampling designs during two periods in the 1980s and thus, there may be some price estimate discontinuity for periods between December 1983 and January 1984 as well as between August and September of 1988.

Data Collection

The 782 series occurs on a monthly schedule via mail. The 782A and 782C surveys reflect a census of about 115 and 190 firms, respectively. The 782B samples about 2,000 firms. The EIA first stratifies by sales volume for the form 782B survey to ensure that dealers with 5 percent or more of the market are captured with certainty. The remaining elements of the frame were assigned a probability of selection to form a 2,200 firm survey. These "noncertainty" companies were poststratified by geographic area and type of sales category.

Data Reliability

EIA has studied its sampling effects on reliability and determined that the sample size of 2,000 should yield a less than 1-percent price coefficient of variation in its estimates. Errors can arise because of nonresponse, but an EIA official indicated that the response rates for the 1997-1999 782A, B, and C surveys averaged 95 percent, 86 percent, and 96 percent, respectively. Because survey data invariably contain incomplete data (because of reporting errors or nonresponse), EIA estimates or "imputes" missing data. Readers requiring imputation algorithms should refer to the 782 series explanatory notes referred to above.

TABLE 3-12. Price Trend of Gasoline v. Other Consumer Goods and Services

Data in this table were reproduced from the American Petroleum Institute's (API) *Basic Petroleum Data Book*. API noted that data reported prior to 1981 was obtained from Platt's *Oil Price Handbook and Oilmanac*. Platt's is part of Standard and Poor's, and an independent third party organization that tracks the petroleum industry. Platt's reported the retail price of gasoline based on telephone interviews with gas stations in 55 cities. More detailed historical

information on their data collection methods could not be ascertained and the data's reliability is uncertain. API reported the Bureau of Labor Statistics (BLS) as its data source for 1981 to 2001 retail gasoline prices. The remainder of this section discusses the BLS Consumer Price Index (CPI) data collection and estimation methods used to derive the average retail price of gasoline.

BLS uses the CPI as a measure of average price changes paid by urban consumers for a fixed basket of goods and services. BLS estimates the CPI with a survey-based approach. Survey results define a categorization of goods and services, a representative sample of items to track, and weights according to the consumption of an average consumer during a base period.

Sample Design

BLS relies on two sampling frames for their CPI estimates. One represents the universe of retail outlets from which households may purchase defined groups of commodities and services including gasoline. A second represents households across urban areas. Moreover, the household frame is based on an "urban-consumer" population and consists of households in Metropolitan Statistical Areas (MSA's) and in urban places with more than 2,500 inhabitants. This "all urban" CPI (CPI-U) provides the estimates for retail gasoline prices shown in table 3-9.Thus, this frame does not represent non-urban consumers.

For the retail outlet sampling frame, BLS relies on the Point-of-Purchase Survey (CPOPS) conducted by the Census Bureau in 94 Primary Sampling Units (PSUs) identified by BLS. PSUs are based on urban counties, groups of contiguous urban counties, or MSAs. For the household sample, a noncompact clustering procedure was employed which dispersed households evenly within a Census enumeration district (ED). More detailed sampling design information can be found in BLS's *Handbook of Methods* at http://stats.bls.gov/opub/hom/homhome.htm.

Prices for the goods and services used to calculate the CPI are collected in 91 PSUs located in 85 urban areas throughout the country. The sample size for the CPOPS totals about 21,000 retail and service establishments-supermarkets, department stores, gasoline stations, hospitals, etc. Food, fuels, and a few other items are priced monthly in all 85 locations. BLS field representatives collect all price information through visits or telephone calls in the household surveys. Price changes are computed based on a sample of outlets selected from locations identified by consumers. Specific sample items are then selected from each sample outlet to ensure that the market basket is representative of where households shop.

Estimation

BLS routinely updates its price estimates for specific items among the collection of goods and services, for example, a new car model year. BLS employs three techniques to produce new price estimates. First, an item that is directly comparable to the previous discontinued good will be used to provide a price estimate. However, a substitute item may be inappropriate when goods change slightly in their characteristics. BLS relies on Hedonic regression modeling as a second "quality adjustment" for price estimates. This statistical technique can model the importance of various quality characteristics that add value to a particular good (the fiber content and construction of apparel products for instance). A researcher can estimate a Hedonic regression model that identifies the factors most important is determining the price of a good, and BLS field representatives will note these in their data collection. Imputation is a third quality adjustment used for "noncomparable" substitutions where BLS estimates the price change from previous averages. Detailed algorithms can be found in chapter 17 of the *BLS Handbook of Methods* at http://stats.bls.gov/opub/hom/homhome.htm.

Effective January 1999, BLS began using a new formula for calculating the basic components of the Consumer Price Index for all Urban Consumers (CPI-U) and the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). The new formula, the geometric mean estimator, is used in index categories that comprise approximately 61 percent of total consumer spending represented by the CPI-U. Based on BLS research, it is expected that use of the new formula will reduce the annual rate of increase in the CPI by approximately 0.2 percentage point per year. Additional information on this change was published in the April 1998 CPI Detailed Report and is available on the Internet at http://stats.bls.gov/cpihome.htm.

Accuracy

One of the CPI's limitations is that it represents price movements for urban residents and may not correctly represent nonurban consumption patterns. The CPI may also contain sampling error because it is estimated from a sample of

consumer purchases. Nonsampling error may occur if respondents provide BLS field representatives with inaccurate or incomplete information. Another potential source of error identified by BLS may occur because of a time lag between the Point-of-Purchase Survey and the initiation of price collection for commodities and services at resampled outlets. Because of the time lag, the products offered by the outlet at the time pricing is initiated may not coincide with the set from which the CPOPS respondents were purchasing.

The CPI is also subject to response error when data are not collected because of non-response. BLS established a nonresponse auditing program in 1986.It reported that response rates in 1990 for transportation commodities and services were above 90 percent.

Bias

Four categories of bias were identified in the BLS report, *Measurement Issues in the Consumer Price Index*, published in 1997. First, because of the fixed-weight nature of the index, the CPI creates substitution bias by placing too much weight on items measured in previous surveys from which consumers may have shifted away. Second, the study found that the index did not account for consumers switching to discount stores. Third, a quality change bias was also identified when the differences between goods priced in two different periods cannot be accurately measured nor deduced from the accompanying price difference between the goods. Finally, the report noted that the CPI also had a new product bias because the index inadequately reflected consumer value of products introduced into the market. The commission concluded that the CPI overstated the true cost-of-living change by 1.1 percentage points per year.

TABLE 3-13. Producer Price Indices for Transportation Services and Warehousing Services (NAICS)

TABLE 3-14. Producer Price Indices for Transportation Equipment (NAICS)

Data shown in these tables are drawn from annual issues of *The Supplement to Producer Price Indexes* published by the Bureau of Labor Statistics (BLS) in the U.S. Department of Labor. These indexes represent a measure of outputs in all goods-producing American industries as well as partial coverage of service industries including transportation. BLS defines a price as the net revenue accrued to a specified production establishment from a specified kind of buyer for a specific product shipped under specific transaction terms on a specified day of the month. BLS collects this data series through surveys of a sample of establishments that report their prices from economic transactions.

Data Collection

A BLS field economist visits an establishment or cluster of establishments selected for price sampling. The economist uses a disaggregation procedure to select a sample of transactions from all the establishment's revenue-producing activities. This disaggregation procedure assigns a probability of selection to each shipping or receipt category proportionate to its value within a reporting unit. In most cases, the final price index produced by the BLS requires that 1) there are at least three different respondents to a survey, 2) at least two reporting units provide price information in a given month, and 3) no single respondent accounts for 50 percent or more of the weight for a given item.

BLS regional offices review field data for consistency and completeness. The national office then conducts a final review and a survey is then tailored specifically to establishments or clusters of establishments. BLS refers to these as repricing schedules and sends them to reporting establishments on a regular basis. Most prices refer to a reporting schedule on a particular day of the month, usually, the first Tuesday or the 13th of a month.

Estimation

BLS collects prices for over 100,000 items. It utilizes several different weighting schemes for the numerous indexes produced because some products will have a greater effect on the movement of groupings of individual products. BLS utilizes the net output of shipment values as weights for the 4-digit SIC industries. Net output values include only shipments from establishments in one industry to other industry establishments and, thus, differ from gross shipment values. The latter would include shipments among establishments in the same industry, even if those establishments are separate firms. BLS also makes seasonal adjustments if statistical tests and economic rationale justify them, and computes data when a participating company does not deliver a price report. BLS bases the missing price estimation on the average of price changes for similar products reported by other establishments.

Accuracy

As in all surveys, the accuracy of producer price indexes depends on the quality of information voluntarily provided by participating establishments. One of the accuracy concerns of BLS revolves around the preferred use of realistic transaction prices (including discounts, premiums, rebates, allowances, etc.) rather than list or book prices. Before BLS fully changed its data collection method in 1986, a survey indicated that about 20 percent of traditional commodity indexes were based on list prices. The newer and more systematic methodology decreased the use of list prices. BLS documentation (available at http://stats.bls.gov/opub/hom) provided no more details on sampling error, response rates, or the availability of generalized variance parameters or techniques for estimating them.

TABLE 3-15. Personal Expenditures by Category

TABLE 3-16. Personal Consumption Expenditures on Transportation by Subcategory

Data used in these tables are from the Bureau of Labor Statistics, *Annual Report of Consumer Expenditure Survey*. The Consumer Expenditure Survey (CEX) collects information from U.S. households and families on their buying habits (expenditures), income, and consumer characteristics. The strength of the survey is that it allows data users to relate the expenditures and income of consumers to the characteristics of those consumers. BLS uses 11 standard characteristics to classify consumers, including income, before-tax income class, age, size of the consumer unit, composition of the consumer unit, number of earners, housing tenure, race, type of area (urban or rural), region, and occupation.

The CEX is a national probability sample of households. The sampling frame (i.e., the list from which housing units are chosen) for this survey is generated from the 1990 census 100-percent detail file, which is augmented by a sample drawn from new construction permits. Coverage improvement techniques are also utilized to eliminate recognized deficiencies in the census.

Data Collection

The current survey consists of two separate surveys (Interview and Diary), each utilizing a different data collection technique and sample. Data is collected for each survey from approximately 5,000 households. In the Interview survey, each consumer unit (CU) in the sample is interviewed every three months over five calendar quarters. The interviewer uses a structured questionnaire to collect both the demographic and expenditure data in the Interview survey. The interviewer collects the demographic data in the Diary survey whereas the respondent enters the expenditure data on the diary form. Both surveys accept proxy responses from any eligible household member who is at least 16 years old if an adult is not available after a few attempts to contact that person. The respondent family completes the Diary (or recordkeeping) survey at home for two consecutive one-week periods.

A reinterview program for the CEX provides quality control. The program provides a means of evaluating individual interviewer performance to determine how well the procedures are being carried out in the field. A member of the supervisory staff conducts the reinterview. Subsamples of approximately 6 percent of households in the Interview survey and 17 percent in the Diary survey are reinterviewed on an ongoing basis. A new diary form with more categories and expanded use of cues for respondents was introduced in 1991, based on results from earlier field and laboratory studies.

Estimation

Missing or invalid data on demographic or work experience are imputed. No imputation is done for missing data on expenditures or income. Selected portions of the Diary data are also adjusted by automated imputation and allocation routines when respondents report insufficient detail to meet publication requirements. These procedures are performed annually on the data. The imputation routines assign qualifying information to data items when there is clear evidence of invalid nonresponse.

The statistical estimation of the population quantities of interest, such as the average expenditure on a particular item by a CU or the total number of CUs in a particular demographic group, is conducted via a weighting scheme. Each CU included in the survey is assigned a weight that is interpreted as representing the number of similar families in the universe of interest, the U.S. civilian noninstitutional population. Readers should refer to http://stats.bls.gov/opub/hom/homch16 c.htm for the detailed weighting method.

Beginning with 1997 data, BLS introduced a new calibration method to compute weights in the Consumer Expenditure Survey. The weights are calculated using a model-assisted, design-based regression estimator.

Accuracy

The Consumer Expenditures Survey is a sample survey and hence is subject to two types of errors, nonsampling and sampling. Nonsampling errors can be attributed to many sources, such as differences in the interpretation of questions, inability or unwillingness of the respondent to provide correct information, mistakes in recording or coding the data obtained, and other errors of collection, response, processing, coverage, and estimation for missing data. The full extent of nonsampling error is unknown. Sampling errors occur because the survey data are collected from a sample and not from the entire population. Tables with coefficients of variation and other reliability statistics are available on request from the national office. However, because the statistics are shown at the detailed item level, the tables are extensive.

TABLE 3-17. Average Cost of Owning and Operating an Automobile

Your Driving Costs produced by the American Automobile Association (AAA) provided the data for this table. Prior to 1985, the cost figures are for a mid-sized, current model, American car equipped with a variety of standard and optional accessories. After 1985, the cost figures are for a composite of three current model American cars:

1. A 1999 Chevrolet Cavalier LS,
2. A 1999 Ford Taurus SEL Deluxe, and
3. A 1999 Mercury Grand Marquis LS.

Thus, the estimates are not reliable estimates for all cars.

Fuel costs were based on an average price of $1.195 per gallon of regular unleaded gasoline, weighted 20 percent full-serve and 80 percent self-serve. Insurance figures were based on personal use of vehicles driven less than 10 miles to or from work, with no young drivers. Normal depreciation costs were based on the vehicle's trade-in value at the end of four years or at 60,000 miles. American Automobile Association (AAA) analysis covers vehicles equipped with standard and optional accessories, including automatic transmission, air conditioning, power steering, power disc brakes, AM/FM stereo, driver-and passenger side air bag, anti-lock brakes, cruise control, tilt steering wheel, tinted glass, emission equipment and rear window defogger.

TABLE 3-18 & 3-29. Average Passenger Fare (Current and chained 2000 dollars)

TABLE 3-22. Total Operating Revenues

Air

The U.S. Department of Transportation, Bureau of Transportation Statistics (BTS), Office of Airline Information, reports passenger fares and operating revenues in its publication *Air Carrier Financial Statistics*. These numbers are based on 100 percent reporting by large certificated air carriers. Minor errors from nonreporting may occur but amount to less than one percent of all passenger or freight activity. The figures do not include data for all airlines; such as most scheduled commuter airlines and all nonscheduled commuter airlines.

Class I Bus

Class I passenger motor carriers are required to report financial and operating information to BTS using form MP-1.(Prior to 1996, Class I carriers were required to report to the Interstate Commerce Commission.) Class I passenger motor carriers are defined as those having annual gross operating revenues, as adjusted for inflation, of $5,000,000 or more. This table does not include Class I carriers whose data had not been received at the time of publication. Thus, these data do not represent total Class I passenger motor carrier activity.

Transit

The American Public Transit Association (APTA) reports these figures, which are based on the annual National Transit Database (NTD) report published by the USDOT, Federal Transit Administration (FTA). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including capital expenditures, revenues and expenses. These data are generally considered accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or misinterpret certain data definitions. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private and very small operators and rural operators).

Rail

Data are from *Railroad Facts* published annually by the Association of American Railroads (AAR). AAR figures are based on 100-percent reporting by all nine Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million in 1991 and adjusted annually in concert with changes in the "Railroad Freight Rate Index" published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads comprise only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated, 91 percent of total freight rail revenue, and 88 percent of railroad employment.

Intercity/Amtrak

Average passenger fare data are based on 100 percent of issued tickets, and thus should be accurate. Created as a publicly-owned for-profit corporation, Amtrak collects its own financial data and reports this information in its annual report. Auditing should ensure the accuracy of the operating revenue figures.

Trucking and Courier Services (except air)

The Census Bureau's Transportation Annual Survey (formerly known as the Motor Freight Transportation and Warehousing Survey) is the source of this information. The sample survey represents all employer firms with one or more establishments engaged primarily in providing commercial motor freight transportation or public warehousing services. It excludes motor carriers that operate as auxiliary establishments to nontransportation companies, as well as independent owner-operators with no paid employees. Thus, the data do not represent the total trucking industry.

In 1999, Transportation Annual Survey was merged with the Census Bureau's Service Annual Survey (SAS) and is the source of data for years 1998 and later. SAS provides estimates of operating revenue of taxable firms and revenue and expenses of firms exempt from federal income taxes for selected service industries. Unlike the Transportation Annual Survey, the SAS is based on the North American Industry Classification System (NAICS).

As with all sample surveys, two types of errors are possible: sampling and nonsampling. Nonsampling errors may include response errors and mistakes in coding or keying data. For additional information about the survey and data reliability, the reader is referred to the Census Bureau website at www.census.gov.

Water (Domestic)

Eno Transportation Foundation, Inc. is the source of these data. Eno estimates these figures by multiplying ton-mile figures by estimated revenue per ton-mile. The U.S. Army Corps of Engineers reports the ton-mile figures in its publication *Waterborne Commerce of the United States*, and the revenue per ton-miles figures are estimated by Eno.

Oil Pipeline

Eno Transportation Foundation, Inc., publishes these data, which are based on Federal Energy Regulatory Commission (FERC) data and reported by the Oil Pipeline Research Institute for years 1977 to the present. FERC data originates from required quarterly reports filed by pipeline companies. Prior to 1977, the data are based on the former Interstate Commerce Commission data for regulated pipelines, and estimated to be 16 percent of the total of nonregulated pipelines.

Gas Pipeline

These statistics originate from *Gas Facts*, published annually by the American Gas Association (AGA).AGA data are based on gas utilities participation and reporting to the Uniform Statistical Report and estimates for those companies not reporting based on recent historical experience. Varying percentages of nonreporters from year to year introduce minor reliability problems for time-series comparisons.

TABLE 3-23. Employment in For-Hire Transportation and Selected Transportation-Related Industries (NAICS)

Employment data by industry are from the National Employment, Hours, and Earnings estimates published by the Bureau of Labor Statistics (BLS), U.S. Department of Labor. These estimates originate from the Current Employment Statistics (CES) survey program. The CES is a monthly survey conducted by state employment security agencies in cooperation with the BLS. The survey provides employment, hours, and earnings estimates based on payroll records of nonfarm business establishments, including government.

BLS uses a stratified sample based on a sector's employment size, or the degree of variability among its establishments, or both. This ensures that BLS captures a more representative survey from employers with large payrolls. Thus, large establishments are certain of selection while smaller ones have less of chance.

Data Collection

Data are collected electronically from about two-thirds of the respondents and by mail or fax from the remainder. The primary type of electronic reporting is touch-tone phone self-response; others are computer-assisted phone interviews and phone voice recognition technology. Increasingly, data are collected through electronic data interchange from a small but growing number of companies that have a large number of establishments across the country. Mail respondents submit Form 790 to the BLS each month. It is then edited and returned to the respondent for use again the following month. All firms with 250 employees or more are asked to participate in the survey, as well as a sample of smaller firms.

Estimation

Employment estimates are made at what is termed the basic estimating cell level and aggregated upward to broader levels of industry detail by simple addition. Basic cells are defined by industry (usually at the 3- or 4-digit SIC level) and are stratified within industry by geographic region and/or size class in the majority of cases. Within the wholesale trade, retail trade, and services divisions, most industries are stratified into three to five size classes (beginning in 1984).

Most national employment estimates are multiplied by bias adjustment factors to produce the monthly published estimates. Bias adjustment factors are used primarily to compensate for the inability to capture the entry of new firms on a timely basis. New firms contribute a substantial amount to employment growth each year, but there is a lag between the creation of a firm and its inclusion on the sample frame (i.e., the Unemployment Insurance universe file). It is, therefore, necessary to use modeling techniques to capture this segment of the population. BLS also performs seasonal adjustments for certain SIC industries.

Accuracy

BLS does not publish data reliability information along with estimates. Instead, it provides estimation formula and the necessary parameters so that users can estimate standard errors. For additional information, see the "Explanatory Notes and Estimates of Error" in the BLS monthly publication *Employment and Earnings*.

The CES survey, which began over 50 years ago, predates the introduction of probability sampling as the internationally recognized standard for sample surveys. Instead, a quota sample has been used since its inception. Quota samples are at risk for potentially significant biases, and recently completed BLS research suggests that, despite the large CES sample size, employment estimates based on that sample at times diverge substantially from those that a more representative sample would have been expected to produce. This leads to an over-reliance on bias adjustment in the estimation procedure. Because bias adjustment is primarily based on past experience, it is limited in its ability to accurately reflect changing economic conditions on a timely basis.

Government Employment

The Office of the Secretary provides employment figures for the U.S. Department of Transportation. State and local highway department employment figures are from the *State and Local Government Employment and Payroll Estimates*, published by the U.S. Department of Commerce, Bureau of the Census. The data are for the 50 states and the District of Columbia. Employment and payroll data pertain to the month of October. At present, data are collected for one pay period that includes October 12 (regardless of the period's length) through the Public Employment Survey (PES).

Employment refers to all persons gainfully employed by and performing services for a government. Employees include all persons paid for personal services performed from all sources of funds, including persons paid from federally funded programs, paid elected officials, persons in a paid leave status, and persons paid on a per meeting, annual, semiannual, or quarterly basis. Excluded from employment statistics are unpaid officials, pensioners, persons whose work is performed on a fee basis, and contractors and their employees.

The Census Bureau derives full-time equivalent (FTE) employment by summing the number of full-time employees reported and converting the number of hours worked by part-time employees to a full-time equivalent amount. Up until 1985 data, the method used to calculate FTEs was based solely on payroll data. Effective with 1986 data, the annual employment survey started collecting data on the number of hours worked by part-time employees in order to provide a more accurate representation of full-time equivalent employment. No October 1985 FTE employment data are available.

Beginning in 1999, the Public Employment Survey (PES) was conducted using a separate sample of approximately 11,000 government units to improve data accuracy and survey efficiency. Government units meeting any of the following criteria are included in the survey: 1) counties with populations greater than 100,000; 2) cities with populations greater than 75,000; 3) townships in New England and Mid-Atlantic with populations greater than 50,000; 4) special districts with FTEs greater than 1000; 5) independent school districts with enrollment greater than 10,000; and 6) all dependent and independent schools providing college level education. In 1999, government units were sampled to obtain a relative standard error of 3 percent or less for FTE and total payroll for each of the states by type of government groups.

Prior to 1993, the PES used a joint sample of approximately 24,000 units for both employment and finance. From 1993 to 1998, the sample size was reduced to around 14,000 units. The standard error for the PES prior to 1999 was designed to be around 3 percent for major state- or county-level estimates of finance variables (state-level for 1993-1998 and county-level prior to 1993).Employment estimates are made using regression, except when the number of noncertainty cases contributing to the estimate is less than 20, where a simple unbiased estimate is used.

TABLE 3-24. Employment in Transportation and Transportation-Related Occupations

TABLE 3-26. Median Weekly Earnings of Full-Time Wage and Salary Workers in Transportation by Detailed Occupation

Employment by detailed transportation occupation data are from the Occupational Employment Statistics (OES) survey, collected by the Bureau of Labor Statistics (BLS). The OES is a periodic mail survey of nonfarm establishments that collects occupational employment data on workers by industry. The OES program surveys approximately 725,000 establishments in 400 detailed industries. The average response rate for the last three years, according to a BLS official, averaged about 70 percent.

The sample is selected primarily from the list of business establishments reporting to the state unemployment insurance program. The OES sample initially stratifies the universe of establishments by three-digit industry code and size- class code. Establishments employing 250 employees or more are sampled with certainty. Establishments employing fewer than 250 employees but more than 4 employees are sampled with probability proportional to the size class employment within each three-digit industry. Establishments employing four or fewer employees (i.e., size class 1 establishments) are not sampled. Instead, the employment for these establishments are accounted for by assigning a larger sampling weight to establishments employing five to nine employees (i.e., size-class 2 establishments).Within each three-digit industry/size- class cell, establishments are systematically selected into the sample through a single random start.

Data Collection

Employers are the source of occupational data. Within establishments, the main source of occupational data reported by respondents is personnel records. Data are collected from respondents primarily by mail. Occasionally, visits are made to large employers and to other respondents who indicate particular difficulty in completing the questionnaires. Ordinarily, two mailings follow the initial mailing. After the third mailing, a subsample of the remaining nonrespondents is drawn and contacted by telephone. The OES survey follows a 3-year cycle. Three surveys are conducted alternately for manufacturing, nonmanufacturing, and the balance of nonmanufacturing industries.

Estimation

During the sample selection process, each sampled establishment is assigned a sampling weight that is equal to the reciprocal of its probability of selection. For example, if an establishment on the sampling frame had a 1 in 10 chance of being selected into the sample, then its sampling weight is 10. For establishments that did not respond to the survey, a nonresponse adjustment factor is calculated and applied against the sampling weights of the responding establishments within each state/3-digit industry/size-class cell. Multiplying these adjustment factors by sampling weights increases the weight of the responding establishments so they can account for the missing employment data of the nonresponding establishments.

Accuracy

The OES survey uses a subsample replication technique to estimate variances in occupational employment at the 3-digit industry/size-class level. For additional information on occupational employment estimates and measurements of sampling error associated with the estimates, the reader is referred to http://stats.bls.gov/oes/home.htm.

TABLE 3-25. Average Wage and Salary Accruals per Full-Time Equivalent Employee by Transportation Industry (NAICS)

TABLE 3-27. Total Wage and Salary Accruals by Transportation Industry (NAICS)

The *Survey of Current Business* (tables 6.3c and 6.6c) published by the U.S. Department of Commerce, Bureau of Economic Analysis, is the source of transportation wage and salary data. These estimates are based on BLS tabulations of employee wages that are covered by State unemployment insurance. As a component of the income side of National Income and Product Account, wages and salaries comprise part of the GDP calculation. These data reflect the monetary remuneration of employees in terms of wage accruals less disbursements. It is defined as the difference between wages and salaries on a "when-earned" basis, or accrued, and wages and salaries on a "when-paid," or disbursed basis. This computation was instituted in 1992 because a significant portion of bonus payments were missed in previous calculations. Readers should also refer to the earlier discussion of GDP methods and reliability for more detail.

TABLE 3-28. Labor Productivity Indices for Selected Transportation Industries (NAICS)

The Bureau of Labor Statistic's (BLS) *Industry Productivity Measures* is the source of transportation labor productivity data. BLS develops industry productivity measures based on various data sources.

For rail, BLS uses freight ton-mile and passenger miles that are collected by the Surface Transportation Board (STB), the Association of American Railroads (AAR), and Amtrak. BLS also aggregates four different air transportation outputs to form a single productivity index: domestic passenger-miles, domestic freight ton-miles, international passenger-miles, and international freight ton-miles. Air transportation data come from *Air Carrier Traffic Statistics and Air Carrier Financial Statistics*, published by the U.S. Department of Transportation, Bureau of Transportation Statistics. For petroleum pipeline, BLS relies on data from the Association of Oil Pipelines and derived an output index based on trunkline barrel-miles. A barrel-mile is one barrel of petroleum moved through one mile of pipeline.

Estimation

BLS generally calculates labor productivity by dividing an index of output (in this case, ton-miles) by an index of hours. Output is derived with a weight adjusted Tornqvist formula that produces an output ratio for one year. BLS then combines these in a series that produces a chained output index. The hour indexes are developed from data in BLS's Current Employment Statistics (CES; see discussion above for table 3-12) and are the results of dividing the annual aggregate hours for each year by a base-period figure. Readers who need more detail, such as mathematical

specifications or equations, should refer to Kunze and Jablonski (Kunze and Jablonski 1998) or call the Office of Productivity and Technology at BLS.

Accuracy

BLS provides no measures of reliability. However, BLS makes an assumption that transportation outputs should be measured using the production of passenger-miles or freight-miles. Another school of thought might assume that many transportation firms or facilities are actually providing capacity rather than actual use. Thus, an argument can be made that productivity should be based on capacity rather than use. In fact, this is how BEA measures transportation output. To evaluate the BLS assumption, one study compared the two approaches by examining the different growth rates produced by BLS and BEA and found that in 25 of 35 service industries, the differences are within one percentage point. For transportation, differences in growth rates across BLS and BEA estimates were two percentage points or less (Kunze and Jablonski 1998).

Beginning with 1997 data, the indices for bus and petroleum pipelines did not meet BLS publication standards and are considered less reliable than those for other modes. These industries had between 14,000 and 15,000 employees, far below the 50,000-employee threshold established for transportation industries by BLS. However, they both met a basic test of variability of the annual percent changes in the output per hour measure.

GOVERNMENT REVENUES AND EXPENDITURES

TABLE 3-29 & 3-30. Federal, State, and Local Government Transportation-Related Revenues and Expenditures, Fiscal Year (Current and constant 1996 dollars)

TABLE 3-31. Summary of Transportation Revenues and Expenditures from Own Funds and User Coverage, Fiscal Year (Current and chained 2000 $ millions)

TABLE 3-32 & 3-33. Federal Transportation-Related Expenditures by Mode, Fiscal Year (Current and constant 1996 dollars)

TABLE 3-34. Cash Balances of the Transportation-Related Federal Trust Funds, Fiscal Year

The main sources for federal-level data are the *Budget of the United States Government* and the *Appendix to the Budget*. These data are the actual figures as reported for the various transportation-related programs in the appendices of each year's budget document.[1] The figures are consistent from year to year and follow the definitional structure required by the Office of Management and Budget (OMB).

Primary sources for state and local transportation-related revenues and expenditures data are censuses and surveys collected by the U.S. Census Bureau. All units of government are included in the Census of Governments, which is taken at five-year intervals for years ending in 2 or 7, and these data are full counts, which are not subject to sampling error.

State and local government data for noncensus years are obtained by annual surveys, which are subject to sampling error. For U.S. totals of local government revenues and expenditures in this report, sampling variability is less than 3 percent.

Federal figures in this report correspond to the federal fiscal year, which begins on October 1, while state and local data are for fiscal years that generally start in July. While this may create a small error in totals for any given year, the data are suitable for illustrating trends in public transportation finance. Programs terminated before 1985 are excluded from the tables. The totals for transportation revenues and expenditures in this report are the sum of the Census Bureau's state and local numbers plus the total of the federal numbers.

The source of the chained dollar deflators is *The National Income and Product Account Tables*, Bureau of Economic Analysis, table 7.1, "Quantity and Price Indexes for Gross Domestic Product." All inflation-adjusted data are for the base year 1996, instead of 1992 as in previous editions of *National Transportation Statistics*. Note that deflators used for the federal data differ from those used for state and local data. Thus, if expenditures are totaled across different levels of government in chained dollars before and after federal grant transfers, the totals will not match.

Transportation Revenues

Transportation revenue estimates include transportation-related user charges, taxes, or fees earmarked for transportation-related expenditures. Estimates include transit fares from systems owned and operated by state and local governments, including those systems operated under contract by a private firm under day-to-day financial oversight by government.

Federal transportation revenues generally consist of trust-fund collections from user charges, such as fuel taxes, vehicle taxes, registration and licensing fees, and air passenger ticket taxes. Damage payments made by private parties are deposited in the funds to reimburse the government for related fund expenditures.

The five transportation-related Federal trust funds are established by law:

1. Highway Trust Fund (HTF), which includes both highway and transit accounts;
2. Airport and Airway Trust Fund (AATF);
3. Harbor Maintenance Trust Fund (HMTF);
4. Inland Waterways Trust Fund (IWATF); and
5. Oil Spill Liability Trust Fund (OSLTF).

Highway Revenues

The Highway Trust Fund (HTF) was established by the Highway Revenue Act of 1956. Highway Trust Fund revenues are derived from various excise taxes on highways users (e.g., motor fuel, motor vehicles, tires, and parts and accessories for trucks and buses) and interest earned on balances. The Transportation Equity Act for the 21st Century (TEA-21), which was enacted in June 1998, made important changes to the Federal Highway Trust Fund legislations (FHWA, 1999):

- extension of deposit provisions of almost all highway user taxes through September 30, 2005;
- after September 30, 1998, the HTF can no longer earn interest on balances, and the balance in the highway account would be transferred to the general fund;
- TEA-21 keys Federal-aid highway funds to receipts of the Highway Account of the HTF; and
- the Transit Account share of fuel tax rose from 2 cents per gallon to 2.86 cents per gallon.

The Excise tax on gasoline is the most important source of the HTF revenues and has changed five times since 1985. It increased from 9 cents per gallon in 1985 to 9.1 cents per gallon on January 1, 1987; to 14.1 cents per gallon on December 1, 1990; to 18.4 cents per gallon on October 1, 1993; to 18.3 cents per gallon on January 1, 1996; and to 18.4 cents per gallon on October 1, 1997 (FHWA, 1999).

Money paid into the fund is earmarked primarily for the Federal-aid Highway program, which is apportioned to states for planning, constructing, and improving the nation's highway system, roads, and bridges. Effective April 1983, the Highway Revenue Act of 1982 created the Mass Transit Account within the HTF.

Some portion of the HTF is dedicated to budget deficit reduction and the Leaking Underground Storage Tank Trust Fund (LUSTTF). For example, 4.3 cents per gallon of the federal excise tax on gasoline has been assigned to the general fund since January 1, 1996, and 0.1 cents per gallon was apportioned to the LUSTTF since October 1, 1997 (FHWA, 1999). These funds are not considered as transportation-related in this report.

State and local highway revenues include state and local taxes on motor fuels, motor vehicle licenses, and motor vehicle operator licenses, along with state and local charges for regular toll highways and local parking charges. Regular highway charges (revenues) include reimbursements for street construction and repairs, fees for curb cuts and special traffic signs, and maintenance assessments for street lighting, snow removal, and other highway or street services unrelated to toll facilities. Local governments use special assessments and property taxes that may be commingled with other local revenue in a general fund to finance local road and street programs. Consistent with federal revenues, state and local transportation revenues in this report do not include general funds that may be allocated to transportation.

Transit Revenues

As mentioned above, the Highway Revenue Act of 1982 created the Mass Transit Account within the HTF. Effective April 1983, the act provided one cent per gallon of the federal excise tax on gasoline sales to be set-aside for the Mass Transit Account to help finance transit capital projects. The rate was increased to 1.5 cents per gallon on December 1, 1990; to 2 cents per gallon on January 1, 1996; and to 2.86 cents per gallon on October 1, 1997 (FHWA, 1999). Although highway users pay these taxes, the funds are treated as federal transit revenues.

State and local transit revenues include revenues from operations of public mass transportation systems (rapid transit, subway, bus, railway, and commuter rail services), such as fares, charter fees, advertising income, and other operations revenues. They exclude subsidies from other governments to support either operations or capital projects.

Air Revenues

The Tax Equity and Fiscal Responsibility Act of 1982, as amended by Omnibus Budget Reconciliation Acts of 1990 and 1993, the Small Business Job Protection Act of 1996, and the Taxpayers Relief Act of 1997, provides for the transfer of receipts received in the U.S. Treasury from the passenger ticket tax and certain other taxes paid by airport and airway users to the Airport and Airways Trust Fund (AATF). Effective October 1, 1997, the Taxpayers Relief Act of 1997 extends aviation excise taxes for 10 years and includes the following major provisions (FAA, 1999):

1. retains existing freight weigh bill, general aviation fuel and gas taxes, and a 6-dollar departure tax on domestic flights to and from Alaska and Hawaii;
2. converts the 10 percent ad valorem tax on domestic passenger tickets to a combination of ad valorem and flight segment tax over three years beginning October 1, 1997;
3. imposes a new 7.5 percent tax on payments to airlines for frequent flyer and similar awards by banks and credit card companies, merchants, frequent flyer program partners-other airlines, hotels, or rental car companies and other businesses;
4. increases the current 6-dollar international departure tax to 12 dollars per passenger and adds a 12-dollar international arrival tax;
5. lowers tax rates on flights to certain rural airports to 7.5 percent without a flight segment component; and
6. transfers revenues from the 4.3 cents-per-gallon aviation fuel taxes currently dedicated to reduce the national U.S. deficit from the general fund to the AATF.

Most of this trust fund is used to finance the Federal Aviation Administration's (FAA's) capital programs, namely, Facilities and Equipment; Research, Engineering, and Development; and Airport Improvement Program. Within certain limits set by Congress, some of the remaining money is used to cover FAA operation and maintenance expenses. The portion of the FAA's operation and Maintenance expenses not paid from the trust fund revenues are financed by U.S. Treasury general funds.

State and local revenues from air transportation are derived from airport charges. Beginning in 1992, local governments began collecting passenger facility charges and spending these revenues (both subject to FAA approval) to finance capital programs.

The collection of passenger facility charges was authorized by the Aviation Safety and Capacity Expansion Act of 1990.[2]

Waterway and Marine Revenues

Federal water revenues come from four primary sources: the Harbor Maintenance Trust Fund (HMTF), the Inland Waterways Trust Fund (IWATF), the Oil Spill Liability Trust Fund (OSLTF), and tolls and other charges collected by the Panama Canal Commission.

The Harbor Maintenance Trust Fund was established in accordance with the Harbor Maintenance Revenue Act of 1986. Revenues for this fund are derived from receipts of a 0.125 percent ad valorem user fee imposed on commercial users of specified U.S. ports, Saint Lawrence Seaway tolls. On March 31, 1998, per a U.S. Supreme Court ruling, the tax on exports was terminated (OMB, 2000). This fund is used to finance up to 100 percent of the U.S. Army Corps of Engineers' harbor operation and maintenance (O&M) costs, including O&M costs associated with Great Lakes navigational projects, and the fund fully finances the operation and maintenance of the Saint Lawrence Seaway Development Corp.

The Inland Waterways Trust Fund was established by the Inland Waterways Revenue Act of 1978 and amended by the Water Resources Development Act of 1986. The trust fund has been in effect since fiscal year 1981. The sources for the fund are taxes imposed on fuel for vessels engaged in commercial waterway transportation and investment interest. From this tax of 24.3 cents per gallon, 4.3 cents goes for deficit reduction, and a statutory maximum of 20 cents (raised to that level from the previous maximum of 19 cents at the beginning of 1995) goes to the Trust Fund. The funds are earmarked for financing one-half of the construction and rehabilitation costs of specified inland waterway projects.

The Oil Spill Liability Trust Fund was established by the Omnibus Budget Reconciliation Act of 1989. Revenues for this fund are raised through tax collection of 5 cents on each barrel of oil produced domestically or imported (OMB, 1999). The resources from this fund are used to finance oil pollution prevention and cleanup activities by various federal agencies. For the U.S. Coast Guard, the fund finances oil spill recovery and payment of claims. Beginning in 1997, the fund also finances the annual disbursement to the Prince William Sound Oil Spill Recovery Institute.

The Panama Canal Commission was established by the Panama Canal Act of 1979 to manage, operate, and maintain the Panama Canal under the Panama Canal Treaty of 1977. The treaty period ended on December 31, 1999, when the Republic of Panama assumed full responsibility for the canal. During the treaty period, the commission collected tolls and other revenues, which were deposited in the U.S. Treasury in an account known as the Panama Canal Revolving Fund. Money from this fund was used to finance canal operations and capital programs, which were reviewed annually by Congress. The revenues reported under this category for FY 2000 are for the first quarter (October 1999 - December 1999) of Panama Canal operations.

State and local water revenues are derived from canal tolls, rents from leases, concession rents, and other charges for use of commercial or industrial water transport and port terminal facilities and related services. Fees and rents related to water facilities provided for recreational purposes, such as marina and public docks, and toll ferries are not included.

Rail Revenues

There are no governmental transportation revenues for rail (Rail generates fuel taxes that are designated for deficit reduction and, thus, are not considered transportation revenues in these tables).

Pipeline Revenues

The Pipeline Safety Program is funded by user fees assessed on a per-mile basis. The assessments are made on each pipeline operator regulated by the Office of Pipeline Safety (OPS) of the Research and Special Programs Administration (RSPA) in the U.S. Department of Transportation. There are no state and local revenues for pipeline.

General Support Revenues

General support revenues come from the Emergency Preparedness Fund, which is generated from fees paid by registered shippers of hazardous materials. RSPA administers and distributes the revenues to states, territories, and tribes through the Hazardous Materials Emergency Preparedness (HMEP) grant program, which is authorized by Federal Hazardous Materials Transportation Law.

Transportation Expenditures

Expenditures, rather than obligations, are used in these tables because they represent the final, actual costs to the government, by year, for capital goods and operating services required by transportation programs. Obligations suggest government commitment to future transportation expenditures, but do not indicate when the funds will actually be disbursed or even if the amounts obligated will be spent.

It is important to recognize that in some accounts in the *Budget of the United States Government*, expenditures for a particular year understate total government disbursements. This is because certain offsetting collections of fees and assessments from the public are not treated as government revenues, but deducted from disbursements to determine expenditures. These collections are those mandated, by statute, to directly fund agency expenditures rather than be transferred to the U.S. Treasury. For this reason, expenditures do not necessarily indicate how much the federal government actually spends on transportation each year.

Highway Expenditures

Federal Highway Administration (FHWA) expenditures include funds for Federal Aid Highways (financed from the HTF) and the Interstate Substitution and Railroad Crossing Demonstration (financed from the general fund). The National Highway Traffic Safety Administration (NHTSA) expenditures include: operations, research, and highway traffic safety grants. Federal highway expenditures also include road construction activities managed by the Department of the Interior's National Park Service, Bureau of Indian Affairs, Bureau of Reclamation, and Bureau of Land Management; the Department of Agriculture's Forest Service; the Department of Housing and Urban Development; and other federal agencies.

State and local governments' highway expenditures reported by the Census Bureau are generally slightly lower than those reported in FHWA's *Highway Statistics* because the FHWA includes some highway expenditure data, such as law enforcement activities and patrols, and policing of streets and highways not included in the Census data. Box 3-1 outlines the major differences in Census Bureau and FHWA calculation of state and local highway transportation financial statistics.

Transit Expenditures

Federal expenditures include grants to states and local agencies for the construction, acquisition, and improvement of mass transportation facilities and equipment and for the payment of operating expenses. Several other items are also included: Federal Railroad Administration (FRA) commuter rail subsidies related to the transition of Conrail to the private sector; research and administrative expenses of the Federal Transit Administration (FTA); and Federal interest payment contribution to the Washington Metropolitan Area Transportation Authority (WMATA).

Air Expenditures

Federal expenditures reported here consist of all FAA expenditures, such as those associated with constructing, operating, and maintaining the national air traffic system; administration of the airport grant program; safety regulation; and research and development. NASA expenses related to air transportation are also included.

State and local expenditures for air include the operation and maintenance of airport facilities, as administered by local airport and port authorities- quasigovernment agencies with responsibilities for promoting safe navigation and operations for air modes.

Waterway and Marine Expenditures

Federal expenditures comprise those parts of the U.S. Coast Guard's expenses that are transportation-related, such as aids to navigation, marine safety, and marine environmental protection. All expenses of the U.S. Maritime Administration are included, such as subsidies for construction and operation of vessels by U.S.-flag operators, research and development, and training of ship officers. Also included are those expenses of the U.S. Army Corps of Engineers for construction and operations and maintenance of channels, harbors, locks and dams; protection of navigation; the salaries and expenses of the Federal Maritime Commission; and the expenses of the Panama Canal Commission. Expenditures of the Panama Canal Commission for FY 2000 include outlays for the first quarter of operations, including severance pay and accumulated leave. FY 2001 expenses are for the settlement of remaining accident and contract claims against the Commission.

State and local governments incur water transportation expenditures by operating and maintaining water terminal facilities within ports and harbors.

Rail Expenditures

Federal rail transportation expenditures include:

1. expenses for rail safety enforcement;
2. inspection and program administration;
3. railroad research and development;
4. financial assistance to states for planning, acquisition, rail facility construction, and track rehabilitation with respect to low volume freight lines;

5. grants to Amtrak, including funds to upgrade the high-speed line between Boston, Massachusetts, and Washington, DC, owned by Amtrak (the Northeast Corridor Improvement Program); annual appropriations to cover operating losses; and funds to invest in new equipment and facilities;
6. the purchase of redeemable preference shares for track rehabilitation and line acquisition; and
7. loan guarantee defaults for railroad rehabilitation and improvement and Conrail labor protection.[3]

The local rail freight assistance program, a program of FRA grants to state governments, has had a 70:30 percent federal-state funding share since 1982.

Pipeline Expenditures

The Office of Pipeline Safety (OPS) reimburses state agencies up to 50 percent of their costs to carry out state pipeline safety programs. Federal expenditures are for the enforcement programs, research and development, and grants for state pipeline safety programs.

General Support Expenditures

General fund expenditures include all of the expenses of the following agencies: Office of Inspector General, National Transportation Safety Board, all expenses of the Research and Special Programs Administration, (except pipeline expenditures) and the Office of the Secretary of Transportation (except for payments to Air Carriers and the Commission on Aircraft Safety).

Limitations of the Source Data Sets

The database covers civilian transportation-related activities of government agencies including those of the U.S. Army Corps of Engineers and U.S. Coast Guard.

As mention earlier, federal government data are compiled for the federal fiscal year, which begins on October 1, while state and local data are for fiscal years that generally start in July except for four states with other starting dates (Alabama and Michigan in October, New York in April, and Texas in September). While this may create a small error in totals for any given year, the data are suitable for illustrating trends in public transportation finance.

Readers should note that state and local governments data for census years are full counts and not subject to sampling errors, whereas the data for noncensus years are estimated from annual surveys of the Bureau of the Census, which are subject to sampling variability of less than three percent. The Census Bureau's database also does not include detailed modal information on interest earnings and bond issue proceeds on the revenue side nor bond retirement and interest payments on the expenditure side

Revenues

Transportation-related revenues like local government property taxes on vehicles, equipment, and streets, and state income taxes to support rail and intercity bus services are not covered because they are not shown in the source materials used to compile the database. In addition, taxes collected from users of the transportation system that go into the general fund are not included. For example, rail generates fuel taxes that are designated for deficit reduction and hence are not considered as transportation revenues. The portion of the Highway Trust Fund (HTF) that goes to the general fund is not considered as transportation revenues.

Expenditures

It is important to recognize that in some accounts in the *Budget of the United States Government*, expenditures for a particular year understate total government disbursements. This is because certain offsetting collections of fees and assessments from the public are not treated as government revenues, but deducted from disbursements to determine expenditures. These collections are those mandated, by statute, to be applied directly to finance agency expenditures rather than being transferred to the Treasury.

In addition, the Census Bureau's highway expenditures data do not include highway law enforcement expenditures, which form a part of the state and local highway expenditures published in the *Highway Statistics*. To maintain

consistency between the different modes regarding the types of expenditures included, these additional data from the *Highway Statistics* report have not been used.

Data Adjustments

Revisions and corrections to previously published data have been made in most cases. The base year for chained dollar estimates for current data sets is 1996, while the earlier version was presented in chained 1992 dollars. Moreover, the following adjustments have been incorporated.

Revenues

Transportation-related revenues of the Aquatic Resources Fund have been added to water transportation revenues. In this case, only the excise tax charged on motor boat fuels for the Boat Safety Program is assumed to be transportation-related.

The preceding data series did not account for revenues of Pollution Fund, Off-Shore Oil Pollution Fund, and Deep Water Port Liability Fund prior to FY 1990. The current data sets includes revenues for these funds prior to FY 1990.

Expenditures

Not all expenditures for the U.S. Coast Guard (USCG), as reported by the Office of Management and Budget, are considered transportation-related. A new approach has been used to arrive at more accurate USCG transportation-related expenditures. Similar to the previous approach, the current approach includes all expenditures for Environmental Compliance and Restoration, Alteration of Bridges, and Oil Spill Recovery. Part of the expenditures for Operations, Acquisition, Construction and Improvement, Research & Development, and Test and Evaluation are considered as transportation. Within these program areas, only Aids to Navigation, Marine Safety, and Marine Environmental Protection activities are included in the earlier data sets. In the current version, more activities like Search and Rescue and Ice Operations have been included. In addition, Boat Safety Program expenditures have also been included.

Trust fund share of pipeline safety was added to the Research and Special Programs Administration expenditures since FY 1994. This item was not covered in the previously published data.

Federal Grants

Federal grants to state and local governments for the Boat Safety Program have been included. These were not included in the previously reported data.

Data for federal transit grants are obtained from the Office of Management and Budget public budget database. In the previous data series, they were estimated by deducting direct federal transit expenditures grants from the total federal transit expenditures.

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[1] The federal budget is broken down into 20 functional categories, of which one is transportation (function 400). Function 400 is not tied to any one department or agency, but instead aggregates transportation functions wherever in the federal government they occur. Thus, the transportation function may include many activities, such as highway construction and safety, airways and airports, maritime subsidies, U.S. Coast Guard operations, railroads, and mass transit. It also covers grants-in-aid programs to support state and local activities. A good summary of the federal budget process can be found in Stanley E. Collender, *The Guide to the Federal Budget, Fiscal Year 1996* (Washington, DC: Urban Institute Press. 1995).

[2] Public Law 101-508, 104 Stat. 1388 (November 5, 1990).

[3] Funds in the Conrail Labor Protection Program were provided for benefits to Conrail employees deprived of employment because of work force reductions and other actions. This program no longer exists since Conrail has been returned to the private sector. In 1988, the unobligated balances available from this program were transferred to the USCG, and in 1990 they were returned to the U.S. Treasury.

Appendix E
Data Source and Accuracy Statements

Chapter 2 Safety

AIR DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Injured Persons by Transportation Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-7. Transportation-Related Occupational Fatalities

TABLE 2-9. U.S. Air Carrier Safety Data

TABLE 2-10. U.S. Commuter Air Carrier Safety Data

TABLE 2-11. U.S. Air Carrier Fatal Accidents by First Phase of Operation

TABLE 2-12. U.S. Commuter Air Carrier Fatal Accidents by First Phase of Operation

TABLE 2-13. U.S. On-Demand Air Taxi Safety Data

TABLE 2-14. U.S. General Aviation Safety Data

National Transportation Safety Board investigators perform onsite and offsite investigations of all accidents involving U.S. registered air carriers operating under 14 CFR 121, 14 CFR 135, and general aviation U.S. Department of Transportation (USDOT), Federal Aviation Administration (FAA) regulations. The investigators compile information on fatalities and injuries for all accidents. The counts for fatalities and serious injuries are expected to be extremely accurate. (See glossary for serious injury definition.)

Exposure data (aircraft-miles, aircraft-hours, and aircraft-departures) are obtained from the FAA, which in turn gets some of its exposure data from the USDOT, Bureau of Transportation Statistics, Office of Airline Information (OAI) and other exposure data from its own General Aviation and Air Taxi Activity and Avionics (GAATAA) Survey. The OAI data represent 100 percent reporting by airlines. Tables that include air carriers (14 CFR 121, scheduled and nonscheduled service) and commuter air carriers (14 CFR 135, scheduled service only) use OAI exposure data. Tables that include on-demand air taxi (14 CFR 135, nonscheduled service) and general aviation use GAATAA Survey results. For information about the GAATA Survey, please refer to the chapter 1 data accuracy statement for table 1-9.

The coefficients of variation for aircraft-hours vary by year, but are usually in the 9 to 10 percent range for on-demand air taxi and are approximately 2 percent for general aviation.

TABLE 2-15. Number of Pilot-Reported Near Midair Collisions by Degree of Hazard

Near Midair Collision reports are provided voluntarily by air carriers, general aviation companies, and the military, and this information is added to the Near Midair Collisions System database. Factors that may influence whether or not a near midair collision is reported include the pilot's or other crew members' perception of whether a reportable near

midair collision occurred, which in turn can depend on factors such as visibility conditions; the reporter's flying experience; or the size of the aircraft involved. A reportable incident is one in which an aircraft is within 500 feet of another aircraft and a possibility of collision existed.

HIGHWAY DATA

TABLE 2-1.Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-5. Highway-Rail Grade-Crossing Safety Data and Property Damage

TABLE 2-7. Transportation-Related Occupational Fatalities

TABLE 2-17. Motor Vehicle Safety Data

TABLE 2-18. Motor Vehicle Fatalities, Vehicle-Miles, and Associated Rates by Highway Functional System

TABLE 2-19. Occupant Fatalities by Vehicle Type and Nonoccupant Fatalities

TABLE 2-20. Occupant and Nonmotorist Fatalities in Crashes by Number of Vehicles and Alcohol Involvement

TABLE 2-21. Passenger Car Occupant Safety Data

TABLE 2-22. Motorcycle Ride Safety Data

TABLE 2-23. Truck Occupant Safety Data

TABLE 2-24. Bus Occupant Safety Data

TABLE 2-26. Fatalities by Highest Blood Alcohol Concentration in Highway Crashes

TABLE 2-28. Motor Vehicle Fatal Crashes by Day of Week, Time of Day, and Weather and Light Conditions

TABLE 2-29. Motor Vehicle Fatal Crashes by Posted Speed Limit

Fatalities

Highway fatality data come from the Fatality Analysis Reporting System (FARS), which is compiled by trained FARS analysts at USDOT, National Highway Traffic Safety Administration (NHTSA) regional offices. Data are gathered from a census of police accident reports (PARs), state vehicle registration files, state drivers licensing files, state highway department data, vital statistics, death certificates, coroner/medical examiner reports, hospital medical reports, and emergency medical service reports. A separate form is completed for each fatal crash. Blood alcohol concentration (BAC) is estimated when not known. Statistical procedures used for unknown data in FARS can be found in the NHTSA report: *Transitioning to Multiple Imputation - A New Method to Impute Missing Blood Alcohol Concentration (BAC) values in FARS*, DOT HS 809 403 (Washington, DC: January 2002).

Data are collected from relevant state agencies and electronically submitted for inclusion in the FARs database on a continuous basis. Cross-verification of PARs with death certificates ensures that undercounting is rare. Moreover,

when data are entered, they are checked automatically for acceptable range values and consistency, enabling quick corrections when necessary. Several programs continually monitor the data for completeness and accuracy. Periodically, sample cases are analyzed for accuracy and consistency.

Note that the FARS data do not include motor vehicle fatalities on nonpublic roads. However, previous NHTSA analysis found that these fatalities account for 2 percent or fewer of the total motor vehicle fatalities per year. (See glossary for highway fatality definition.)

Injuries and Crashes

NHTSA's General Estimates System (GES) data are a nationally representative sample of police-reported crashes that contributed to an injury or fatality or resulted in property damage, and involved at least one motor vehicle traveling on a trafficway. Trained GES data collectors randomly sample PARs and forward copies to a central contractor for coding into a standard GES system format. Documents such as police diagrams or supporting text provided by the officers may be further reviewed to complete a data entry.

NHTSA suggests that about half of motor vehicle crashes in the United States are not reported to police and that the majority of these unreported crashes involve minor property damage and no significant personal injury. A NHTSA study of injuries from motor vehicle crashes estimated the total count of nonfatal injuries at over 5 million compared with the GES's estimate of 3.2 million in 1998. (See glossary for highway crash and injury definitions.)

(See U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2008*, DOT HS 811 170 (Washington, DC: 2009), appendices B and C for further information on GES, including a table of standard errors applicable to GES data.)

TABLE 2-30. Safety Belt and Motorcycle Helmet Use

The National Occupant Protection Use Survey (NOPUS), conducted biennially between 1994 and 2010 by the U.S. Department of Transportation, National Highway Traffic Safety Administration is the source for these data.

In 1994 and 1996, NOPUS consisted of three separate studies: 1) the Moving Traffic Study, which provides information on overall shoulder belt use, 2) the Controlled Intersection Study, which provides more detailed information about shoulder belt use by type of vehicle, characteristics of the belt users, and child restraint use, and 3) the Shopping Center Study, which provides information on rear-seat belt use and shoulder belt misuse. In 1998, the Shopping Center Study was dropped from the survey. The Controlled Intersection Study includes the collection of license plate information to link seat belt use to vehicle type. As the results of the Controlled Intersection Study for 2000 were not available prior to publication, only the Moving Traffic Study data were used in this table.

In 1998, NOPUS separated pickups from the light truck category, thereby creating three categories of passenger vehicles: passenger cars, pickup trucks, and other passenger vehicles. Other passenger vehicles include vans, minivans, and sport utility vehicles. In this table, 1998 and 2000 data for pickup trucks and other passenger vehicles are combined into the light truck category to allow comparison to data from the earlier surveys. Since 2003, however, the National Highway Traffic Safety Administration (NHTSA) no longer computes an overall light truck belt use estimate. Instead, belt use is computed separately for motorists in: (1) vans and sport utility vehicles, and (2) pickup trucks. Additionally, NHTSA no longer reports separate statistics for passengers and drivers, except at the overall level.

In 1994, operators and riders wearing any type of helmet were counted as helmeted. In 1996, 1998, and 2000, motorcycle helmets that meet USDOT standards are counted as valid protection, whereas those that do not meet USDOT standards were treated as if the operator/rider were not wearing a helmet.

Data collection from the Moving Traffic Study was conducted at 1,823 sites across the country in 2009. Shoulder belt use was obtained for drivers and right-front passengers only. Three observers (two observers in 1994 and 1996) were stationed for 30 minutes at interstate/highway exit ramps, controlled (intersections with stop signs or traffic signals), and uncontrolled intersections. Every day of the week and all daylight hours (7 a.m. to 6 p.m.) were covered in each survey. Commercial and emergency vehicles were excluded.

NOPUS was designed as a multistage probability sample to ensure that the results would represent occupant protection use in the country. In the first stage, counties were grouped by regions (northeast, midwest, south, west), level of urbanization (metropolitan or not), and level of belt use (high, medium, or low). Fifty counties or groups of counties were selected based on vehicle miles of travel in those locations. In the next stage, roadways were selected from two categories: major roads and local roads. Of the originally selected sites, some were found to be ineligible during mapping and data collection, and at some sites no vehicles were observed. In 2006, a newly designed sample of observation sites emerged; subsequent years' NOPUS surveys used a combination of sites from the old and new samples. In 2009, a blend of 65 percent of sites were determined using the new methodology and 35 percent of sites were obtained from the old methodology. In 2009, a total of 100,000 passenger vehicles were observed, down from 116,000 in 2008. 947 motorcycles were also observed during the 2009 NOPUS.

Each reported estimate has been statistically weighted according to the sample design. Two kinds of error can be attributed to all survey research: sampling and nonsampling. A measure, called the standard error, is used to indicate the magnitude of sampling error. The source information provides two standard errors along with each estimate. Nonsampling errors could include problems such as vehicles not counted, incorrect determination of restraint use, and data entry mistakes, among others.

TABLE 2-31. Estimated Number of Lives Saved by Use of Restraints

The U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA) uses data obtained from the Fatality Analysis Reporting System to calculate the number of lives saved by the use of restraints. The methodology used is outlined in a NHTSA report, *Research Note, Estimating Lives Saved by Restraint Use in Potentially Fatal Crashes* (Washington, DC: June 1995). The general approach is to adjust the observed number of fatalities by a determined effectiveness rate for each type of restraint. This equates to subtracting the actual fatalities from the potential fatalities to determine the number of lives saved. This method is more accurate than earlier estimation methods since all calculations are derived from NHTSA's count of fatalities in which restraints were used. Reported restraint use is believed to be accurate for fatalities.

The key to NHTSA's calculations is the effectiveness estimate for preventing fatalities for each type of restraint. With the exception of an adjustment in the effectiveness estimate for front outboard air bag-only restraint use in passenger cars (NHTSA, *Fourth Report to Congress, Effectiveness of Occupant Protection Systems and Their Use*, Washington, DC, May 1999), a list of effectiveness estimates can be found in a NHTSA report, *Estimating Alcohol Involvement in Fatal Crashes in Light of Increases in Restraint Use*, published in March 1998.This report also includes additional references describing the determination of these effectiveness estimates.

TRANSIT DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-32. Transit Safety and Property Damage Data

TABLE 2-33. Transit Safety Data by Mode for All Reported Accidents

TABLE 2-34. Transit Safety Data by Mode for All Reported Incidents

TABLE 2-38. Reports of Violent Crime, Property Crime, and Arrests by Transit Mode

The data for this report are obtained from the U.S. Department of Transportation, Federal Transit Administration's (FTA's) National Transit Database (NTD) Reporting System. Transit agencies are required to file an NTD report at regular intervals if they are recipients of Urbanized Area Formula Funds. In 2008, 692 agencies reported to the NTD. Of that total, 101 transit agencies received exemptions from detailed reporting because they operated 9 or fewer

vehicles, and 15 were deleted because their data were incomplete. Thus, 576 individual reporters were included in the NTD, accounting for 90 to 95 percent of passenger-miles traveled on transit.

Transit operators report fatalities, injuries, accidents, incidents, and property damage in excess of $1,000. Electronic reporting has recently been implemented for the NTD. Certification from a company's Chief Executive Officer must accompany all NTD reports along with an independent auditor's statement. Upon receipt, an NTD report is reviewed and outstanding items noted in writing to the agency that submitted the form. (See glossary for transit fatality, injury, and accident definitions.)

Four major categories of transit safety are collected: 1) collisions, 2) derailments/buses going off the road, 3) personal casualties, and 4) fires. These major categories are divided into subcategories. The collisions category comprises collisions with vehicles, objects, and people (except suicides). Of the four major categories, only the first two are included in the definition of transit accidents adopted in this report (see glossary). Understanding this definition of accident is relevant to understanding how double counting is removed in the grand total of U.S. transportation fatalities and injuries. (See cross modal comments in box 2-1.)

Transit data submitted to the NTD are generally considered accurate because the FTA reviews and validates information submitted by individual transit agencies. However, reliability may vary because some transit agencies cannot obtain accurate information or misinterpret data.

Security

FTA collects security data from transit agencies serving urbanized areas of over 200,000 in population, using Form 405, and manages it in the National Transit Database (NTD). The reporting of security data follows the FBI *Uniform Crime Reporting Handbook* (Washington, DC: 1984) and is divided into two categories: 1) Reported Offenses, including violent and property crime, and 2) Arrests, consisting of less serious crimes. The figures for violent and property crime are based on records of calls for service, complaints, and/or investigations. They do not reflect the findings of a court, coroner, jury, or decision of a prosecutor. Security data were first reported in 1995 and were not compiled for earlier years.

In 2008, the number of agencies reporting to this database was 692. Of that, 101 transit agencies received exemptions from detailed reporting because they operated nine or fewer vehicles, and 15 were deleted because their data were incomplete. Thus, 576 individual reporters are included in the full database in 2000.

RAILROAD DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-5. Highway-Rail Grade-Crossing Safety Data and Property Damage

TABLE 2-7. Transportation-Related Occupational Fatalities

TABLE 2-39. Railroad and Grade-Crossing Fatalities by Victim Class

TABLE 2-40. Railroad and Grade-Crossing Injured Persons by Victim Class

TABLE 2-41. Train Fatalities, Injuries, and Accidents by Type of Accident

TABLE 2-42. Railroad Passenger Safety Data

TABLE 2-39. Railroad System Safety and Property Damage Data

TABLE 2-40. Fatalities and Injuries of On-Duty Railroad Employees

Railroads are required to file a report for each train accident resulting in property damage in excess of $9,200 (2010 threshold), each highway-rail accident, and each incident involving the operation of a railroad resulting in a fatality or a reportable injury. (See glossary for reportable injury, train accident and incident, and nontrain incident definitions.)

Reporting requirements, which are fixed in law, are very broad and encompass events not strictly related to transportation. For example, if a passenger falls on a staircase and breaks a leg in the station while going to a train, the injury would be reported and appear in the data as a rail injury.

WATERBORNE TRANSPORTATION DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-7. Transportation-Related Occupational Fatalities

TABLE 2-45. Waterborne Transportation Safety Data and Property Damage Related to Vessel

Casualties

TABLE 2-46. Waterborne Transportation Safety Data Not Related to Vessel Casualties

U.S. waterborne fatality and injury data are based on reports required by CFR Part 4.05-10. This code requires that the owner, agent, master, operator, or person in charge file a written report of any marine casualty or accident within five days of the accident. Reports must be delivered to Investigative Officers (IOs) at a U.S. Coast Guard Marine Safety Office or Marine Inspection Office at the U.S. Department of Transportation, who use these reports as guides to investigate the marine casualty or accident. The IO ensures that all the entries on the forms are filled out and errors are corrected. Regulations require IO notification of marine casualties for certain circumstances, including loss of life; injuries that require medical treatment beyond first aid; and, for individuals engaged or employed onboard a vessel in commercial service, injuries that render a person unfit to perform routine duties.

Incidents requiring an investigation include death, injury resulting in substantial impairment, and other incidents determined important to promoting the safety of life or property or to protect the marine environment. These incidents are investigated in accordance with procedures set forth in the regulations. Furthermore, the Federal Water Pollution Control Act mandates that certain incidents be reported to the U.S. Coast Guard. The reports are entered into the Marine Safety Information System, which is later analyzed and transferred to the Marine Safety Management System maintained in Washington, DC.

RECREATIONAL BOATING DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-47. Recreational Boating Safety, Alcohol Involvement, and Property Damage Data

TABLE 2-48. Personal Watercraft Safety Data

TABLE 2-49. U.S. Coast Guard Search and Rescue Statistics, Fiscal Years

Operators of boats involved in an accident resulting in 1) a fatality, 2) an injury requiring medical treatment beyond first aid, 3) damage to the vessel or other property greater than $25,000 or complete loss of vessel, or 4) the disappearance of a person from the vessel under circumstances indicating death or injury are required to file a report with the U.S. Coast Guard. If a person dies within 24 hours of the occurrence, requires medical treatment beyond first aid, or disappears from the vessel, reports must be made within 48 hours of the occurrence. In cases involving only damage to the vessel and/or property, reports are to be submitted within 10 days of the occurrence. Although there is no quantitative estimate of the response rate, there may be considerable underreporting, especially of nonfatal accidents, because of the difficulty of enforcing the requirement and because boat operators may not always be aware of the law.

NATURAL GAS AND LIQUID PIPELINE DATA

TABLE 2-1. Transportation Fatalities by Mode

TABLE 2-2. Transportation Injuries by Mode

TABLE 2-3. Transportation Accidents by Mode

TABLE 2-4. Distribution of Transportation Fatalities by Mode

TABLE 2-6. Hazardous Materials Safety Data and Property Damage Data

Incidents resulting in certain unintentional releases of hazardous materials must be reported under 49 CFR 171.16. Each carrier must submit a report to the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA) within 30 days of the incident, including information on the mode of transportation involved, results of the incident, and a narrative description of the accident. These reports are made available on the incident database within 60 days of receipt.

Fatalities and injuries are counted only if they are directly due to a hazardous material. For example, a truck operator killed by impact forces during a motor vehicle crash would not be counted as a hazardous-material fatality. PHMSA verifies all reported fatalities and injuries by telephone with the carrier submitting the report.
Possible sources of error include a release going undetected; even if subsequently detected and reported, it may not be possible to accurately reconstruct the accident. Although PHMSA acknowledges that there is some level of underreporting, it believes that the underreporting is limited to small, nonserious incidents. As incident severity increases, it is more likely that the incident will come to PHMSA's attention and will ultimately be reported. Additionally, the reporting requirements were extended to intrastate highway carriers on October 1, 1998, and the response rate from this new group is expected to increase over time. Property damage figures are estimates determined by the carrier prior to the 30-day reporting deadline and are generally not subsequently updated. Property damage figures, therefore, may underestimate actual damages.

TABLE 2-50. Hazardous Liquid and Natural Gas Pipeline Safety and Property Damage Data

U.S. fatality and injury data for natural gas pipelines are based on reports filed with the U.S. Department of Transportation (USDOT), Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS). Accidents must be reported as soon as possible, but no later than 30 days after discovery. Reports are sent to the Information Systems Manager at the OPS. Possible sources of error include a release going undetected; even if subsequently detected and reported, it may not be possible to accurately reconstruct the accident. Property damage figures are estimates. (See glossary for gas and liquid pipeline fatality data and injury definitions.)

Appendix E
Data Source and Accuracy Statements

Chapter 1 Extent, Condition, and Performance

TABLE 1-1. System Mileage Within the United States

Highway

The Highway Performance Monitoring System (HPMS) is the source of road mileage data and is considered reliable. (See box 1-1 for detailed information about the HPMS.) The Federal Highway Administration (FHWA) of the U.S. Department of Transportation (USDOT) collects and reviews state-reported HPMS data for completeness, consistency, and adherence to specifications. Some inaccuracy may arise from variations across states in their adherence to federal guidelines in the Traffic Monitoring Guide and the *Highway Performance Monitoring System Field Manual for the Continuing Analytical and Statistical Database*.

Beginning with the 1997 issue of *Highway Statistics*, FHWA instituted a new method for creating mileage-based tables derived from the HPMS. Previously, adjustments to tables developed from sample data were made using area-wide mileage information provided by states. These adjustments are now being made using universe totals from the HPMS dataset. In addition, FHWA has discontinued the process of spreading rounding and other differences across table cells. Thus, users may note minor differences in table-to-table totals. FHWA considers mileage totals from table HM-20, "Public Road Length, Miles by Functional System" to be the controlling totals should a single value be required.

Reliability may be diminished for comparisons with pre-1980 data, which were collected via different methods and special national studies. For instance, pre-1980 mileage data included some nonpublic roadways (95,000 miles in 1979) while post-1980 data reports only public road mileage (roads or streets governed and maintained by a public authority and open to public travel).

Class I Rail

These data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 1999, the adjusted threshold for Class I railroads was $258.5 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

To obtain railway mileage, AAR subtracts trackage rights from miles of rail traveled on line 57 in the Schedule 700 report. Historical reliability may vary due to changes in the railroad industry, including bankruptcies, mergers, and declassification by the STB. Small data errors may also exist because of because of independent rounding of this series by AAR.

Amtrak

These statistics originate from the Statistical Appendix to *Amtrak's Annual Report*. Amtrak estimates track mileage based on point-to-point city timetables that railroad companies provide for engineers. The figures are estimates, but are considered reliable.

Transit

These data are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database (NTD). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit

agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including vehicle inventories and directly operated mileage. Transit operators that do not report to FTA are those that do not receive Urbanized Area Formula Funding, typically private, small, and rural operators. The data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data definitions.

Navigable Channels

These statistics originate from a mid-1950s U.S. Army Corps of Engineers (USACE) estimate that there were approximately 25,000 miles of commercially important navigable channels in the United States. That number has been adjusted from time to time, for example, by addition of the 234-mile Tennessee-Tombigbee Waterway in the early 1980s. The 25,000 plus mile number has been universally quoted for decades, but has definitional and methodological uncertainties. USACE is currently developing a rigorous, Global Information System (GIS)-based approach to facilitate tabulation of the lengths of shallow and deep-draft commercially navigable waterways in the United States; this calculation will be available in several years.

Oil Pipeline

The data are from *Transportation in America*, published by the Eno Transportation Foundation, Inc. (Eno). The numbers reprinted here for 1960, 1965, 1970, and 1975 are Eno estimates from the U.S. Department of Energy (DOE) Energy Data Report issues labeled "Crude-oil and Refined Products Mileage in the United States." Eno estimated the 1980 number based on the assumption that refinement of old, less profitable, and smaller lines exceeded in mileage the construction of new, larger, and more profitable lines. Post-1985 data were calculated using a base figure reported in a 1982 USDOT study entitled *Liquid Pipeline Director* and then combined with data from the Association of Oil Pipe Lines and the Oil Pipeline Research Institute. Lack of additional information raises definitional and methodological uncertainties for the data's reliability. Moreover, the three different information sources introduce data discontinuities, making time comparisons unreliable.

Gas Pipeline

These statistics originate from annual editions of *Gas Facts*, published by the American Gas Association (AGA). The data reported by the AGA are based on gas utilities participation and reporting to the *Uniform Statistical Report*. Utilities reporting represented 98 percent of gas utility industry sales while the remaining 2 percent was estimated for nonreporting companies based on recent historical experience. Varying percentages of nonreporters from year to year introduce minor reliability problems for time-series comparisons.

TABLE 1-2. Number of Air Carriers, Railroads, Interstate Motor Carriers, Marine Operators, and Pipeline Operators

Air Carriers

The data are from the *Air Carrier Financial Statistics Quarterly*, published by the Office of Airline Information of the U.S. Department of Transportation, Bureau of Transportation Statistics (BTS). The Alphabetical List of Air Carriers by Carrier Group at the beginning of each fourth quarter edition is used to determine the number of major air carriers and other air carriers in operation at the end of each calendar year. The publication draws its data from the T-100 and T-100(f) databases maintained by BTS. These databases include data obtained from a 100-percent census of BTS Form 41 schedule submissions by large certificated air carriers, which are carriers that hold a certificate issued under section 401 of the Federal Aviation Act of 1958 and that (1) operate aircraft designed to have a maximum passenger seating capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds or (2) that conduct international operations. Carriers are grouped as major, national, large regional, or medium regional based on their annual operating revenues. The thresholds were last adjusted July 1, 1999 and the threshold for major air carriers is currently $1 billion. The table combines the number of national, large regional, and medium regional air carriers into the other air carrier category.

Railroads

The Association of American Railroads (AAR)'s *Railroad Ten-Year Trends* series is the source for the number of railroads. The number of Class I railroads is based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

The Association of American Railroads determines the number of non-Class I railroads through an annual survey sent to every U.S. freight railroad. By following up with nonrespondents, the AAR obtains essentially a census of railroads. Use of the current survey instrument began in 1986.

Interstate Motor Carriers

The Motor Carrier Management Information System (MCMIS), maintained by the U.S. Department of Transportation, Federal Motor Carrier Safety Administration, contains information on the safety of all commercial interstate motor carriers and hazardous material (HM) shippers subject to the Federal Motor Carrier Safety Regulations and the Hazardous Materials Regulations. All carriers operating in interstate or foreign commerce within 90 days of beginning operations must submit a Form MCS-150, Motor Carrier Identification Report. Carriers may also use the form to update their information. The Motor Carrier Safety Improvement Act of 1999 requires that reports be periodically updated, but not more than once every two years. MCMIS is updated as soon as information is provided and verified, and periodic archives are made. Historical data are available from summary information previously prepared, including tables and reports. MCMIS began operations in 1980. Safety data since 1990 are available to the public.

Marine Vessel Operators

The U.S. Army Corps of Engineers (USACE) provides the data for marine vessel operators through the *Waterborne Transportation Lines of the United States*. Data are collected by the USACE's Navigation Data Center (NDC) by various means, including the U.S. Coast Guard's registry, maritime service directories, and waterway sector publications. However, an annual survey of companies that operate inland waterway vessels is the principle source of data. More than 3,000 surveys are sent to these companies and response rates are typically above 90 percent. However, a USACE official did report that less than 10 percent of the total number of companies operating inland water vessels either did not receive or respond to the annual survey.

Pipeline Operators

The Office of Pipeline Safety (OPS) in the U.S. Department of Transportation's Research and Special Programs Administration collects annual report data from natural gas transmission and distribution operators as required by 49 CFR 191.17 and 191.11, respectively. Annual data must be submitted by March 15 of the following calendar year. No annual report is required for hazardous liquid pipeline operators. However, information is available through the pipeline safety program. Since 1986, the program has been funded by fees assessed to each OPS-regulated pipeline operator based on per-mile of hazardous pipeline operated. Data for each operator and each mile of pipeline are stored in the OPS user-fee database, which is revised annually as updated fees are assessed.

Totals for pipeline operators in this table will differ from those in other tables due to differences in the regulatory authority of USDOT and the Federal Energy Regulatory Commission (FERC). FERC regulates only interstate pipelines, whereas DOT regulates both interstate and intrastate pipelines, except for rural gathering lines and some offshore pipelines, which fall under jurisdiction of the U.S. Coast Guard or the U.S. Department of the Interior's Minerals Management Service. An OPS official stated that FERC regulates about two-thirds the amount of pipeline mileage that USDOT regulates.

TABLE 1-3. Number of U.S. Airports

The Federal Aviation Administration (FAA), Office of Airport Safety and Standards *Administrator's Fact Book* (annual issues) furnished the data shown in this table and includes airports certified for air carrier operations with aircraft that seat 30 or more passengers. These airports include civil and joint civil-military use airports, heliports, STOLports (short takeoff and landing), and seaplane facilities. The FAA obtained this data via physical inspections and mail

solicitations of all federally regulated landing facilities. Since this is a census of all U.S. airports, reliability should be high. Data, however, may be subject to reporting errors typical of administrative recordkeeping.

TABLE 1-4. Public Road and Street Mileage in the United States by Type of Surface

TABLE 1-5. U.S. Public Road and Street Mileage by Functional System

TABLE 1-6. Estimated U.S. Roadway Lane-Miles by Functional Class

The Highway Performance Monitoring System (HPMS) is the source of road mileage data and is considered reliable.(See box 1-1 for detailed information about the HPMS.) The U.S. Department of Transportation, Federal Highway Administration collects and reviews state-reported HPMS data for completeness, consistency, and adherence to specifications. Some inaccuracy may arise from variations across states in their adherence to federal guidelines in the Traffic Monitoring Guide and the *Highway Performance Monitoring System Field Manual for the Continuing Analytical and Statistical Database*.

Beginning with the 1997 issue of *Highway Statistics*, FHWA instituted a new method for creating mileage-based tables derived from the HPMS. Previously, adjustments to tables developed from sample data were made using area-wide mileage information provided by states. These adjustments are now being made using universe totals from the HPMS dataset. In addition, FHWA has discontinued the process of spreading rounding and other differences across table cells. Thus, users may note minor differences in table-to-table totals. FHWA considers mileage totals from table HM-20, "Public Road Length, Miles by Functional System" to be the controlling totals should a single value be required.

Lane-miles are calculated by multiplying the centerline length by the number of through lanes. Because the HPMS requires that the number of lanes be reported for all principal arterials, other National Highway System (NHS) roads, and all standard samples, lane length can be computed for the Interstate, other principal arterials, and the NHS on a 100-percent basis. For minor arterials, rural major collectors, and urban collectors, lane length is calculated based on standard sample sections using the reported number of through lanes, length of section, and an expansion factor. FHWA uses the expanded sample to check that the centerline length of a state's functional system matches the universe functional system length. If the centerline length and functional system length do not match, FHWA may ask a state to make adjustments.

Reliability may be diminished for comparisons with pre-1980 data, which were collected via different methods and special national studies. For instance, pre-1980 mileage data included some nonpublic roadways (95,000 miles in 1979) while post-1980 data reports only public road mileage (roads or streets governed and maintained by a public authority and open to public travel).

TABLE 1-7. Number of Stations Served by Amtrak and Rail Transit, Fiscal Year

These numbers originate from Amtrak's Statistical Appendix to *Amtrak's Annual Report* and the U.S. Department of Transportation, Federal Transit Administration's National Transit Database.

Amtrak maintains a computer database with a record of every station, locomotive, and car it operates. Those records include for each vehicle the year built, its service status (operating or not on a daily basis), and location. These data should be considered very reliable.

TABLE 1-8. ADA Accessible Rail Transit Stations by Agency

TABLE 1-9. ADA Lift- or Ramp-Equipped Transit Buses

These data are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database (NTD). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including certain aspects of station and vehicle accessibility. Transit operators that do not report to FTA are those that do not receive Urbanized Area Formula Funding, typically private, small, and rural operators. The data are generally considered accurate because FTA reviews and validates information submitted by individual transit

agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data definitions.

TABLE 1-10. U.S. Oil and Gas Pipeline Mileage

Oil Pipeline

The data are from *Transportation in America*, published by the Eno Transportation Foundation, Inc. (Eno). The numbers reprinted here for 1960, 1965, 1970, and 1975 are Eno estimates from the U.S. Department of Energy's *Energy Data Report* issues labeled "Crude-oil and Refined Products Mileage in the United States." Eno estimated the 1980 number based on the assumption that refinement of old, less profitable, and smaller lines exceeded in mileage the construction of new, larger, and more-profitable lines. Figures from 1985 and later years are calculated from a base figure that Eno obtained from the 1982 U.S. Department of Transportation study *Liquid Pipeline Director* and then incorporated that figure with data from the Association of Oil Pipe Lines and the Oil Pipeline Research Institute. Lack of additional information raises definitional and methodological uncertainties for the data's reliability. Moreover, the three different information sources introduce data discontinuities making time comparisons less reliable.

Gas Pipeline

These statistics originate from annual editions of *Gas Facts* published by the American Gas Association (AGA). The data reported by AGA are based on gas utilities participation and reporting to the Uniform Statistical Report. Utilities reporting in 1991 represented 98 percent of total gas utility industry sales while the remaining 2 percent was estimated for the nonreporting companies based on recent historical experience. Varying percentages of nonreporters from year to year introduce minor reliability problems for time-series comparisons.

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

TABLE 1-12. Sales or Deliveries of New Aircraft, Vehicles, Vessels, and Other Conveyances

Civilian Aircraft

The Aerospace Industries Association (AIA) provided this data in their annual issues *Aerospace Facts and Figures*, "Civil Aircraft Shipments." AIA collects their data from aircraft company reports, the General Aviation Manufacturers Association (GAMA), and the U.S. Department of Commerce's (DOC) International Trade Administration. DOC data provide total number of shipments and exports, and the difference computed by AIA equals domestic shipments. DOC collects shipments data separately for individual factories or establishments and not at the company level. A potential limitation of this approach is when a factory producing aircraft for shipment also makes aircraft parts. If the establishment has 80 percent of its production in aircraft and 20 percent in parts, all of the output is attributed to aircraft shipments.

Transport

The Aerospace Industries Association (AIA) is the source of these data. AIA obtains quarterly data from Boeing Corp., now the sole U.S. manufacturer of transport aircraft, and publicly available financial disclosure information filed with the U.S. Securities and Exchange Commission (SEC) via Form 10-k. SEC requires a publicly traded company to file an annual report 90 days after the end of the company's fiscal year to provide an overview of that business.

Helicopters

AIA surveyed and received data from all 10 major helicopter manufacturers on their sales and deliveries.

General Aviation

The general aviation figures are taken from the *General Aviation Statistical Databook* published by the GAMA. General aviation refers usually to the small aircraft industry in the United States. GAMA collects quarterly data from the 10 to 14 manufacturers who nearly equal a census of the general aviation sector.

Passenger Car, Truck, Bus, and Recreational Vehicles

Ward's *Motor Vehicle Facts and Figures* is the source of these data. Ward's obtains sales data directly from manufacturers. Readers should note that automobile manufacturers have inflated sales figures in the past, but Ward's does contact companies to verify numbers that appear too high or low.

Motorcycle

The Motorcycle Industry Council, Inc. (MIC) publishes the *Motorcycle Statistical Annual*, which is the source for these data. MIC derived the estimate for new retail motorcycle sales for each state from the *MIC Retail Sales Report*, and adjusted for total retail sales. Motorcycle company reports provided sales data. Prior to 1985, all-terrain vehicles (ATVs) were included in the motorcycle total. In 1995, the Motorcycle Industry Council revised its data for the years 1985 to present to exclude all terrain vehicles from its totals.

Bicycle

The National Bicycle Dealers Association (NBDA) reported these data, which are based on Bicycle Manufacturers Association (BMA) information through 1996. BMA stopped reporting members' shipments in 1996. Moreover, BMA represents the largest bicycle manufacturers (Huffy, Roadmaster, and Murray), and thus the data do not reflect specialty bike makers or other manufacturers. The Bike Council estimated 1997 through 2001 figures in the table. According to a Bicycle Council representative, the estimates are a combination of domestic forecasts produced by a panel of industry experts and import data from monthly U.S. census databases.

Transit

The American Public Transit Association provided these figures, which are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database. These data are generally considered accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or misinterpret data. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private, very small, and rural operators).

Class I Rail

The data are from Railroad Facts, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the threshold for Class I railroads was $261.9 million. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated. Historical reliability may vary due to changes in the railroad industry, including bankruptcies, mergers, and declassification by the STB. Small data errors may also have occurred because of independent rounding in this series by the AAR.

Amtrak

Amtrak maintains a computer database with a record of every locomotive and car it operates. For each vehicle, those records include the year built, its service status (operating or not on a daily basis), and location. These data should be considered very reliable.

Water Transportation

U.S. Department of Transportation, Maritime Administration (MARAD), which classifies vessels as merchant based on size and type, reports these data in annual issues of its *Merchant Fleets of the World*. MARAD compiles these figures from a data service provided by Lloyd's Maritime Information Service. The parent company, Lloyd's Register (LR), collects data from several sources: its 200 offices worldwide, data transfers and agreements with other classification societies, questionnaires to ship owners and shipbuilders, feedback from government agencies, and input from port agents. According to an LR official, consistent data gathering methods have been maintained for more

than 30 years but cautioned that inconsistencies may occur in groupings of ship types over time. For example, tank barges are now included in the tanker ship-type grouping rather than the barge grouping.

TABLE 1-13. Active Air Carrier and General Aviation Fleet by Type of Aircraft

Air Carrier, Certificated, All Services

Prior to 1995, data originated from the U.S. Department of Transportation, Federal Aviation Administration (FAA), FAA *Statistical Handbook of Aviation*. Later data are from the Aerospace Industries Association (AIA), *Aerospace Facts and Figures*. However, Aerospace Facts and Figures is compiled from the FAA *Statistical Handbook of Aviation*. U.S. air carrier fleet data are based on reports collected by FAA field offices from carriers. The reports include information on the number of aircraft by type used in air carrier service. The FAA points out that this information is not an inventory of the aircraft owned by air carriers, but represents the aircraft reported to the FAA as being used in air carrier fleet service. The reported aircraft are all aircraft carrying passengers or cargo for compensation or hire under 14 CFR 121 and 14 CFR 135.

General Aviation

The 1960-1980 figures originated from the FAA *Statistical Handbook of Aviation*. Later data are from FAA annual issues of the *General Aviation* and *Air Taxi Activity* (GAATA) Survey report, table 3.1.The FAA collects both aircraft registration data and voluntary information about aircraft operation, equipment, and location. Before 1978, the FAA mandated owners to annually register their aircraft for the Aircraft Registration Master File. This was a complete enumeration of operating aircraft. Registrants were also asked to voluntarily report information on hours flow, avionics equipment, base location, and use. The FAA changed their data collection methodology in 1978. The annual registration requirement became triennial and the General Aviation Activity and Avionics Survey was initiated to sample aircraft operation and equipment data.

The General Aviation Activity and Avionics Survey was renamed the General Aviation and Air Taxi Activity Survey in 1993 to reflect the fact that the survey includes air taxi aircraft. This survey is conducted annually and encompasses a stratified, systematic design from a random start to generate a sample of all general aviation aircraft in the United States. It is based on the FAA registry as the sampling frame. FAA established three stratification design variables in the survey: 1) the average annual hours flown per aircraft by aircraft type, 2) the aircraft manufacturer/model characteristics, and 3) the state of aircraft registration.

Data Reliability

Because of the change in 1978, the reliability of comparisons over time will be affected. The FAA asserted that the change to a triennial registration deteriorated the Aircraft Registration Master File in two ways. First, the resulting lag in registration updates caused the number of undeliverable questionnaires to steadily increase over the three-year period. Second, inactive aircraft would remain in the registry, inflating the general aviation fleet count. In addition, a new regulation added two categories of aircraft to the general aviation fleet. However, FAA concluded that these changes resulted in no more than a five-percent error in the fleet population estimate.

The reliability of the GAATA survey can be impacted by two factors: sampling and nonsampling error. A measure, called the standard error, is used to indicate the magnitude of sampling error. Standard errors can be converted for comparability by dividing the standard error value by the estimate (derived from sample survey results) and multiplying it by 100.This quantity, referred to as the percent standard error, totaled seven-tenths of a percent in 1997 for the general aviation fleet. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision.

Nonsampling errors could include problems such as nonresponse, respondent's inability or unwillingness to provide correct information, differences in interpretation of questions, and data-entry mistakes. Readers should note that non-response bias might be a component of reliability errors in the data from 1980 to 1990.The FAA conducted telephone surveys of nonrespondents in 1977, 1978, and 1979 and found no significant differences or inconsistencies in respondents' and nonrespondents' replies. The FAA discontinued the telephone survey of nonrespondents in 1980 to save costs. Nonresponse surveys were resumed in 1990, and the FAA found notable differences and thus adjusted its fleet estimates. The 1991 through 1996 data have been revised to reflect nonresponse bias. In 1997, a sample of 29,954 aircraft was identified and surveyed from an approximate population of 251,571 registered general aviation aircraft. Just over 65 percent of the sample responded to the survey.

Highway, Total (registered vehicles)

The 1960 to 1980 figures are from the U.S. Department of Transportation, Federal Highway Administration (FHWA) document, *Highway Statistics, Summary to 1985,* table MV-201 and related tables. Data quality and consistency will be less reliable for these years because of a diversity of registration practices from state to state. Users should recognize that motor vehicle statistical information is not necessarily comparable across all states or within a state from year to year. For instance, the FHWA reported that separate data on single-unit trucks and combinations was unobtainable from all states in 1990.

After 1980, the FHWA began to use the Highway Performance Monitoring System (HPMS) database, which improved data reliability. FHWA reviews state-reported HPMS data for completeness, consistency, and adherence to these specifications. Some inaccuracy may arise from variations across states in their adherence to federal guidelines in the *Highway Performance Monitoring System Field Manual for the Continuing Analytical and Statistical Database*.

If choosing to compare state data, the FHWA recommends that users carefully select a set of peer states that have characteristics similar to the specific comparison. Improperly selected peer states are likely to yield invalid data comparisons. Characteristics that a user needs to consider in determining compatibility of a peer state include similarities and differences in urban/rural areas, population densities, degrees of urbanization, climate, geography, state laws and practices that influence data definitions, administrative controls of public road systems, state economies, traffic volumes, and degrees of centralization of state functions. The FHWA has developed a set of variables that users may use to determine appropriate peer states.

Other 2-Axle 4-Tire Vehicle (truck)

Sources for these figures included FHWA's *Highway Statistics, Summary to 1995* (table VM-201A) and annual issues of *Highway Statistics* (table VM-1). FHWA compiles these figures from the U.S. Bureau of the Census' Truck Inventory and Use Survey (TIUS). Since 1963, Census has conducted the TIUS every five years with the last survey completed in 1997.The Census Bureau changed the name of the survey to the Vehicle Inventory and Use Survey (VIUS) in 1997. The VIUS collects data and the physical and operational characteristics of the nation's truck population. In 1997, 131,000 trucks were surveyed from an estimated universe of over 75 million trucks. Chronological reliability may be diminished due to sampling design changes in 1977, 1982, and 1992. In 1977, the sampling universe was first stratified by the number of trucks in a state: large (> 1.5 million trucks), medium (700,000 to 1.5 million), and small (< 700,000); and then by two truck sizes.

Stratification in 1982 was then based on body type rather than vehicle weight. In 1992 and 1997, the sampling universe was first subdivided geographically and then into five strata: 1) pickups, 2) vans, 3) single-unit light, 4) single-unit heavy, and 5) truck tractor. Cases were then selected randomly within each stratum.

Census delivered a mail-out/mail-back survey to the owner identified in the vehicle registration records. Data collection is staggered as state records become available. Owners report data only for the vehicles selected. In the 1992 survey, a method was employed to also collect data on new truck purchases in the latter half of the year to estimate the fleet for the calendar year. This adjustment in the sampling frame had not been done in previous surveys and may diminish chronological reliability. The sample for 1997 was some 22,500 vehicles smaller than for 1992. The 1997 VIUS had two sampling stages. For the first stage, the Census Bureau surveyed about 131,000 trucks registered as of July 1, 1997.The second stage sampled a total of 3,000 truck owners with state mailing addresses different from the state of truck registration.

The accuracy and reliability of the VIUS survey depends jointly on sampling variability and nonsampling errors. Standard errors arising from sampling variability can be converted for comparability by dividing the standard error value by the estimate and multiplying it by 100. This quantity, referred to as the percent standard error, totaled two-tenths of a percent in 1992 and 1997 for the VIUS sample. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. The 1992 TIUS achieved over 90.2 percent reporting and the 1997 response rate equaled 84.5 percent, thus reliability may have decreased in the most recent survey.

Transit

The American Public Transit Association (APTA) provided these data, which are based on the Federal Transit Administration (FTA), National Transit Database. These data are generally accurate because the FTA reviews and

validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private, very small, and rural operators).

Railroad (all categories)

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. Thus, data estimates are considered very reliable. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

AAR determines the number of non-Class I railroads through an annual, comprehensive survey sent to every U.S. freight railroad. By following up with nonrespondents, the AAR obtains essentially a 100 percent census of all railroads. Use of the current survey instrument began in 1986.

Amtrak

Amtrak maintains a computer database with a record of every locomotive and car it operates. For each vehicle, those records include the year built, service status (operating or not operating on a daily basis), and location. This data should be considered very reliable.

Water Transportation

The source for Inland Nonself-Propelled Vessels, Self-Propelled Vessels, and flag passenger and cargo vessels is the U.S. Army Corps of Engineers (USACE), *Waterborne Transportation Lines of the United States*, annual issues. Data are collected by the USACE's Navigation Data Center (NDC) by various means, including the U.S. Coast Guard's registry, maritime service directories, and waterway sector publications. However, an annual survey of companies that operate inland waterway vessels is the principle source of data. More than 3,000 surveys are sent to these companies, and response rates are typically above 90 percent. However, a USACE official did report that less than 10 percent of the total number of companies operating inland vessels either did not receive or respond to the annual survey.

Oceangoing Steam Motor Ships

Merchant Fleets of the World, published annually by the U.S. Department of Transportation, Maritime Administration (MARAD), is the source of these data. MARAD, which classifies vessels as merchant based on size and type, compiles these figures from a data service provided by Lloyd's Maritime Information Service (LMIS).The parent company, Lloyd's Register (LR), collects data from 200 offices worldwide, from data transfers and agreements with other classification societies, from questionnaires to ship owners and ship builders, from feedback from government agencies, and from input from port agents. According to an LR official, consistent data-gathering methods have been maintained for more than 30 years. The same official did caution that there are sometimes inconsistencies in groupings of ship types over time. For example, propelled tank barges are now included in the tanker ship-type grouping.

Recreational Boats

Boating Statistics, published annually by the U.S. Coast Guard (USCG), is the source. The USCG derives these figures from state and other jurisdictional reporting of the actual count of valid boat numbers issued. In accordance with federal requirements, all 55 U.S. states and territories require motor-powered vessels to be numbered. However, over half the states do not require nonpowered vessels to be numbered. Accuracy can also be diminished by noncompliance of boat owners with numbering and registration laws. In 1996, the USCG estimated that approximately eight million recreational boats are not numbered and, thus, are excluded from the reported number of recreational vessels. The USCG did not provide estimates for the number of boats without numbering in their reports

after 1996. Some jurisdictions fail to report by publication deadlines, and the USCG provided estimates based on the previous year's estimate.

TABLE 1-14. U.S. Automobile and Truck Fleets by Use

These statistics originate from two sources. The R.L. Polk Co. provides numbers for commercial fleet vehicles from state registrations. Bobit Publishing Co. also obtains fleet vehicle sales data from automobile manufacturers. These two sources cover nearly 100 percent of fleet vehicles in the United States. Thus, the data should be very accurate.

TABLE 1-15. Annual U.S. Motor Vehicle Production and Factory (Wholesale) Sales

TABLE 1-16. Retail New Passenger Car Sales

TABLE 1-17. New and Used Passenger Car Sales and Leases

TABLE 1-18. Retail Sales of New Cars by Sector

The U.S. Department of Commerce, Bureau of Economic Analysis, uses data from Ward's Automotive Reports. The sectoral break down is derived from registration data obtained from R.L. Polk. Ward's obtains sales data directly from manufacturers. Readers should note that automobile manufacturers have inflated sales figures in the past, but Ward's does contact companies to verify numbers that appear too high or low.

TABLES 1-20 and 1-21. Period Sales, Market Shares, and Sales-Weighted Fuel Economies of New Domestic and Imported Automobiles and Light Trucks, Selected Sales Periods

These data originate from Oak Ridge National Laboratory's (ORNL) Light-Duty MPG and Market Shares System database, which relies on information from monthly Ward's Automotive Reports. Comparisons and observations are made on sales and fuel economy trends from one model year to the next. ORNL has adopted several conventions to facilitate these comparisons, such as the use of sales-weighted average to estimate fuel economy and vehicle characteristics. For example, "sales-weighted" miles per gallon refers to a composite or average fuel economy based on the distribution of vehicle sales. ORNL's methodology for sales-weighting can be found in the Appendix of the *Highway Vehicle MPG and Market Shares Report: Model Year 1990* (the latest published report). The method was changed dramatically in 1983, and data reliability prior to that year is questionable. This information is now published annually in ORNL's *Transportation Energy Data Book.*

TABLE 1-22. Number of Trucks by Weight

These data are derived from the Vehicle Inventory and Use Survey (VIUS) conducted in 1997 by the U.S. Bureau of the Census. This survey, formerly known as the Truck Inventory and Use Survey (TIUS), has been conducted every 5 years since 1963. The VIUS collects data and the physical and operational characteristics of the nation's truck population. In 1997, 131,000 trucks were surveyed from an estimated universe of over 75 million trucks. Chronological reliability may be diminished due to sampling design changes in 1977, 1982, and 1992. In 1977, the sampling universe was first stratified by the number of trucks in a state: large (> 1.5 million trucks), medium (700,000 to 1.5 million), and small (< 700,000); and then by two truck sizes.

Stratification in 1982 was then based on body type rather than vehicle weight. In 1992 and 1997, the sampling universe was first subdivided geographically and then into five strata: 1) pickups, 2) vans, 3) single-unit light, 4) single-unit heavy, and 5) truck tractor. Cases were then selected randomly within each stratum.

Census delivered a mail-out/mail-back survey to the owner identified in the vehicle registration records. Data collection is staggered as state records become available. Owners report data only for the vehicles selected. In the 1992 survey, a method was employed to also collect data on new truck purchases in the latter half of the year to estimate the fleet for the calendar year. This adjustment in the sampling frame had not been done in previous surveys and may diminish chronological reliability. The sample for 1997 was some 22,500 vehicles smaller than for 1992. The 1997 VIUS had two sampling stages. For the first stage, the Census Bureau surveyed about 131,000 trucks registered as of July 1, 1997.The second stage sampled a total of 3,000 truck owners with state mailing addresses different from the state of truck registration.

The accuracy and reliability of the VIUS survey depends jointly on sampling variability and nonsampling errors. Standard errors arising from sampling variability can be converted for comparability by dividing the standard error value by the estimate and multiplying it by 100. This quantity, referred to as the percent standard error, totaled two-tenths of a percent in 1992 and 1997 for the VIUS sample. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. The 1992 TIUS achieved over 90.2 percent reporting and the 1997 response rate equaled 84.5 percent, thus reliability may have decreased in the most recent survey.

TABLE 1-23. World Motor Vehicle Production, Selected Countries

Motor Vehicle Production, Factory Sales, and New Passenger Car Retail Sales

Ward's Motor Vehicle Facts & Figures is the source of these data. Ward's obtains sales data directly from manufacturers. Readers should note that automobile manufacturers have inflated sales figures in the past, but Ward's does contact companies to verify numbers that appear too high or low.

Used Passenger Car Sales and Leased Passenger Cars

ADT Automotive Used Car Market Report is the source of these data. The Wall Street Journal (WSJ) is the original source of 1999 data. According to an ADT representative, publishing deadlines require ADT to use WSJ numbers until they can be replaced with National Automotive Dealers Association data. ADT Automotive's Market Analysis Department also gathers figures from CNW Marketing/Research and the R.L. Polk Co. CNW estimates used car sales volumes by collecting state title transfer data and determining if a transaction was made between private individuals or between a consumer and a franchised or independent dealer. This estimate is evaluated by comparing total transactions with state automobile sales revenues. Polk, an additional source of data, maintains a state vehicle registration database. For 1998, the ADT representative stated that Polk's data were within 5 percentage points of CNW estimates.

TABLE 1-24. Number and Size of the U.S. Flag Merchant Fleet and Its Share of the World Fleet

The U.S. Department of Transportation, Maritime Administration, which classifies vessels as merchant based on size and type, compiles these figures from a data service provided by Lloyd's Maritime Information Service. The parent company, Lloyd's Register (LR), collects data from several sources: its 200 offices worldwide, data transfers and agreements with other classification societies, questionnaires to ship owners and shipbuilders, feedback from government agencies, and input from port agents. According to an LR official, consistent data gathering methods have been maintained for more than 30 years, but cautioned that inconsistencies may occur in groupings of ship types over time. For example, tank barges are now included in the tanker ship-type grouping rather than the barge grouping.

TABLE 1-25. U.S. Airport Runway Pavement Conditions

These data originate from the U.S. Department of Transportation, Federal Aviation Administration (FAA), National Plan of Integrated Airport Systems (NPIAS). The NPIAS includes all commercial service airports, all reliever airports, and selected general aviation airports. It does not include more than 1,000 publicly owned public use landing areas, privately owned public use airports, and other civil landing areas not open to the general public. NPIAS airports serve 92 percent of general aviation aircraft (based on an estimated fleet of 200,000 aircraft). In 1998, the NPIAS encompassed 3,344 of the 5,357 airports with public access. Runway pavement condition is classified as follows:

Good: All cracks and joints are sealed.

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

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

On a rotating basis, the FAA arranges annual inspections for about 2,000 of the approximately 4,700 public-use airports. The inspections are based on funding availability and not on statistical criteria, and nearly all runways are inspected every two years. Inspections are primarily made to collect information for pilots on airport conditions. The FAA relies on state and local agencies to perform inspections, so some inaccuracy may arise from variation in their

adherence to federal guidelines regarding pavement condition reporting. In 1998, the U.S. General Accounting Office found that Pavement Condition Index information was available for about 35 percent of NPIAS airports (GAO/RCED-98-226).

TABLE 1-26. Median Age of Automobiles and Trucks in Operation in the United States

The R.L. Polk Co. is a private enterprise that purchases state registration data to maintain a database of operational vehicles. Its data represent a near census of registered vehicles in the United States, and the age estimate should be considered very reliable.

TABLE 1-27. Condition of U.S. Roadways by Functional System

U.S. Department of Transportation, Federal Highway Administration (FHWA) collects pavement condition data from each state through the Highway Performance Monitoring System. The FHWA uses two rating schemes-the Present Serviceability Rating (PSR) and the International Roughness Indicator (IRI). IRI is used to measure the condition of Interstates, other principal arterials, rural minor arterials, and other National Highway System roadways. PSR is used to measure the condition of rural major collectors and urban minor arterials and collectors. Rural minor collectors are not measured. Where IRI data are not reported for sampled sections, the PSR data are collected. Using the PSR, values range from 0.1 to 5.0, where 5.0 denotes new pavement in excellent condition and 0.1 denotes pavement in extremely poor condition. On the IRI scale however, lower values indicate smoother roads (e.g., <60 for interstate pavement in very good condition to >170 for interstate pavement in poor condition).

The IRI is an objective measure of pavement roughness developed by the World Bank. The PSR is a more subjective measure of a broader range of pavement characteristics and therefore less comparable. Prior to 1993, all pavement conditions were evaluated using PSR values. Beginning with data published in *Highway Statistics 1993*, the FHWA began a transition to the IRI, which should eventually replace the PSR. The change from PSR to IRI makes comparisons between pre-1993 pavement condition data and 1993 and later pavement condition data difficult. Thus, trend comparisons should be made with care.

FHWA indicates that the protocol of measuring pavement roughness is not followed by all states, and some did not report for all required mileage. Totals only reflect those states reporting usable or partially usable data. Column percentages may not sum to 100 and may differ slightly from percentages in source tables, which were adjusted so that they would add to 100.FHWA believes that the IRI data are of "reasonably good quality."

TABLE 1-28. Condition of U.S. Bridges

These figures are from the U. S. Department of Transportation, Federal Highway Administration (FHWA), National Bridge Inventory Database. State highway agencies are required to maintain a bridge inspection program and inspect most bridges on public roadways at a minimum of every two years. With FHWA approval, certain bridges may be inspected less frequently. A complete file of all bridges is collected and maintained, representing a very reliable assessment of bridge conditions. However, some inaccuracy may be attributable to variations in state inspector's adherence to the National Bridge Inspection Standards.

TABLE 1-29. Average Age of Urban Transit Vehicles

TABLE 1-30. Condition of Urban Bus and Rail Transit Maintenance Facilities

TABLE 1-31. Condition of Rail Transit Infrastructure

These figures are based on information in the U.S. Department of Transportation, Federal Transit Administration (FTA), National Transit Database. The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including vehicle inventories. Transit operators that do not report to FTA are those that do not receive Urbanized Area Formula Funding, typically private, small, and rural operators. The data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data definitions.

TABLE 1-32. Class I Railroad Locomotive Fleet by Year Built

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). Figures reported by AAR are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the threshold for Class I railroads was $261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

TABLE 1-33. Age and Availability of Amtrak Locomotive and Car Fleets

Amtrak maintains a computer database with a record of every locomotive and car it operates. For each vehicle those records include the year built, its service status (operating or not on a daily basis), and location. These data should be considered very reliable.

TABLE 1-34. U.S. Flag Vessels by Type and Age

The data are from the U.S. Army Corps of Engineers (USACE), *Waterborne Transportation Lines of the United States* (WTLUS), annual issues. The WTLUS database contains information on vessel operators and characteristics and descriptions for all domestic vessel operations. Data are collected by the USACE's Navigation Data Center, primarily through a survey of vessel operating companies. More than 3,000 surveys are sent to these companies and response rates are typically above 90 percent. However, a USACE official did report that less than 10 percent of the total number of companies operating inland vessel fleets either did not receive and/or did not respond to the annual survey.

TABLE 1-35. U.S. Vehicle-Miles

TABLE 1-36. Roadway Vehicle-Miles Traveled (VMT) and VMT per Lane-Mile by Functional Class

TABLE 1-40. U.S. Passenger-Miles

Air Carrier, Certificated, Domestic, All Services

The U.S. Department of Transportation (USDOT), the Bureau of Transportation Statistics, Office of Airline Information, reports aircraft revenue-miles and passenger-miles in its publication *Air Traffic Statistics*. These numbers are based on 100-percent reporting of passengers and trip length by large certificated air carriers. Minor errors arise from nonreporting but amount to less than 1 percent of all air carrier passenger-miles. The figures do not include data for all airlines, such as most scheduled commuter airlines and all nonscheduled commuter airlines. These, if added, may raise total air passenger-miles by about 5 percent.

General Aviation

Passenger-mile numbers for 1975 to present are calculated by adjusting the Interstate Commerce Commission's 1974 figure for air passenger-miles by the percentage change in annual hours flown by general aviation aircraft as published in the USDOT, Federal Aviation Administration (FAA), *FAA Statistical Handbook of Aviation*. Numbers in the handbook are based on the General Aviation and Air Taxi Survey (GAATA). In 1993, the GAATA stopped including commuter aircraft. Commuter-miles collected before 1993 by the GAATA were, according to one FAA official, woefully underreported. Therefore, problems with the estimate of general aviation aircraft include: a break in the series between 1992 and 1993, a possible outdated factor used to calculate passenger-miles, and the classification of commuter operations.

Highway

Highway vehicle-miles of travel (vmt) are estimated using data from the Highway Performance Monitoring System (HPMS), a database maintained by FHWA that contains information on highway characteristics supplied by individual states. Annual vmt by highway functional system is calculated as the product of the annual average daily traffic (AADT) along each highway section, the centerline length of each highway section, and the number of days in the

year. Also, expansion factors are used for roadways that are sampled rather than continuously monitored. Vmt by vehicle type is estimated using vehicle share estimates supplied by states.

FHWA has established methods for collecting, coding, and reporting HPMS data in two manuals: *Traffic Monitoring Guide* (TMG) and *Highway Performance Monitoring System Field Manual*. The prescribed sampling process for collecting highway volume data, which is used to estimate AADT, is based on statistical methods. However, in practice, several factors affect the ultimate quality of the data. FHWA discusses many of these issues in their annual *Highway Statistics* report and other publications. However, BTS is not aware of any study or report that has statistically quantified the accuracy of vmt estimates. Some of the primary issues related to data quality are noted here.

1. The sampling procedures suggested in the TMG and HPMS *Field Manual* are designed to produce traffic volume estimates with an average precision level of 80-percent confidence with a 10-percent allowable error at the state level. FHWA provides additional guidance to states through annual workshops and other avenues to help them follow these procedures as closely as possible. However, the actual data quality and consistency of HPMS information are dependent on the programs, actions, and maintenance of sound databases by numerous data collectors, suppliers, and analysts at the state, metropolitan, and other local area levels. Not all states follow the recommended sampling, counting, and estimating procedures contained in the *Traffic Monitoring Guide*, and the exact degree to which the states follow these guidelines overall is unknown. However, FHWA believes that most states generally follow the guidelines.

2. Estimates for higher-level roadway systems are more accurate than those for lower level ones, since traffic volumes on higher-level roadways are sampled at a higher rate. The TMG recommends that traffic counts be collected for all Interstate and principal arterial sections on a three-year cycle. Under this scheme, about one-third of the traffic counts for these roadway sections in a given year are actually measured, while volumes on the remainder are factored to represent present growth. Although some States collect data at all traffic count locations every year, most use some variation of the TMG data collection guidelines. Volumes on urban and rural minor arterials, rural major collectors, and urban collectors are collected using a sampling procedure. States are not required to report volumes for rural/urban local systems and rural minor collectors, though most do so. However, the methods used to estimate travel on these roadways vary from state to state since there are no standard guidelines for calculating travel on these roadways.

3. Vmt estimates by vehicle type are less accurate than are estimates for total motor vehicle vmt for several reasons:1) vehicle classification equipment can frequently misclassify vehicles (see B.A. Harvey et al, *Accuracy of Traffic Monitoring Equipment*, GDOT 9210, (Georgia Tech Research Institute:1995)); 2) vehicle shares are often determined by methods or by special studies that are not directly compatible with HPMS data definitions and/or purposes, and observed local-level vehicle classification counts are difficult to apply on a statewide basis; and 3) vehicle type definitions can vary among states.

4. Vmt estimates for combination trucks in HPMS differ from survey-based estimates from the Truck Inventory and Use Survey (TIUS), as much as 50 percent for some categories of combination trucks. Much of this discrepancy appears to be due to differences in truck classification definitions and biases introduced by data collection practices. See R.D. Mingo et al.1995. *Transportation Research Record*, No. 1511 (Washington, DC: National Academy Press), pp. 42-46.

5. FHWA adjusts questionable data using a variety of standard techniques and professional judgement. For example, national average temporal adjustment factors developed from HPMS and other national highway monitoring programs are applied to State data, when necessary, to compensate for temporal deficiencies in sampling practices. Also, in estimating vmt by vehicle type, FHWA employs an iterative process to reconcile vmt, fuel economy (miles per gallon), fuel consumption, and vehicle registration estimates. Fuel consumption, total vmt by highway functional class, and registrations by vehicle group are used as control totals. This process limits the size of errors and ensures data consistency.

6.Passenger-miles of travel (pmt) are calculated by multiplying vmt estimates by vehicle loading (or occupancy) factors from various sources, such as the Nationwide Personal Transportation Survey conducted by FHWA and TIUS. Thus, pmt data are subject to the same accuracy issues as vmt, along with uncertainties associated with estimating vehicle-loading factors.

Transit

The American Public Transit Association (APTA) figures are based on information in USDOT, Federal Transit Administration (FTA), National Transit Database. Transit data are generally considered accurate because FTA reviews and validates information submitted by individual transit agencies. However, reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA adjusts the FTA data to include transit operators that do not report to the FTA database (private, very small, and rural operators).

Class I Rail (vehicle-miles)

Data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report* required of Class I railroads. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 1999, the adjusted threshold for Class I railroads was $258.5 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 2 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

Intercity Train

The AAR passenger-miles number is based on an almost 100-percent count of tickets and, therefore, is considered accurate.

TABLE 1-38. Average Length of Haul: Domestic Freight and Passenger Modes

Freight

Air Carrier and Truck

The Eno Transportation Foundation, Inc. estimated these figures.

Class I Rail

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report* required of Class I railroads. The STB defined Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 1percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

Water

The data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report their domestic waterborne traffic movements to USACE via ENG Forms 3925 and 3925b.Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between points of loading and unloading.

Oil Pipeline

The Eno Transportation Foundation, Inc., provided these figures, which are estimates based on U.S. Department of Energy and Association of Oil Pipe Lines reports. Figures are derived by dividing estimated pipeline ton-miles by estimated crude and petroleum products tonnage.

Passenger

Air Carrier

The U.S. Department of Transportation (USDOT), the Bureau of Transportation Statistics, Office of Airline Information, reports average trip length in its publication *Air Traffic Statistics*. These numbers are based on 100-percent reporting of passengers and trip length by large certificated air carriers via BTS Form 41.The figures do not include data for all airlines, such as most scheduled commuter airlines and all nonscheduled commuter airlines.

Bus

The Eno Transportation Foundation, Inc. estimated these figures based on Class I carrier passenger data and vehicle-miles data from *Highway Statistics*, an annually published report of the USDOT, Federal Highway Administration.

Commuter Rail

The American Public Transit Association (APTA) provided these data, which are based on the USDOT, Federal Transit Administration's (FTA's), National Transit Database. Transit data are generally accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA conservatively adjusts FTA data to include transit operators that do not report to the database (private, very small, and rural operators).

Intercity/Amtrak

The Statistical Appendix to the Amtrak Annual Report is the source of these data. Amtrak data are based on 100 percent of issued tickets, and thus should be accurate.

TABLE 1-42. Long-Distance Travel in the United States by Selected Trip Characteristics: 1995

TABLE 1-43. Long-Distance Travel in the United States by Selected Traveler Characteristics: 1995

The data presented in these tables are estimates derived from the 1995 American Travel Survey (ATS) conducted for the U.S. Department of Transportation, Bureau of Transportation Statistics. The survey's estimation procedure inflates unweighted sample results to independent estimates of the total population of the United States. Values for missing data are estimated through imputation procedures.

Since ATS estimates come from a sample, they are subject to two possible types of error: nonsampling and sampling. Sources of nonsampling errors include inability to obtain information about all sample cases, errors made in data collection and processing, errors made in estimating values for missing data, and undercoverage.

The accuracy of an estimate depends on both types of error, but the full extent of the nonsampling error is unknown. Consequently, the user should be particularly careful when interpreting results based on a relatively small number of cases or on small differences between estimates.

Standard errors for ATS estimates that indicate the magnitude of sampling error as well as complete documentation of the source and reliability of the data may be obtained from detailed ATS reports. Because of methodological differences, users should use caution when comparing these data with data from other sources.

TABLE 1-44. Passengers Boarded at the Top 50 U.S. Airports

The *Airport Activity Statistics of Certificated Air Carriers* (AAS) is the source of these data. Published by USDOT, Bureau of Transportation Statistics, Office of Airline Information (OAI), the AAS presents traffic statistics for all scheduled and nonscheduled service by large certificated U.S. air carriers for each airport served within the 50 states, the District of Columbia, and other U.S. areas designated by the Federal Aviation Administration. The publication draws its data from the T-100 and T-3 databases maintained by OAI. These data are based on a 100-

percent reporting of enplanements, departures, and tonnage information by large certificated U.S. air carriers via BTS Form 41.

Prior to 1993, the AAS included all scheduled and some nonscheduled enplanements for certificated air carriers but did not include enplanements for air carriers offering charter service only. Prior to 1990, the freight category was divided into both freight and express shipments and the mail category was divided into U.S. mail (priority and nonpriority) and foreign mail. Beginning in 1990, only aggregate numbers were reported for freight and mail.

TABLE 1-45. Air Passenger Travel Arrivals in the United States from Selected Foreign Countries

TABLE 1-46. Air Passenger Travel Departures from the United States to Selected Foreign Countries

The International Trade Administration in the U.S. Department of Commerce publishes the *U.S. International Air Travel Statistics Report* annually. The passenger data is based on information collected by the U.S. Immigration and Naturalization Service using the INS Form I-92. All passengers on international flights must complete the I-92 form with the exception of those passengers on flights arriving or departing from Canada.

The international passenger arrivals and departures data for Canada is obtained from *Air Carrier Traffic at Canadian Airports*, which is published by Statistics Canada. Three surveys are conducted by Statistics Canada in order to collect the necessary passenger data. Since all data is not received by the time of publication and data is occasionally updated or resubmitted by the participating carriers, data should be considered preliminary for the years referenced in the source publication.

TABLE 1-49. U.S. Ton-Miles of Freight

Air Carrier

Air Carrier Traffic Statistics, published by the U.S. Department of Transportation, Bureau of Transportation Statistics (BTS), Office of Airline Information (OAI), is the source of these data. Large certificated U.S. air carriers report domestic freight activities to OAI via BTS Form 41.The information reported in the table represents transportation of freight (excluding passenger baggage), U.S. and foreign mail, and express mail within the 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands. It also covers transborder traffic to Canada and Mexico by U.S. carriers. The data does not include information on small certificated air carriers, which represent less than 5 percent of freight ton-miles.

Intercity Truck

The data are estimates from *Transportation in America*, published by the Eno Transportation Foundation, Inc. (Eno). Eno's estimates of intercity truck ton-miles are based on historic data from the former Interstate Commerce Commission (ICC), estimates from the American Trucking Association, and other sources. Eno supplements its estimates by using additional information on vehicle-miles of truck travel published in Highway Statistics by the Federal Highway Administration. Users should note that truck estimates in the tables do not include local truck movements.

Class I Rail

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR data are based on 100-percent reporting by Class I railroads to the Surface Transportation Board (STB). The data represent all revenue freight activities of the Class I railroads and are not based on information from the Rail Waybill Sample. The STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Declassification from Class I status occurs when a railroad falls below the applicable threshold for three consecutive years. Although Class I railroads encompasses only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage operated.

Domestic Water Transport

The data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report their domestic waterborne traffic movements to USACE via ENG Forms 3925 and 3925b.Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between the points of loading and unloading.

Oil Pipeline

The data for 1960, 1965, and 1970 are from *Transportation in America*, published by the Eno Transportation Foundation, Inc., and the data for 1975 to 1998 are from *Shifts in Petroleum Transportation*, by the Association of Oil Pipe Lines (AOPL). Eno's data are based on information from the former Interstate Commerce Commission's *Transport Economics*. Common carrier oil pipelines reported all freight activities to the ICC.

AOPL obtains barrel-miles from the Federal Energy Regulatory Commission (FERC), which requires petroleum shippers to report annual shipments. AOPL then coverts barrel-miles to ton-miles using conversion figures in the American Petroleum Institute's (API's) *Basic Petroleum Data Book*. Since 16 percent of pipeline shipments are intrastate and not subject to FERC reporting requirements, AOPL makes adjustments to FERC data.

TABLE 1-51. Top U.S. Foreign Trade Freight Gateways by Value of Shipments: 2001

The value of U.S. air, maritime, and land imports and exports are captured from administrative documents required by the U.S. Departments of Commerce and Treasury. In 1990, the United States entered into a Memorandum of Understanding with Canada concerning the exchange of import data. As a consequence, each country is using the other's import data to replace its own export data. U.S. international merchandise trade statistics, therefore, are no longer derived exclusively from the administrative records of the Departments of Commerce and Treasury, but from Revenue Canada. Import value is for U.S. general imports, customs value basis. Export value is FAS (free along ship) and represents the value of exports at the U.S. port of export, including the transaction price and inland freight, insurance, and other charges. Trade levels reflect the mode of transportation as a shipment entered or exited a U.S. Customs port.

Truck, rail pipeline, mail, and miscellaneous modes are included in the total for land modes. Data present trade activity between the United States, Puerto Rico, and the U.S. Virgin Islands and Canada and Mexico. These statistics do not include traffic between Guam, Wake Island, and America Samoa and Canada and Mexico. These statistics also exclude imports that are valued at less than $1,250 and for exports that are valued at less than $2,500.

TABLE 1-56. U.S. Waterborne Freight

The data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report their domestic waterborne traffic movements to USACE via ENG Forms 3925 and 3925b. Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between points of loading and unloading.

Foreign waterborne statistics are derived from Census Bureau and U.S. Customs data, which excludes traffic between Guam, Wake Island, and American Samoa and any other foreign country, and imports and exports used by U.S. Armed Forces abroad. Individual vessel movements with origins and destinations at U.S. ports, traveling via the Panama Canal are considered domestic traffic.

TABLE 1-57. Tonnage of Top 50 U.S. Water Ports, Ranked by Total Tons

Data on the weight of U.S. maritime imports and exports are captured from administrative documents required by the U.S. Departments of Commerce and Treasury. In 1990, the United States entered into a Memorandum of Understanding with Canada concerning the exchange of import data. As a consequence, each country is using the other's import data to replace its own export data. The United States' merchandise trade statistics, therefore, are no

longer derived exclusively from U.S. government administrative records, but from Revenue Canada. Maritime weight data are initially processed and edited by the Foreign Trade Division, U.S. Census Bureau (Census) as part of the overall edits and quality checks performed on all U.S. international merchandise trade data. After Census processing, the U.S. Army Corps of Engineers (USACE) and the Maritime Administration (MARAD) perform additional maritime-specific processing and quality edits on maritime-related data elements, including the weight of maritime imports and exports. The USACE and MARAD began performing this function in October 1998 after the Foreign Waterborne Trade data program was transferred from the Census Bureau. Prior to October 1998, the USACE historically performed additional specialized edits at the port level, including reassignment of some tonnage data to the actual waterborne port rather than the reported U.S. Customs port.

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

TABLE 1-59. Value, Tons, and Ton- Miles of Freight Shipments within the United States by Domestic Establishment, 2007

TABLE 1-62. U.S. Hazardous Materials Shipments by Transportation Mode, 2007

TABLE 1-63. U.S. Hazardous Materials Shipments by Hazard Class, 2007

These data are collected via the 1997 Commodity Flow Survey (CFS) undertaken through a partnership between the U.S. Department of Commerce, Census Bureau (Census), and the U.S. Department of Transportation, Bureau of Transportation Statistics. For the 1997 CFS, Census conducted a sample of 100,000 domestic establishments randomly selected from a universe of about 800,000 multiestablishment companies in the mining, manufacturing, wholesale trade, and selected retail industries. It excluded establishments classified as farms, forestry, fisheries, governments, construction, transportation, foreign, services, and most retail.

Reliability of the Estimates

An estimate based on a sample survey potentially contains two types of errors-sampling and nonsampling. Sampling errors occur because the estimate is based on a sample, not on the entire universe. Nonsampling errors can be attributed to many sources in the collection and processing of the data and occur in all data, not just those from a sample survey. The accuracy of a survey result is affected jointly by sampling and nonsampling errors.

Sampling Variability

Because the estimates are derived from a sample of the survey population, results are not expected to agree with those that might be obtained from a 100-percent census using the same enumeration procedure. However, because each establishment in the Standard Statistical Establishment List had a known probability of being selected for sampling, estimating the sampling variability of the estimates is possible. The standard error of the estimate is a measure of the variability among the values of the estimate computed from all possible samples of the same size and design. Thus, it is a measure of the precision with which an estimate from a particular sample approximates the results of a complete enumeration. The coefficient of variation is the standard error of the estimate divided by the value being estimated. It is expressed as a percent. Note that measures of sampling variability, such as the standard error or coefficient of variation, are estimated from the sample and are also subject to sampling variability. Standard errors and coefficients of variation for CFS data presented in this report are given in Appendix B of the 1997 Economic Census report, and are available online www.census.gov/econ/wwwse0700.html.

Nonsampling Errors

In the CFS, as in other surveys, nonsampling errors can be attributed to many sources, including 1) nonresponse; 2) response errors; 3) differences in the interpretation of questions; 4) mistakes in coding or recoding the data; and 5) other errors of collection, response, coverage, and estimation.

A potentially large source of nonsampling error is due to nonresponse, which is defined as the inability to obtain all intended measurements or responses from selected establishments. Nonresponse is corrected by imputation.

TABLE 1-60. Value of U.S. Land Exports to and Imports from Canada and Mexico by Mode

The Transborder Surface Freight Data (TSFD) is derived from official U.S. international merchandise import and export data. (For a description of U.S. merchandise trade statistics, see www.census.gov/foreign-trade/www/index.html.) As of December 1995, about 96 percent of the value of all U.S. imports has been collected electronically by the Automated Broker Interface System. About 55 percent of the value of all U.S. exports is collected electronically through the U.S./Canada Data Exchange and the Automated Export Reporting Program. The balance is collected from administrative records required by the U.S. Departments of Commerce and Treasury.

The TSFD incorporates all data, by surface mode, on shipments entering or exiting the United States from or to Canada or Mexico. Prior to January 1997, this dataset also included transshipments-shipments entering or exiting the United States by way of U.S. Customs ports on the northern or southern borders even when the actual origin or final destination of the goods was other than Canada or Mexico. (In other U.S. Bureau of the Census trade statistics, transshipments through Canada and Mexico are credited to the true country of origin or final destination.) To make this dataset more comparable to other U.S. Census Bureau trade statistics, detailed information on transshipments has been removed. The TSFD presents a summary of transshipments by country, direction of trade, and mode of transportation. Shipments that neither originate nor terminate in the United States (i.e., intransits) are beyond the scope of this dataset because they are not considered U.S. international trade shipments.

In general, the reliability of U.S. foreign trade statistics is very good. Users should be aware that trade data fields (e.g., value and commodity classification) are typically more rigorously reviewed than transportation data fields (e.g., the mode of transportation and port of entry/exit). Users should also be aware that the use of foreign trade data to describe physical transportation flows may not be accurate. For example, this dataset provides surface transportation information for individual U.S. Customs districts and ports on the northern and southern borders. However, because of filing procedures for trade documents, these ports may or may not record where goods physically cross the border. This is because the information filer may choose to file trade documents at one port while shipments actually enter or exit at another port. The TSFD, however, is the best publicly available approximation for analyzing transborder transportation flows. Since the dataset was introduced in April 1993, it has gone through several refinements and improvements. When improbabilities and inconsistencies were found in the dataset, extensive analytical reviews were conducted and improvements made. However, accuracy varies by direction of trade and individual field. For example, import data are generally more accurate than export data. This is primarily because the U.S. Customs Bureau uses import documents for enforcement purposes while it performs no similar function for exports. For additional information on TSFD, the reader is referred to the U.S. Department of Transportation, Bureau of Transportation Statistics Internet site at www.bts.gov/transborder.

TABLE 1-61. Crude Oil and Petroleum Products Transported in the United States by Mode

Pipelines

The Association of Oil Pipelines (AOPL) obtains barrel-miles from the Federal Energy Regulatory Commission (FERC), which requires petroleum shippers to report annual shipments. AOPL then coverts barrel-miles to ton-miles using conversion figures in the American Petroleum Institute's (API's) *Basic Petroleum Data Book*. Since 16 percent of pipeline shipments are intrastate and not subject to FERC reporting requirements, AOPL makes adjustments to FERC data to include intrastate shipments. AOPL also conducts periodic studies to estimate intrastate shipments.

Water Carriers

Data are from *Waterborne Commerce of the United States*, published by the U.S. Army Corps of Engineers (USACE). All vessel operators of record report domestic freight and tonnage information to USACE via ENG Forms 3925 and 3925b.Cargo movements are reported according to points of loading and unloading. Certain cargo movements are excluded: 1) cargo carried on general ferries, 2) coal and petroleum products loaded from shore facilities directly into vessels for fuel use, 3) military cargo moved in U.S. Department of Defense vessels, and 4) cargo weighing less than 100 tons moved on government equipment. USACE calculates ton-miles by multiplying the cargo's tonnage by the distance between the points of loading and unloading.

Motor Carriers

AOPL estimates ton-miles by multiplying tons by the average length of haul. For crude, the tonnage of the prior year is projected by using a growth rate established by data from the U.S. Department of Energy, Energy Information Administration's *Petroleum Supply Annual*, vol. 1, table 37. For products, the same calculation is made but with a growth rate estimated by the American Trucking Association in *Financial and Operating Statistics, Class I and II,*

Motor Carriers, Summary table VI-B. Average length of haul is determined from the prior six years of data for ton-miles and tonnage of crude and petroleum products moved by motor carriers.

Railroad

AOPL calculates ton-miles by multiplying tonnage by average length of haul. Tonnage data for crude and products comes from the Association of American Railroad's *Freight Commodity Statistics*, U.S. Class I Railroads. The U.S. Department of Transportation, Federal Railroad Commission provides the average length of haul for crude and products in its Carload Way Bill Statistics.

TABLE 1-64. Passengers Denied Boarding by the Largest U.S. Air Carriers

TABLE 1-65. Mishandled-Baggage Reports Filed by Passengers with the Largest U.S. Air Carriers

TABLE 1-66. Flight Operations Arriving On Time for the Largest U.S. Air Carriers

These numbers are based on data filed with the U.S. Department of Transportation on a monthly basis by the largest U.S. air carriers - those that have at least one percent of total domestic scheduled-service passenger revenues. Data cover nonstop scheduled service flights between points within the United States (including territories). The largest U.S. carriers account for more than 90 percent of domestic operating revenues. They include Alaska Airlines, America West Airlines, American Airlines, Continental Airlines, Delta Air Lines, Northwest Airlines, Trans World Airlines, Southwest Airlines, United Airlines, and US Airways. However, there are other carriers offering domestic scheduled passenger service that are not required to report. In some cases, major airlines sell tickets for flights that are actually operated by a smaller airline that is not subject to the reporting requirement.

TABLE 1-67. FAA-Cited Causes of Departure and En route Delays

The source of these data, the U.S. Department of Transportation (USDOT), Federal Aviation Administration (FAA), counts a flight as delayed if it departed or arrived more than 15 minutes after its scheduled gate departure and arrival times. FAA calculates delayed departures based on the difference between the time a pilot requests FAA clearance to taxi and the time an aircraft's wheels lift off the runway, minus the airport's standard unimpeded taxi-out time. Users should note that taxi-out time varies by airport due to differences in configurations. The cause of delay is also recorded, e.g., weather, terminal volume, closed runways, etc.

USDOT guidance defines departure as the time the aircraft parking brake is released and gate arrival as the time the brake is set. According to the USDOT's Office of the Inspector General (OIG), FAA's omission of part of a plane's ground movement compromises the data's validity. A recent OIG report noted that the FAA tracks ground time only after a pilot requests clearance and fails to track a plane's time in the ramp area. OIG found that ramp time comprised 28.7 percent to 40.5 percent of the average taxi-out time at the three major New York area airports (OIG Audit Report CR-2000-112), and would not be counted as an FAA delay.

Reliability

Several data collection changes complicate comparisons over time. For example, FAA modified its method for calculating volume-related delays that resulted in a 17 percent drop in such delays. Decreases in volume-related delays from 1998 to 1999 totaled less than one percent. Moreover, prior to 1999, USDOT did not provide a clear definition of what a departure was. An OIG Audit (CE-1999-054) report noted that air carriers used four different departure events: 1) rolling of aircraft wheels; 2) release of parking brake; 3) closure of passenger and/or cargo doors; and 4) a combination of door closures and release of the parking break. The same report also noted errors in the reporting of departure times by the air carriers.

Data are now manually entered in FAA's Operations Network (OSPNET) database, and reporting errors may arise and decrease reliability. The FAA monitors data quality assurance by spot checking the reported delay data and requesting that discrepancies be reviewed by the responsible facility. According to an OIG Audit (CR-2000-112), however, mistakes are not reliably corrected and many air traffic controllers suggested that delays are underreported sometimes by as much as 30 percent.

TABLE 1-68. Major U.S. Air Carrier Delays, Cancellations, and Diversions

A second data source for air-carrier delay is the USDOT, Bureau of Transportation Statistics, Office of Airline Information (OAI). This information originates from the Airline Service Quality Performance data. These figures are collected from the largest airlines-those that have at least one percent or more of total domestic scheduled service passenger revenues. Delays are categorized by phase of flight (i.e., gate-hold, taxi-out, airborne, or taxi-in delays). These data differ from FAA's OSPNET information due to differences in definition of delay.

While the FAA tracks delays on the taxiway, runway, and in the air, BTS tracks delays at the departure and arrival gates. OAI calculates delays as the difference between scheduled and actual gate departure. If a flight leaves the gate within 15 minutes of its scheduled time, then OAI would record it as departed on-time even if it sat for several hours on the ramp or runway, in which case the delay would be accounted for as a late arrival.

TABLE 1-69. Annual Person-Hours of Delay Per Auto Traveler

TABLE 1-70. Travel Time Index

TABLE 1-71. Annual Roadway Congestion Index

TABLE 1-72. Annual Congestion Index and Cost Values

The Texas Transportation Institute's (TTI) *Urban Roadway Congestion Annual Report* provided figures for tables 1-60through 62.TTI relies on data from the U.S. Department of Transportation, Federal Highway Administration, Highway Performance Monitoring System database (HPMS). TTI utilizes these data as inputs to its congestion estimation model. Detailed documentation for the TTI model and estimations can be found at this website http://mobility.tamu.edu.

Structure, Assumptions, and Parameters

Urban roadway congestion levels are estimated using a formula measuring traffic density. Average travel volume per lane on freeways and principal arterial streets are estimated using area wide estimates of vehicle-miles of travel (vmt) and lane miles of roadway. The resulting ratios are combined using the amount of travel on each portion of the system so that the combined index measures conditions on the freeway and principal arterial street systems. Values greater than one are indicative of undesirable congestion levels. Readers seeking the algorithm for the congestion index should examine this website http://mobility.tamu.edu.

Annual person-hours of delay results from the multiplication of daily vehicle-hours of incident and recurring delay times 250 working days per year times 1.25 persons per vehicle. Two types of costs are incurred due to congestion: time delay and fuel consumption. Delay costs are the product of passenger vehicle hours of delay times $12.85 per hour person time value times 1.25 occupants per vehicle. Fuel costs are calculated for passenger and commercial vehicles from the multiplication of peak period congestion speeds, the average fuel economy, fuel costs, and vehicle-hours of delay.

In previous reports, the TTI methodology assumed that 45 percent of all traffic, regardless of the urban location, occurred in congested conditions. TTI indicated that this assumption overestimated travel in congested periods. Thus, their 2002 estimates now vary by urban area anywhere from 18 percent to 50 percent of travel that occurs in congestion. TTI's model structure applies to two types of roads: freeways and principal arterial streets. The model derives estimates of vehicle traffic per lane and traffic speed for an entire urban area. Based on variation in these amounts, travel is then classified under 5 categories: uncongested, moderately congested, heavily congested, severely congested, and extremely congested (a new category in 1999). The threshold between uncongested and congested was changed in 2002. Previous editions classified congested travel when areawide traffic levels reached 14,000 vehicles per lane per day on highways and 5,500vehicles per lane per day on principal arterial streets. For the current edition, these values are 15,500 and 5,500 vehicles per lane per day, respectively. Previous years values have been re-estimated based on these new assumptions. Readers should refer to the TTI Internet site for more detailed algorithms and estimation procedures at http://mobility.tamu.edu.

TTI reviews and adjusts the data used in their models. State and local officials also review the TTI data and estimations. Some of the limitations acknowledged in the TTI report include the macroscopic character of the index. Thus, it does not account for local variations in travel patterns that may affect travel times. The index also does not

account for local improvements, such as ramp metering or travel speed advantages obtained with transit or carpool lanes.

TABLE 1-73. Amtrak On-Time Performance Trends and Hours of Delay by Cause

Amtrak determines on-time performance through its computer system maintained at the National Operations Center (NOPS) in Wilmington, Delaware. If a train is delayed, a call is made to the NOPS for recordkeeping. These data can be supplemented with computer entries made for locomotive or car malfunctions that cause delays. These data should be considered reliable.

Appendix E
Data Source and Accuracy Statements

Chapter 4 Energy and the Environment

PETROLEUM SUPPLY

TABLE 4-1. Overview of U.S. Petroleum Production, Imports, Exports, and Consumption

The petroleum supply system is extremely complicated, with many different processes, products, and entities involved. Briefly, crude oil is produced or imported, transported to refineries where it is refined into various products, and then transported to markets. Imports and exports of crude oil and products must be accounted for, as must be nonpetroleum components of final products, such as natural gas plant liquids and ethanol for gasoline blending.

The U.S. Department of Energy, Energy Information Administration (EIA) collects extensive data at select points in the petroleum supply system. Sixteen surveys are conducted by EIA's Petroleum Supply Reporting System to track the supply and disposition of crude oil, petroleum products, and natural gas plant liquids:

- five weekly surveys cover refineries (form EIA-800), bulk terminal stocks (form EIA-801), product pipelines (form EIA-802), crude stocks (form EIA-803), and imports (form EIA-804).
- eight monthly surveys cover the same five points plus tanker and barge movement (form EIA-817), gas processing facilities (form EIA-816), and oxygenates (form EIA-819M).
- one survey (form EIA-807) collects propane data on a monthly basis in the warmer months (April-September) and on a weekly basis in the colder months.
- one annual survey determines production capacity of oxygenates and fuel ethanol (form EIA-819A), and
- one annual survey determines refinery fuel use, capacity, and crude oil receipts by transportation mode (form EIA-820).

The five weekly surveys target key points in the petroleum supply system. They do not include all companies, but sample 90 percent of volume at each selected point in the supply system. EIA rank-orders the companies involved in the survey and sends surveys as it scrolls down the list, stopping when it reaches the 90 percent level. Although 100 percent coverage is sacrificed, this method keeps the level of incoming data manageable and avoids burdening the smallest companies. All data are reviewed and anomalies checked.

Monthly surveys provide data that are used in the monthly and annual reports. They are similar to the weekly surveys, but are more exhaustive in both the range of data collected and the depth of the collection. Sample sizes and response rates for several of the key points in the supply system are shown in table 1.The eight monthly surveys cover the industry more accurately than the weekly surveys and provide some double-check points that the other surveys do not. EIA expends considerable effort to ensure that its data are as accurate as possible. Revisions are made throughout the year. For example, *EIA's Annual Energy Review 1996*, released in July 1997, provided a preliminary 1996 number for total petroleum production of 8.30 million barrels per day (mmbd). The *Annual Energy Review 1997*, released a year later, revised that to 8.25 mmbd, and the 1999 Review reported 8.29 mmbd.

No complicated survey is likely to be 100 percent accurate. EIA lists four sources of potential systematic errors:

1. Some members of the target population are missed. EIA reports that it continually reviews the lists and searches industry periodicals and newspapers to identify new actors. Considering the nature of the petroleum industry, it is very unlikely that companies with significant production are not surveyed.
2. Some members of the target population do not respond. EIA reports a 97 percent response rate for monthly surveys. For some points in the supply system, the average response is over 99 percent. Survey respondents are required by law to respond, but some nonresponse is inevitable, especially among small companies. EIA assumes that the nonrespondent's value for that month is the same as for the previous month except for imports. Since imports vary widely, with respondents frequently having no imports, EIA assumes a nonresponse means zero imports. It can be assumed that EIA is good at "filling in the blanks."

Assuming for illustration purposes that 0.5 percent of production does not respond, and that EIA is 90 percent accurate in covering the gap, then there is a possibility of a 0.05 percent error. Applying that to total production of 8.29 mmbd in 1999 suggests that there could be an error of 0.0041 mmbd (4,100 barrels per day), which would not affect the published number.

3. The most serious problem may be response error. A company may have poor data, perhaps as a result of imperfect measurements, or it may transmit the wrong number. EIA has no control over a company's data quality. Companies have incentive to measure their inputs and products accurately. Otherwise, they may be cheating themselves or risking ill will with their customers or suppliers. However, no instrumentation is perfectly accurate. The high throughput of, say, a refinery with capacity of several hundred thousand barrels per day, with a variety of products changing density and some lost or used on site, is very complicated to measure. Instrumentation errors are likely to be systematic at any one site, although they will be more nearly random in the aggregate for all facilities. There is potential for small but significant overall errors. Mistakes may be made in recording and transferring the data. EIA reviews the data and flags gross errors or missing data for review by the respondent. However, not all errors will be picked up by EIA and/or the respondent. Overall, response errors probably are several times as large as nonresponse errors, but it is beyond the scope of this profile to estimate them.
4. The final potential source of systematic error is in the clarity of the survey form, i.e., whether all respondents interpret it correctly. No doubt errors and ambiguities can creep into a form, but at least for petroleum supply, that does not appear to be a major risk. The supply system is not changing rapidly, and EIA should be able to keep with it and the terminology. However the final digit of EIA's published supply data is questionable.

For additional information on survey methodology and statistical reliability, the reader is referred to the EIA reference cited in the tables or the EIA Internet site at www.eia.doe.gov.

FUEL AND ENERGY CONSUMPTION

TABLE 4-1. Overview of U.S. Petroleum Production, Imports, Exports, and Consumption

TABLE 4-2. U.S. Consumption of Energy from Primary Sources by Sector

TABLE 4-3. Domestic Demand for Refined Petroleum Products by Sector

TABLE 4-4. U.S. Energy Consumption by the Transportation Sector

TABLE 4-7. Domestic Demand for Gasoline

Petroleum consumption is far more complex to measure than supply. Instead of a few hundred companies at most measuring points in the supply system, there are tens of millions of consumers. It would be impossible for any survey of individual consumers to produce the high rate of return of U.S. Department of Energy (DOE), Energy Information Administration's (EIA's) supply surveys. EIA's transportation data collection is further limited by the termination of the Residential Transportation Energy Consumption Survey (RTECS). Therefore, EIA uses surveys of sales of products (e.g., Form EIA-821:Annual Fuel Oil and Kerosene Sales Report) or tax collection data from the U.S. Department of Transportation, Federal Highway Administration (FHWA).

EIA reviewed the accuracy of its energy consumption data in a 1990 monograph *Energy Consumption by End-Use Sector, a Comparison of Measures by Consumption and Supply Surveys*. Unfortunately, this monograph does not discuss the transportation sector because the consumption and supply surveys were not comparable. However, some of the results from other sectors indicate the discrepancies between supply and consumption surveys. Table 4-2 shows the ratio of fuel supplied to the sector to consumption reported by the sector in consumption surveys.

In most cases, supply is reported as substantially larger than consumption. Supplies of fuel oil to the commercial sector are reported at almost twice the level of consumption reported by that sector. Some of the discrepancies may be due to definition differences (e.g., fuel oil for apartment buildings is included in commercial supply surveys but not in consumption surveys.) Overall, however, the differences are too large for great confidence in the accuracy of the data.

If transportation had been reviewed in the same format, it is likely that the discrepancies would have been larger. Most transportation fuel (gasoline for automobiles) is purchased in small quantities at irregular intervals and cannot be checked simply by looking at a utility bill. Hence, highway transportation energy consumption surveys must be extensive to avoid the risk of large uncertainties in the data. But, with the termination of the RTECS, EIA ceased conducting such surveys. Consumption data must be derived indirectly from sales of petroleum products and tax collection data. While petroleum supply may be accurate to one decimal place, it is likely that disaggregating by sector use may be within plus or minus several percentage points, or perhaps about half a quadrillion British thermal unit (Btu) in table 4-1.

Motor Gasoline

Almost all gasoline is consumed in the transportation sector. Small amounts are used in the commercial sector for nonhighway use and the industrial sector, which includes agriculture, construction, and other uses. Subtracting estimates of those uses from the known total sales yields the transportation sector's total, which is further subdivided into highway and marine use. Aviation gasoline is, of course, used entirely in the transportation sector (for a very few high-performance automobiles as well as small aircraft).

Data on actual sales is collected by the states for revenue purposes. These data are forwarded to FHWA. EIA uses the data from FHWA to allocate highway consumption of motor gasoline among the states. For 1999, FHWA reported 124.7 billion gallons of gasoline sold nationally for highway use. EIA's table 5.12c of the *Annual Energy Review 2000* lists 8.33 mmbd of gasoline supplied for the transportation sector, the same as 127.7 billion gallons.

Such close agreement between supply and demand is not totally convincing. Definitions are unique to each state (e.g., whether gasohol is counted as pure gasoline or part gasoline and part renewables), measurement points vary from state to state, and each state handles losses differently. Hence, the total of all states' sales of gasoline is not entirely consistent.

Separation of highway from nonhighway uses of gasoline is, by necessity, based in part on careful estimates. Nevertheless, overall gasoline sales are well documented, and the separation is probably fairly accurate. Refinery output of motor gasoline was 7.93 mmbd in 1999, which is probably accurate to the first decimal place and maybe a little better. The transportation sector's 8.33 mmbd would have about the same accuracy.

Diesel Fuel

Diesel fuel is used in highway vehicles, railroads, boats, and military vehicles. Sales are only about 30 percent of gasoline in the transportation sector, but uncertainties are greater. More diesel than gasoline is used for nonhighway purposes, especially agriculture and construction. In addition, there has been more potential for cheating to avoid the tax; heating oil is virtually the same as diesel fuel and can easily be transferred to a vehicle. However, this is less significant now that tracers have been added to fuel oil. After the addition of tracers, the amount of transportation diesel fuel use jumped.

To estimate diesel fuel sales by mode, EIA starts with the total supply of distillate fuel and subtracts the small amount sold to electric utilities (the most accurately known sector, as measured by EIA Form EIA-759). The remainder is divided among the other end-use sectors according to EIA's sales surveys (Form EIA-821: Annual Fuel Oil and Kerosene Sales Report, and Form EIA-863: Petroleum Product Sales Identification Survey).

This method introduces several potential elements of inaccuracy. First, the surveys of each sector are probably less accurate than the supply surveys noted earlier. Companies and individuals may inadvertently send incorrect data, or not respond at all. Then EIA has to determine what adjustment factor to use for each end-use sector. Since each sector will have a different response rate to the surveys, the adjustments will be different. Large adjustments can introduce large errors. EIA has not published its adjustments for the transportation sector. As shown in table 2, the adjustments in other sectors range from 5 to 96 percent of reported consumption. Even a 20 percent adjustment could introduce an error of one or two percentage points (plus or minus) for any one sector.

Overall, the accuracy of diesel fuel use in the transportation sector should be viewed with some skepticism.

Jet Fuel

Jet fuel is the only other petroleum-based fuel that is used in large quantities (over 1 million barrels/day) in the transportation sector. Virtually all of it is used by airlines. These data are accurate because airlines are required to report usage, and because there are relatively few certificated air carriers, data collection should be manageable.

NONPETROLEUM FUELS CONSUMPTION

TABLE 4-10. Estimated Consumption of Alternative and Replacement Fuels for Highway Vehicles

Collectively, oxygenates, natural gas, electricity, and various alternative fuels amount to only about 3 percent of all energy used in the transportation sector. While this may not be much greater than the error bars associated with petroleum use, it is important to track changes in these fuels accurately.

Oxygenates

Oxygenates, mostly methyl tributyl ether (MTBE), which is derived from natural gas and ethanol, are part of mainstream gasoline supply. They are measured routinely with petroleum supply (forms EIA-819A and 819M). Consumption is estimated from production, net imports, and stock changes. Refineries and other entities are required to report data on oxygenates, and EIA also monitors production capability to provide a crosscheck. Thus, oxygenates data are likely to be reasonably accurate.

Natural Gas

Natural gas is used in the transportation sector mainly as the fuel for compressor stations on natural gas transmission lines. A small but growing amount is used in compressed or liquefied form in vehicles. EIA collects data on natural gas much as it does for petroleum, but the system is much simpler. Natural gas transmission companies may not know exactly how much gas is used in compressor stations, but they have a good idea based on the size of the equipment and the load on the line. The reported numbers probably are reasonably accurate. Data on natural gas-fueled vehicles are collected by DOE via Form-886, which is sent to fuel suppliers, vehicle manufacturers, and consumers. In addition, private associations and newsletters are important sources of information on alternative vehicles and alternative fuels use. Since most groups work cooperatively with DOE, it is likely that the data reported are accurate. EIA tracks the number of natural gas vehicles and the number of refueling stations to provide a cross check on estimates of natural gas consumption.

Electricity

Electricity powers intercity trains (Amtrak) and intracity rail systems. In addition, the number of electric vehicles is growing. There is considerable uncertainty over the energy consumed by these modes. Amtrak no longer provides national totals of its electricity consumption. Data on intracity transit is based on U.S. Department of Transportation, Federal Transit Administration's (FTA's) National Transit Database (NTD). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including energy use. Although the data is generally considered accurate because FTA reviews and validates information submitted, reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data.

If electric vehicles become important over the next decade or two, dedicated charging stations may become commonplace, which could provide accurate data. Fleet owners (e.g., electric utilities) can keep accurate records, but individuals who plug their vehicles in at home may not. Electricity use must be estimated from the number of such vehicles and the expected driving cycles. Hence, data on electric power for transportation must be viewed as an estimate.

It should also be noted that electricity is a form of work that usually is generated from heat with the loss of about two-thirds of the energy. Automobile engines are equivalent to electric generators in that they convert chemical energy to heat and then to work, losing most of the energy as waste heat. When electrical energy is compared to petroleum in transportation, the waste heat must be included for consistency. A kilowatt-hour of electricity is equivalent to 3,413 British thermal units (Btu), but about 10,000 Btu of heat are required to produce it. This factor is dropping as generators become more efficient. High efficiency gas turbines may require 8,000 Btu or less, but the average is much higher. It is usually impossible to tell where the power for a specific use is generated, so average figures for a region are used to estimate the waste energy, a factor that further reduces the accuracy of the data.

Alternative Fuels

In addition to oxygenates, natural gas, and electricity, alternative fuels include ethanol and methanol. EIA tracks the numbers of such vehicles through Form-886, state energy offices, federal demonstration programs, manufacturers, and private associations. These numbers probably are fairly accurate although it is difficult to monitor retirements. Fuel consumption is estimated from the types of vehicles in operation, vehicle miles traveled, and expected fuel efficiency. Adjustments are necessary for the relatively few flexible-fuel vehicles. Obviously, the reported data are estimates only.

FUEL AND ENERGY CONSUMPTION BY MODE

TABLE 4-5. Fuel Consumption by Mode of Transportation

TABLE 4-6. Energy Consumption by Mode of Transportation

TABLE 4-8. Certificated Air Carrier Fuel Consumption and Travel

TABLE 4-9. Motor Vehicle Fuel Consumption and Travel

TABLE 4-11. Passenger Car and Motorcycle Fuel Consumption and Travel

TABLE 4-12. Other 2-Axle 4-Tire Vehicle Fuel Consumption and Travel

TABLE 4-13. Single-Unit 2-Axle 6-Tire or More Truck Fuel Consumption and Travel

TABLE 4-14. Combination Truck Fuel Consumption and Travel

TABLE 4-15. Bus Fuel Consumption and Travel

Fuel consumption data are collected quite differently than supply data collected by the U.S. Department of Energy, Energy Information Administration (EIA). Highway fuel consumption, for example, is based on U.S. Department of Transportation, Federal Highway Administration (FHWA) data collected from states in the course of revenue collection. EIA starts from the fuel delivered to transportation entities.

Highway

Highway fuel data (tables 4-5, 4-9, and 4-11 through 4-15) are collected mainly by FHWA. All states plus the District of Columbia report total fuel sold along with travel by highway category and vehicle registration. Data typically flows from state revenue offices to the state departments of transportation to FHWA. Even if reporting is reasonably accurate, some data are always anomalous or missing and must be modified to fit expected patterns. In addition, as discussed earlier, there are some significant differences in methodology and definitions among the states. In particular, states differ in where the tax is applied in the fuel supply system, how gasohol is counted, how nonhighway use is treated, and how losses are handled.

Nonhighway use of gasoline and diesel fuel is a particularly large source of potential error. Some states designate nonhighway users as tax-exempt, others make the tax refundable. In either case, many people won't bother to apply if the amount of money is small. Nonhighway use of diesel fuel is especially large because many construction and agricultural vehicles are diesel powered. Thus, the fraction of petroleum attributed to transportation could be overestimated. On the other hand, some nonhighway fuel finds its way into the transportation system because heating oil can be used as diesel fuel, evading the tax. Tracers are now added to heating oil, which appears to have reduced the level of such tax evasion-if found in a truck's fuel tank, the tracer indicates diversion from a nontaxed source.

Breaking fuel use down by class of motor vehicle introduces the potential for error. FHWA must estimate the miles each class is driven and the fuel economy. Estimation of miles is based on the 1995 Nationwide Personal Transportation Survey (NPTS), administered by FHWA, and the Vehicle Inventory and Use Survey (formerly known

as the Truck Inventory and Use Survey) conducted by the U.S. Census Bureau. For information about these two surveys, the reader is referred to the technical appendix of *Our Nation's Travel*, available from the FHWA, Office of Highway Information Management; and the 1997 Census of Transportation, available from the Economics and Statistics Administration within the Census Bureau. Fuel economy is based on state-supplied data, TIUS, and the National Highway Traffic Safety Administration data on new car fuel economy, which must be reduced by about 15 percent to reflect actual experience on the road. Overall, both vehicle-miles of travel and fuel economy are estimates.

Fuel consumption by buses is particularly uncertain. FHWA collects data on intercity buses, and the American Public Transit Association (APTA) covers local travel. Very little data are collected on school buses. APTA figures are based on data from the USDOT, Federal Transit Administration's (FTA's) National Transit Database, which covers about 90 to 95 percent of total passenger-miles. These data are generally accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA conservatively adjusts the FTA data to include transit operators that do not report to FTA, such as private and very small operators and rural operators. Prior to 1984, APTA did not include most rural and demand responsive systems.

Air

The U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information (OAI) is the source of these data. The numbers are based on 100-percent reporting of fuel use by large certificated air carriers (those with revenues of more than $100 million annually) via Form 41.The data are probably reasonably accurate because the airlines report fuel use regularly, and the limited number of airlines aids data management.

Smaller airlines, such as medium size regional and commuter air carriers, are not required to report energy data. OAI estimates that about 8 percent would have to be added to the total of the larger airlines to account for this use, but that has not been done in table 4-5 or 4-8.

General aviation aircraft and air taxis are covered in the General Aviation and Air Taxi and Avionics Survey, conducted by the Federal Aviation Administration (FAA). The survey is conducted annually and encompasses a stratified, systematic design from a random start to generate a sample of all general aviation aircraft in the United States. It is based on the FAA registry as the sampling frame. For instance, in 2000, a sample of 31,039 aircraft was identified and surveyed from an approximate population of 256,927 registered general aviation aircraft.

The reliability of the GAATA survey can be impacted by two factors: sampling and nonsampling error. A measure, called the standard error, is used to indicate the magnitude of sampling error. Standard errors can be converted for comparability by dividing the standard error by the estimate (derived from the sample survey results) and multiplying it by 100. This quantity, referred to as the percent standard error, totaled two and four-tenths of a percent in 2000 for the general aviation fleet. A large standard error relative to an estimate indicates lack of precision, and inversely, a small standard error indicates precision.

Nonsampling errors could include nonresponse, a respondent's inability or unwillingness to provide correct information, differences in interpretation of questions, and data entry mistakes. The reliability of general aviation fleet data comparisons over time would decrease because of changes implemented in 1978 and sampling errors discussed above. Readers should note that nonresponse bias may be a component of reliability errors in the data from 1980 to 1990. The FAA conducted telephone surveys of nonrespondents in 1977, 1978, and 1979 and found no significant differences or inconsistencies between respondent and nonrespondent replies. The FAA discontinued the telephone survey of nonrespondents in 1980 to save costs. Nonresponse surveys were resumed in 1990; and the FAA found notable differences and make adjustments to its data to reflect nonresponse bias.

The U.S. Government, in particular the Department of Defense (DOD), uses a large amount of jet fuel as shown in table4-19 (see discussion on government consumption below). However, DOD reports all fuel purchased, including from foreign sources for operations abroad. While the data may be accurate, it is not comparable to EIA's overall U.S. supply and consumption figures on jet fuel.

International operations are included in table 4-8 but not table 4-5. The fuel use for international operations includes that purchased by U.S. airlines for return trips. OAI does not collect data on foreign airline purchases of fuel in the United States. Thus, a significant use of U.S. jet fuel is missed. However, these two factors approximately balance each other out. As shown in table 1-34,foreign carrier traffic is just slightly less than U.S. carrier international traffic, so presumably the fuel purchased here by foreign carriers is very close to the fuel purchased abroad by U.S. carriers.

Rail

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR figures are based on 100 percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. Thus, the data are considered accurate. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2001, the adjusted threshold for Class I railroads was $266.7 million. Although Class I railroads represent only 1 percent of the number of railroads in the country, they account for over 70 percent of the industry's mileage operated and more than 90 percent of all freight revenue; energy consumption should be of the same order. For passenger travel, information is unavailable. Amtrak no longer provides data on a national basis, and the regional data appears to be inconsistent.

Transit

The APTA figures are based on information in FTA's National Transit Database. APTA conservatively adjusts FTA data to include transit operators that do not report to the FTA Database (private and very small operators and rural operators), which accounts for about 90 to 95 percent of the total passenger-miles. The data are generally accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or misinterpret certain data definitions in federal guidelines.

Water

The EIA collects data on residual and distillate fuel oils and diesel through its *Annual Fuel Oil and Kerosene Sales Report* survey, form EIA-821.The survey targets companies that sell fuel oil and kerosene to end users. This survey commenced in 1984 and data from previous years should be used with caution.

Sampling Frame and Design

The sample's target universe includes all companies that sell fuel oil and kerosene to end users. EIA derives the sampling frame from the EIA-863 database containing identity information for approximately 22,300 fuel oil and kerosene sellers. EIA stratifies the sampling frame into two categories: companies selected with certainty and uncertainty. Those in the certainty category varied but included the end use "vessel bunkering," or sales for the fueling of commercial and private watercraft.

Sampling Error, Imputation, and Estimates

EIA reported a 92.5 percent response rate for the 2000 survey. The EIA also provides estimates of the sampling error for geographic areas and U.S. averages are 1.8 for residential distillate fuel oil, 0.8 for nonresidential retail distillate fuel oil, and 0.1 for retail residual fuel oil. Some firms inevitably ignore survey requests, causing data gaps. EIA estimates the volumes of these firm's sales by imputation; more detailed information and the algorithm can be obtained at EIA's web site in the technical notes for the Annual Fuel Oil and Kerosene Sales Report. See http://www.eia.doe.gov/oil gas/petroleum/data publications/fuel oil and kerosene sales/foks.html.

TABLE 4-19. U.S. Government Energy Consumption by Agency and Source

Energy consumption data are collected by DOE's Office of Federal Energy Management Programs in cooperation with most departments and agencies. DOD is by far the largest consumer, accounting for about 80 percent of the total. As discussed above, the data includes fuel purchased abroad for military bases. Since government agencies are required to report these data, they are probably accurate. However, it is possible that some consumption is missed. For example, some agencies may report only fuel supplied directly, missing consumption such as gasoline purchased by employees while on government business for which they are then reimbursed. In addition, smaller agencies were neglected. Overall, however, the data should provide a fairly good approximation of government energy consumption.

ENERGY EFFICIENCY

TABLE 4-20. Energy Intensity of Passenger Modes

TABLE 4-21. Energy Intensity of Certificated Air Carriers, All Services

TABLE 4-22. Energy Intensity of Passenger Cars, Other 2-Axle 4-Tire Vehicles, and Motorcycles

TABLE 4-24. Energy Intensity of Transit Motor Buses

TABLE 4-25. Energy Intensity of Class I Railroad Freight Service

TABLE 4-26. Energy Intensity of Amtrak Service

TABLE 4-27. Energy Intensity of Amtrak Service (Loss-adjusted conversion factors)

Total energy consumed for each mode can be estimated with reasonable accuracy. Miles traveled are known for some modes, such as air carriers, but less accurately for others, most notably automobiles. When the numbers of passengers or tons are required to calculate energy efficiency, another uncertainty is introduced. Again, air carriers and intercity buses know how many passengers are on board and how far they travel, but only estimates are available for automobiles and intracity buses.

Thus, table 4-21 should be quite accurate for certificated air carriers, though it is missing small airlines and private aircraft. Table 4-22 is based on FHWA fuel tax data, derived from state fuel tax revenues. VMT is as discussed for tables 1-9 and 1-10.Data for motorcycles must be adjusted significantly more than for automobiles because less information is collected from the states or from surveys. Transit bus data (table 4-24) are very uncertain because, unlike intercity buses, the distance each passenger travels is not measured by ticket sales.

The intermodal comparison of passenger travel in table 4-20 must be viewed with considerable caution. Data for the different modes are collected in different ways, and the preparation of the final results is based on different assumptions. As noted above, airlines accurately record passenger miles, but the data on occupancy of private automobiles must be estimated from surveys. Even relatively certain data, such as state sales of gasoline, must be modified to resolve anomalies, and transit data are even harder to make consistent. Furthermore, different groups collect the data for the various modes, and they have different needs, assumptions, and methodologies. Thus, the comparisons are only approximate.

Freight service data (table 4-25) are from *Railroad Facts*, published annually by the Association of American Railroads (AAR).AAR figures are based on 100 percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Although Class I railroads comprise only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage and 91 percent of all freight revenue; energy data should be of the same order.

TABLE 4-28. Annual Wasted Fuel Due to Congestion

TABLE 4-29. Wasted Fuel per Eligible Driver

The Texas Transportation Institute's (TTI) *Urban Roadway Congestion Annual Report* provided figures for tables 4-27 and 4-28. TTI relies on data from the U.S. Department of Transportation, Federal Highway Administration, Highway Performance Monitoring System database (HPMS). (See box 1-1 for detailed information about the HPMS.) TTI utilizes these data as inputs for its congestion estimation model. Detailed documentation for the TTI model and estimations can be found at http://mobility.tamu.edu/.

The sum of fuel wasted in typical congestion (recurring delay) and incident related delays equal the annual wasted fuel for an urban area. Recurring delay is the product of recurring delay (annual hours in moderate, heavy, and severe delays) and average peak period system speed divided by average fuel economy. Incident delay hours are

multiplied by the average peak period system speed and divided by the average fuel economy to produce the amount of incident fuel wasted.

Structure, Assumptions, and Parameters

Urban roadway congestion levels are estimated using a formula measuring traffic density. Average daily travel volume per lane on freeways and principal arterial streets are estimated using area wide estimates of vehicle-miles of travel and lane miles of roadway. The resulting ratios are combined using the amount of travel on each portion of the system (freeway and principal arterials) so that the combined index measures conditions overall. This variable weighting factor allows comparisons between areas such as Phoenix-where principal arterial streets carry 50 percent of the amount of travel of freeways-and cities such as Phoenix where the ratio is reversed. Values greater than one are indicative of undesirable congestion levels. Readers seeking the algorithm for the congestion index should examine http://mobility.tamu.edu/.

In previous reports, TTI assumed that 45 percent of all traffic, regardless of the urban location, occurred in congested conditions. TTI indicated that this presumption overestimated travel in congested periods. Its 2002 estimates now vary by urban area anywhere from 18 to 50 percent of travel that occurs in congestion. TTI's model structure applies to two types of roads: freeways and principal arterial streets. The model derives estimates of vehicle traffic per lane and traffic speed for an entire urban area. Based on variation in these amounts, travel is then classified under 5 categories: uncongested, moderately congested, heavily congested, severely congested, and extremely congested (a new category in 1999). The threshold between uncongested and congested was changed in 1999. Previous editions classified congested travel when area wide traffic levels reached 14,000 vehicles per lane per day on highways and 5,500 vehicles per lane per day on principal arterial streets. For the current edition these values are 15,500 and 5,500 vehicles per lane per day respectively. Previous years values have been re-estimated based on these new assumptions. Readers should refer to the TTI website for more detailed information on its estimation procedures http://mobility.tamu.edu/.

TTI reviews and adjusts the data used in its model, including statewide average fuel cost estimates (published by the American Automobile Association) and the number of eligible drivers for each urban area (taken from the Statistical Abstract of the United States, published by the U.S. Department of Commerce, Bureau of the Census).The model has some limitations because it does not include local variations (such as bottlenecks, local travel patterns, or transportation improvements) that affect travel times. TTI documentation does not provide information on peer-review, sensitivity analysis, or estimation errors for their model. Information about sensitivity analysis or external reviews of the model could not be obtained and users should interpret the data cautiously.

ENVIRONMENT

TABLE 4-43. Estimated National Average Vehicle Emissions Rates by Vehicle Type and Fuel

TABLE 4-44. National Average Vehicle Emissions Rates by Vehicle Type Using Reformulated Gasoline

The U.S. Environmental Protection Agency uses its Mobile Source Emissions Factor Model (MOBILE) to generate average emissions factors for each vehicle and fuel type. The methods used in the model are theoretically sound, the assumptions are reasonable, but the data vary in quality, and no formal analysis of the accuracy of these estimates has been performed. Emissions rate estimates for light-duty vehicles are considered more reliable than those for heavy-duty vehicles because in-use emissions tests are performed on a sample of vehicles each year. Deterioration for heavy-duty vehicles in the national fleet are based only on manufacturer's engine deterioration tests. In addition, because reformulated fuels (table 4-39) are newer than other gasoline fuels (table 4-38), in use emissions test data for reformulated fuels are not as extensive.

The estimates in the tables represent average emissions rates taking into account the characteristics of the nation's fleet, including vehicle type and age, and fuel used. The model also assumes Federal Test Procedure conditions. The model does not take into account actual travel distributions across different highway types with their associated average speeds and operating mode fractions, nor do they consider ambient local temperatures. However, fleet composition and deterioration because of age are considered. Thus, these rates illustrate only trends due to vehicle emissions control improvements and their increasing use in the national fleet and should not be used for other purposes.

TABLES 4-45, 4-46, 4-47, 4-48, 4-49, 4-50. Estimates of National Emissions of Carbon Monoxide, Nitrogen Oxides, Volatile Organic Compounds, Particular Matter, Sulfur Dioxide

Emissions by sector and source are estimated using various models and calculation techniques and are based on a number of assumptions and on data that vary in precision and reliability. The methods used are theoretically sound, the assumptions are reasonable, but the data vary in quality, and no formal analysis of the accuracy of these estimates has been performed.

Carbon Monoxide (CO), Nitrogen Oxides (NOx), and Volatile Organic Compounds (VOCs)

Highway vehicle emissions of CO, NOx, and VOC are generated by the U.S. Environmental Protection Agency's (EPA's) Mobile Source Emissions Factor Model (MOBILE), which uses per-mile vehicle emissions factors and vehicle travel (vehicle-miles) to calculate county-level emissions. Emissions rates are then adjusted based on fuel characteristics, vehicle fleet composition, emissions control measures, average vehicle speed, and other factors that can affect emissions. (Emissions rates used in MOBILE are based on vehicle certification tests, emissions standards, and in-use vehicle tests and are updated approximately every three years.) The U.S. Department of Transportation, Federal Highway Administration's Highway Performance Monitoring System is the source of vehicle travel estimates used in the model. Although the methodology for this survey data is sound and well documented, analyses have shown that individual states vary in how rigorously they follow the established sampling guidelines.

The non-highway vehicle emissions are calculated annually by running EPA's NONROAD model for all categories except aircraft, commercial marine vessels, and railroads, which are calculated via emission factors and relevant activity data. Inputs to the NONROAD model include average temperatures, Reid vapor pressure, fuel usage programs and controls.

Particulate Matter Under 10 Microns (PM-10) and 2.5 Microns (PM-2.5) in Size

Highway vehicle emissions are estimated using the U.S. Environments Protection Agency's PART model, which estimates emissions factors for exhaust emissions and brake and tire wear by vehicle type. Exhaust emissions factors are based on certification tests, while brake wear (per vehicle) and tire wear (per tire) are assumed values, which are constant over all years. Per-mile emissions factors are multiplied by vehicle travel (vehicle-miles) and adjusted to account for other factors that effect exhaust emissions (e.g., fuel composition, weather, etc.). The U.S. Department of Transportation, Federal Highway Administration's Highway Performance Monitoring System is the source of vehicle-miles of travel (VMT) estimates used in the model. While the methodology for this survey data is sound and well documented, analyses have shown that individual states vary in how rigorously they follow the established sampling guidelines.

Fugitive dust estimates for paved and unpaved roads are calculated by multiplying VMT on each type of road by emissions factors for each vehicle type and road type.

The non-highway vehicle emissions are calculated annually by running EPA's NONROAD model for all categories except aircraft, commercial marine vessels, and railroads, which are calculated via emission factors and relevant activity data. Inputs to the NONROAD model include average temperatures, Reid vapor pressure, fuel usage programs and controls.

Sulfur Dioxide (SO2)

Highway vehicle SO2 emissions are estimated by multiplying vehicle travel (for each vehicle type and highway type) by an emissions factor reflecting each vehicle type and highway type. Highway SO2 emissions factors are based on vehicle type and model year, sulfur content of fuel by type and year, fuel density by fuel type, and vehicle fuel efficiency by type and model year.

In general, estimates for non-highway vehicles are calculated based on fuel consumption and sulfur content of fuel, though other factors may be considered.

Lead

In general, lead emissions are estimated by multiplying an activity level by an emissions factor that represents the rate at which lead is emitted for the given source category. This estimate is then adjusted by a factor that represents the assumed effectiveness of control technologies. For lead released during combustion, a top-down approach is used to share national estimates of fuel consumption by fuel type to each consumption category (e.g., motor fuel, electric utility, etc.) and, subsequently, each source (e.g., passenger cars, light-duty trucks, etc.).

TABLE 4-51. Air Pollution Trends in Selected Metropolitan Statistical Areas (MSAs)

TABLE 4-52. Areas in Nonattainment of National Ambient Air Quality Standards for Criteria Pollutants

The U.S. Environmental Protection Agency measures concentrations of pollutants in the ambient air at its air quality monitoring sites, which are operated by state and local agencies. These sites conform to uniform criteria for monitor siting, instrumentation, and quality assurance, and each site is weighted equally in calculating the composite average trend statistics. Furthermore, trend sites must have complete data for 8 of the 10 years in the trend time period to be included. However, monitoring devices are placed in areas most likely to observe significant concentrations of air pollutants rather than a random sampling of sites throughout the nation.

TABLE 4-53. U.S. Carbon Dioxide Emissions from Energy Use by Sector

The combustion of fossil fuels, such as coal, petroleum, and natural gas, is the principal anthropogenic (human caused) source of carbon dioxide (CO2) emissions. Since fossil fuels are typically 75 percent to 90 percent carbon by weight, emissions from the combustion of these fuels can be easily measured in carbon units, as is shown in the table.

CO2 emissions data are derived from estimates. The U.S. Department of Energy, Energy Information Administration (EIA), estimates CO2emissions by multiplying energy consumption for each fuel type by its carbon emissions coefficient, then subtracting carbon that is sequestered by nonfuel use of fossil fuels. Carbon emissions coefficients are values used for scaling emissions to specific activities (e.g., pounds of CO2emitted per barrel of oil consumed).

Emissions estimates are based on energy consumption data collected and published by EIA Several small adjustments are made to its energy consumption data to eliminate double counting or miscounting of emissions. For example, EIA subtracts the carbon in ethanol from transportation gasoline consumption because of its biological origin.

Emissions coefficients are based on the density, carbon content, and heat content of petroleum products. For many fuels, except liquefied petroleum gas (LPG), jet fuel, and crude oil, EIA assumed coefficients to be constant over time. For LPG, jet fuel, and crude oil, EIA annualized carbon emissions coefficients to reflect changes in chemical composition or product mix.

Since the combustion of fossil fuels is a major producer of CO2emissions, sources of uncertainty are related to: 1) volumes of fuel consumed; 2) characteristics of fuel consumed; 3) emissions coefficients; and 4) coverage. EIA notes that volumetric fuel data are fairly reliable in the 3 percent to 5 percent range of uncertainty. The density and energy content of fuels are usually estimated. According to EIA, the reliability of these estimates vary. For example, estimates of the energy content of natural gas are reliable to 0.5 percent, while estimates for coal and petroleum products are lower because they are more heterogeneous fuels. The reliability of emissions coefficients depends on whether the characteristics of a fuel are difficult to measure accurately. Finally, uncertainties may result because data may be excluded or unknown sources of emissions not included.

EIA's estimation methods, emissions coefficients, and the reliability of emissions estimates are discussed in detail in U.S. Department of Energy, Energy Information Administration, *Emissions of Greenhouse Gases in the United States*, 1998 available on: www.eia.doe.gov/oiaf/1605/ggrpt/index.html.

TABLE 4-54. Petroleum Oil Spills Impacting U.S. Waterways

The U. S. Coast Guard's (USCG) Marine Safety Information System (MSIS) is the source of these data. It includes data on all oil spills impacting U.S. navigable waters and the Coastal Zone. The USCG learns of spills through direct observation, reports from responsible parties and third parties. Responsible parties are required by law to report spills to the National Response Center (NRC).Reports may be made to the USCG or Environmental Protection Agency pre-

designated On Scene Coordinator for the geographic area where the discharge occurs if direct reporting to the NRC is not practicable. There is no standard format for these reports, but responsible personnel face significant penalties for failing to do so. Most reports are made by telephone, and USCG personnel complete investigations based on the information provided. The type and extent of an investigation conducted varies depending on the type and quantity of the material spilled. Each investigation will determine as closely as possible source of the pollutant, the quantity of the material spilled, the cause of the accident, as well as whether there is evidence that any failure of material (either physical or design) was involved or contributed to the incident. These are so financial responsibility may be properly assigned for the incidents, as well as proper recommendations for the prevention of the recurrence of similar incidents may be made.

Some spills may not be entered into MSIS because they are either not reported to or discovered by the USCG. The probability of a spill not being reported is inversely proportional to its size. Large spills impact a large area and a large number of people, resulting in numerous reports of such spills. Small spills are less likely to be reported, particularly if they occur at night or in remote areas where persons other than the responsible party are unlikely to detect them. Responsible parties are required by law to report spills and face penalties for failing to do so, providing a strong incentive to report spills that might be detected by others. Experience with harbor patrols shows that the number of spills increases as the frequency of patrols increases. However, the volume of material spilled does not increase significantly, indicating that the spills discovered through increased harbor patrols generally involved very small quantities.

Data Collection

From 1973 to 1985, data were collected on forms completed by the investigator and later entered into the Pollution Incident Reporting System (PIRS) by data entry clerks at USCG headquarters. Since 1985, data have been entered directly into MSIS by the investigator. From 1985 to 1991, data were entered into a specific electronic form that captured information on the spilled substance and pollution response actions. Since 1995, a growing number of reports of pollution incidents of 100 gallons or less of oil have been captured on a Notice of Violation ticket form, which are then entered into MSIS.

The information shown in this table comes from the USCG Spill Compendium, which contains spill data from the applications described above. The Compendium contains summary data from 1969 through 2000 and is intended to provide general information to the public, the maritime industry and other interested persons about spills in and around U.S. waterways. For more information about spill data, please refer to the USCG Internet site at http://www.uscg.mil/hq/g-m/nmc/response/stats/aa.htm

Nonsampling Errors

According to the USCG, nonsampling errors, such as nonreporting and mistakes made in data collection and entry, should not have a major impact on most interpretations of the data, but the impact will vary depending on the data used. The error rate for volume spilled is estimated to be less than 5 percent because larger spills, which account for most of the volume of oil spilled, are thoroughly reviewed at several levels. The error rate for the number of spills is difficult to estimate primarily due to low reporting rates for small spills. Most of the error in spill counts involves spills of less than 100 gallons.

TABLE 4-55. Leaking Underground Storage Tank Releases and Cleanups

A national inventory of reported spills and corrective actions taken for leaking underground storage tanks is compiled biannually based on state counts of leaking tanks reported by owners as required by the Resource Conservation and Recovery Act of 1976.[1] These data may be affected by general accounting errors, some of which have changed semiannual counts by as many as 2,000 actions.

TABLE 4-56. Highway Noise Barrier Construction

State highway agencies (SHAs) provide data on highway noise barrier construction, extent, and costs to the U.S. Department of Transportation, Federal Highway Administration. Individual SHA definitions of barriers and costs may differ. This could lead to nonuniformity and/or anomalies among state data, which will in turn affect national totals.

TABLE 4-57. Number of People Residing in High-Noise Areas Around U.S. Airports

The number of the people exposed to aircraft noise around airports is estimated by computer modeling rather than by actual measurements. The U.S. Department of Transportation (USDOT), Federal Aviation Administration's (FAA's) Integrated Noise Model (INM) has been the primary tool for assessing aircraft noise around airports for nearly 30 years. This model uses information on aircraft mix, average daily operations, flight tracks, and runway distribution to generate and plot contours of Day Night Sound Level (DNL).With the addition of a digitized population census database, the model can estimate the number of residents exposed to noise levels of 65 decibels (db) DNL.

The U.S. Environmental Protection Agency (EPA) produced the first estimate of airport noise exposure in 1975.It reported that 7 million residents were exposed to significant levels of aircraft noise in 1978.This number became the "anchor point" for all future estimates of the nationwide noise impacts. In 1980, FAA developed another methodology for estimating the change in the number of people impacted by noise (from the 1975 anchor value) as a function of changes in both the national fleet and in the FAA's Terminal Area Forecast (TAF). In 1990, the FAA created an improved method of estimating the change in number of people impacted (relative to the 1980 estimates).

In 1993, the FAA began using its newly developed Nationwide Airport Noise Impact Model (NANIM) to estimate the impact of airplane noise on residential communities surrounding U.S. airports that support jet operations. FAA uses this model to determine the relative changes in number of people and land area exposed to 65 db DNL as a result of changes in nationwide aircraft fleet mix and operations. NANIM uses data on air traffic patterns found in the Official Airline Guide (OAG), air traffic growth projections found in FAA's TAF, population figures from the U.S. Census Bureau, and information on noise contour areas for the top 250 U.S. civil airports with jet operations.

The methodology used in NANIM has been peer reviewed and approved. However, a formal evaluation of the model's accuracy has not been conducted. Some data used in NANIM are updated manually, thus the possibility of data entry errors does exist. Entries are reviewed and then corrected as appropriate. The aircraft mix and operations files from FAA's TAF and OAG are updated automatically. Changes to either of the sources could introduce errors. For example, it was recently discovered that OAG redefined some aircraft codes and altered some data fields in its database. These changes make it impossible for the NANIM utility program to accurately read the current OAG database. A rewrite of the source code is necessary to eliminate this error. Also, since airport authorities are not required to produce noise exposure maps and reports unless they intend to apply for Federal grants, 14 of the 50 busiest commercial airports, including JFK and LaGuardia, have not produced (for public consumption) noise exposure maps in several years. In the absence of actual data, the NANIM database contains approximations of the noise contours areas based on airports of similar size and similar operation. Without actual airport data, it is impossible to quantify the error introduced by the approximation.

The number of people exposed to aircraft noise for 1998 through 2001 was estimated by the FAA's latest version of its MAGENTA model. This new, more accurate model is based on 2000 census data and uses input data on aircraft and operations specific to U.S. airports. This revised model also uses the FAA Terminal Forecast (TAF), which provides information on how operations will increase on an airport specific basis. Updated monthly, the TAF allows a more accurate forecast of U.S. operations.

TABLE 4-58. Motor Vehicles Scrapped

The Polk Company's Vehicles in Operation database is the source of these data. This database is a census of vehicles that are currently registered in all states within the United States. It is based on information from state department of motor vehicles. Polk updates the database quarterly (March, June, September, and December).

Scrapped vehicles are those that Polk removes from its database when: 1) States indicate registered vehicles have suffered major damage (such as a flood or accident), or 2) No renewal (reregistration) notice is received by Polk within a state's allotted time (normally one year). In the latter case, if a vehicle is subsequently reregistered, it is returned to the database. The Polk data on motor vehicles is broken down into passenger cars and trucks, and this identification comes with the registration data from the DMV.

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[1] Public Law 94-580, 90 Stat. 2795 (October 21, 1976).

Appendix E
Data Source and Accuracy Statements

Chapter 4 Energy and the Environment

PETROLEUM SUPPLY

TABLE 4-1. Overview of U.S. Petroleum Production, Imports, Exports, and Consumption

The petroleum supply system is extremely complicated, with many different processes, products, and entities involved. Briefly, crude oil is produced or imported, transported to refineries where it is refined into various products, and then transported to markets. Imports and exports of crude oil and products must be accounted for, as must be nonpetroleum components of final products, such as natural gas plant liquids and ethanol for gasoline blending.

The U.S. Department of Energy, Energy Information Administration (EIA) collects extensive data at select points in the petroleum supply system. Sixteen surveys are conducted by EIA's Petroleum Supply Reporting System to track the supply and disposition of crude oil, petroleum products, and natural gas plant liquids:

- five weekly surveys cover refineries (form EIA-800), bulk terminal stocks (form EIA-801), product pipelines (form EIA-802), crude stocks (form EIA-803), and imports (form EIA-804).
- eight monthly surveys cover the same five points plus tanker and barge movement (form EIA-817), gas processing facilities (form EIA-816), and oxygenates (form EIA-819M).
- one survey (form EIA-807) collects propane data on a monthly basis in the warmer months (April-September) and on a weekly basis in the colder months.
- one annual survey determines production capacity of oxygenates and fuel ethanol (form EIA-819A), and
- one annual survey determines refinery fuel use, capacity, and crude oil receipts by transportation mode (form EIA-820).

The five weekly surveys target key points in the petroleum supply system. They do not include all companies, but sample 90 percent of volume at each selected point in the supply system. EIA rank-orders the companies involved in the survey and sends surveys as it scrolls down the list, stopping when it reaches the 90 percent level. Although 100 percent coverage is sacrificed, this method keeps the level of incoming data manageable and avoids burdening the smallest companies. All data are reviewed and anomalies checked.

Monthly surveys provide data that are used in the monthly and annual reports. They are similar to the weekly surveys, but are more exhaustive in both the range of data collected and the depth of the collection. Sample sizes and response rates for several of the key points in the supply system are shown in table 1.The eight monthly surveys cover the industry more accurately than the weekly surveys and provide some double-check points that the other surveys do not. EIA expends considerable effort to ensure that its data are as accurate as possible. Revisions are made throughout the year. For example, *EIA's Annual Energy Review 1996*, released in July 1997, provided a preliminary 1996 number for total petroleum production of 8.30 million barrels per day (mmbd). The *Annual Energy Review 1997*, released a year later, revised that to 8.25 mmbd, and the 1999 Review reported 8.29 mmbd.

No complicated survey is likely to be 100 percent accurate. EIA lists four sources of potential systematic errors:

1. Some members of the target population are missed. EIA reports that it continually reviews the lists and searches industry periodicals and newspapers to identify new actors. Considering the nature of the petroleum industry, it is very unlikely that companies with significant production are not surveyed.
2. Some members of the target population do not respond. EIA reports a 97 percent response rate for monthly surveys. For some points in the supply system, the average response is over 99 percent. Survey respondents are required by law to respond, but some nonresponse is inevitable, especially among small companies. EIA assumes that the nonrespondent's value for that month is the same as for the previous month except for imports. Since imports vary widely, with respondents frequently having no imports, EIA assumes a nonresponse means zero imports. It can be assumed that EIA is good at "filling in the blanks."

Assuming for illustration purposes that 0.5 percent of production does not respond, and that EIA is 90 percent accurate in covering the gap, then there is a possibility of a 0.05 percent error. Applying that to total production of 8.29 mmbd in 1999 suggests that there could be an error of 0.0041 mmbd (4,100 barrels per day), which would not affect the published number.

3. The most serious problem may be response error. A company may have poor data, perhaps as a result of imperfect measurements, or it may transmit the wrong number. EIA has no control over a company's data quality. Companies have incentive to measure their inputs and products accurately. Otherwise, they may be cheating themselves or risking ill will with their customers or suppliers. However, no instrumentation is perfectly accurate. The high throughput of, say, a refinery with capacity of several hundred thousand barrels per day, with a variety of products changing density and some lost or used on site, is very complicated to measure. Instrumentation errors are likely to be systematic at any one site, although they will be more nearly random in the aggregate for all facilities. There is potential for small but significant overall errors. Mistakes may be made in recording and transferring the data. EIA reviews the data and flags gross errors or missing data for review by the respondent. However, not all errors will be picked up by EIA and/or the respondent. Overall, response errors probably are several times as large as nonresponse errors, but it is beyond the scope of this profile to estimate them.
4. The final potential source of systematic error is in the clarity of the survey form, i.e., whether all respondents interpret it correctly. No doubt errors and ambiguities can creep into a form, but at least for petroleum supply, that does not appear to be a major risk. The supply system is not changing rapidly, and EIA should be able to keep with it and the terminology. However the final digit of EIA's published supply data is questionable.

For additional information on survey methodology and statistical reliability, the reader is referred to the EIA reference cited in the tables or the EIA Internet site at www.eia.doe.gov.

FUEL AND ENERGY CONSUMPTION

TABLE 4-1. Overview of U.S. Petroleum Production, Imports, Exports, and Consumption

TABLE 4-2. U.S. Consumption of Energy from Primary Sources by Sector

TABLE 4-3. Domestic Demand for Refined Petroleum Products by Sector

TABLE 4-4. U.S. Energy Consumption by the Transportation Sector

TABLE 4-7. Domestic Demand for Gasoline

Petroleum consumption is far more complex to measure than supply. Instead of a few hundred companies at most measuring points in the supply system, there are tens of millions of consumers. It would be impossible for any survey of individual consumers to produce the high rate of return of U.S. Department of Energy (DOE), Energy Information Administration's (EIA's) supply surveys. EIA's transportation data collection is further limited by the termination of the Residential Transportation Energy Consumption Survey (RTECS). Therefore, EIA uses surveys of sales of products (e.g., Form EIA-821:Annual Fuel Oil and Kerosene Sales Report) or tax collection data from the U.S. Department of Transportation, Federal Highway Administration (FHWA).

EIA reviewed the accuracy of its energy consumption data in a 1990 monograph *Energy Consumption by End-Use Sector, a Comparison of Measures by Consumption and Supply Surveys*. Unfortunately, this monograph does not discuss the transportation sector because the consumption and supply surveys were not comparable. However, some of the results from other sectors indicate the discrepancies between supply and consumption surveys. Table 4-2 shows the ratio of fuel supplied to the sector to consumption reported by the sector in consumption surveys.

In most cases, supply is reported as substantially larger than consumption. Supplies of fuel oil to the commercial sector are reported at almost twice the level of consumption reported by that sector. Some of the discrepancies may be due to definition differences (e.g., fuel oil for apartment buildings is included in commercial supply surveys but not in consumption surveys.) Overall, however, the differences are too large for great confidence in the accuracy of the data.

If transportation had been reviewed in the same format, it is likely that the discrepancies would have been larger. Most transportation fuel (gasoline for automobiles) is purchased in small quantities at irregular intervals and cannot be checked simply by looking at a utility bill. Hence, highway transportation energy consumption surveys must be extensive to avoid the risk of large uncertainties in the data. But, with the termination of the RTECS, EIA ceased conducting such surveys. Consumption data must be derived indirectly from sales of petroleum products and tax collection data. While petroleum supply may be accurate to one decimal place, it is likely that disaggregating by sector use may be within plus or minus several percentage points, or perhaps about half a quadrillion British thermal unit (Btu) in table 4-1.

Motor Gasoline

Almost all gasoline is consumed in the transportation sector. Small amounts are used in the commercial sector for nonhighway use and the industrial sector, which includes agriculture, construction, and other uses. Subtracting estimates of those uses from the known total sales yields the transportation sector's total, which is further subdivided into highway and marine use. Aviation gasoline is, of course, used entirely in the transportation sector (for a very few high-performance automobiles as well as small aircraft).

Data on actual sales is collected by the states for revenue purposes. These data are forwarded to FHWA. EIA uses the data from FHWA to allocate highway consumption of motor gasoline among the states. For 1999, FHWA reported 124.7 billion gallons of gasoline sold nationally for highway use. EIA's table 5.12c of the *Annual Energy Review 2000* lists 8.33 mmbd of gasoline supplied for the transportation sector, the same as 127.7 billion gallons.

Such close agreement between supply and demand is not totally convincing. Definitions are unique to each state (e.g., whether gasohol is counted as pure gasoline or part gasoline and part renewables), measurement points vary from state to state, and each state handles losses differently. Hence, the total of all states' sales of gasoline is not entirely consistent.

Separation of highway from nonhighway uses of gasoline is, by necessity, based in part on careful estimates. Nevertheless, overall gasoline sales are well documented, and the separation is probably fairly accurate. Refinery output of motor gasoline was 7.93 mmbd in 1999, which is probably accurate to the first decimal place and maybe a little better. The transportation sector's 8.33 mmbd would have about the same accuracy.

Diesel Fuel

Diesel fuel is used in highway vehicles, railroads, boats, and military vehicles. Sales are only about 30 percent of gasoline in the transportation sector, but uncertainties are greater. More diesel than gasoline is used for nonhighway purposes, especially agriculture and construction. In addition, there has been more potential for cheating to avoid the tax; heating oil is virtually the same as diesel fuel and can easily be transferred to a vehicle. However, this is less significant now that tracers have been added to fuel oil. After the addition of tracers, the amount of transportation diesel fuel use jumped.

To estimate diesel fuel sales by mode, EIA starts with the total supply of distillate fuel and subtracts the small amount sold to electric utilities (the most accurately known sector, as measured by EIA Form EIA-759). The remainder is divided among the other end-use sectors according to EIA's sales surveys (Form EIA-821: Annual Fuel Oil and Kerosene Sales Report, and Form EIA-863: Petroleum Product Sales Identification Survey).

This method introduces several potential elements of inaccuracy. First, the surveys of each sector are probably less accurate than the supply surveys noted earlier. Companies and individuals may inadvertently send incorrect data, or not respond at all. Then EIA has to determine what adjustment factor to use for each end-use sector. Since each sector will have a different response rate to the surveys, the adjustments will be different. Large adjustments can introduce large errors. EIA has not published its adjustments for the transportation sector. As shown in table 2, the adjustments in other sectors range from 5 to 96 percent of reported consumption. Even a 20 percent adjustment could introduce an error of one or two percentage points (plus or minus) for any one sector.

Overall, the accuracy of diesel fuel use in the transportation sector should be viewed with some skepticism.

Jet Fuel

Jet fuel is the only other petroleum-based fuel that is used in large quantities (over 1 million barrels/day) in the transportation sector. Virtually all of it is used by airlines. These data are accurate because airlines are required to report usage, and because there are relatively few certificated air carriers, data collection should be manageable.

NONPETROLEUM FUELS CONSUMPTION

TABLE 4-10. Estimated Consumption of Alternative and Replacement Fuels for Highway Vehicles

Collectively, oxygenates, natural gas, electricity, and various alternative fuels amount to only about 3 percent of all energy used in the transportation sector. While this may not be much greater than the error bars associated with petroleum use, it is important to track changes in these fuels accurately.

Oxygenates

Oxygenates, mostly methyl tributyl ether (MTBE), which is derived from natural gas and ethanol, are part of mainstream gasoline supply. They are measured routinely with petroleum supply (forms EIA-819A and 819M). Consumption is estimated from production, net imports, and stock changes. Refineries and other entities are required to report data on oxygenates, and EIA also monitors production capability to provide a crosscheck. Thus, oxygenates data are likely to be reasonably accurate.

Natural Gas

Natural gas is used in the transportation sector mainly as the fuel for compressor stations on natural gas transmission lines. A small but growing amount is used in compressed or liquefied form in vehicles. EIA collects data on natural gas much as it does for petroleum, but the system is much simpler. Natural gas transmission companies may not know exactly how much gas is used in compressor stations, but they have a good idea based on the size of the equipment and the load on the line. The reported numbers probably are reasonably accurate. Data on natural gas-fueled vehicles are collected by DOE via Form-886, which is sent to fuel suppliers, vehicle manufacturers, and consumers. In addition, private associations and newsletters are important sources of information on alternative vehicles and alternative fuels use. Since most groups work cooperatively with DOE, it is likely that the data reported are accurate. EIA tracks the number of natural gas vehicles and the number of refueling stations to provide a cross check on estimates of natural gas consumption.

Electricity

Electricity powers intercity trains (Amtrak) and intracity rail systems. In addition, the number of electric vehicles is growing. There is considerable uncertainty over the energy consumed by these modes. Amtrak no longer provides national totals of its electricity consumption. Data on intracity transit is based on U.S. Department of Transportation, Federal Transit Administration's (FTA's) National Transit Database (NTD). The legislative requirement for the NTD is found in Title 49 U.S.C. 5335(a). Transit agencies receiving funds through the Urbanized Area Formula Program are generally required to report financial and operating data, including energy use. Although the data is generally considered accurate because FTA reviews and validates information submitted, reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret certain data.

If electric vehicles become important over the next decade or two, dedicated charging stations may become commonplace, which could provide accurate data. Fleet owners (e.g., electric utilities) can keep accurate records, but individuals who plug their vehicles in at home may not. Electricity use must be estimated from the number of such vehicles and the expected driving cycles. Hence, data on electric power for transportation must be viewed as an estimate.

It should also be noted that electricity is a form of work that usually is generated from heat with the loss of about two-thirds of the energy. Automobile engines are equivalent to electric generators in that they convert chemical energy to heat and then to work, losing most of the energy as waste heat. When electrical energy is compared to petroleum in transportation, the waste heat must be included for consistency. A kilowatt-hour of electricity is equivalent to 3,413 British thermal units (Btu), but about 10,000 Btu of heat are required to produce it. This factor is dropping as generators become more efficient. High efficiency gas turbines may require 8,000 Btu or less, but the average is much higher. It is usually impossible to tell where the power for a specific use is generated, so average figures for a region are used to estimate the waste energy, a factor that further reduces the accuracy of the data.

Alternative Fuels

In addition to oxygenates, natural gas, and electricity, alternative fuels include ethanol and methanol. EIA tracks the numbers of such vehicles through Form-886, state energy offices, federal demonstration programs, manufacturers, and private associations. These numbers probably are fairly accurate although it is difficult to monitor retirements. Fuel consumption is estimated from the types of vehicles in operation, vehicle miles traveled, and expected fuel efficiency. Adjustments are necessary for the relatively few flexible-fuel vehicles. Obviously, the reported data are estimates only.

FUEL AND ENERGY CONSUMPTION BY MODE

TABLE 4-5. Fuel Consumption by Mode of Transportation

TABLE 4-6. Energy Consumption by Mode of Transportation

TABLE 4-8. Certificated Air Carrier Fuel Consumption and Travel

TABLE 4-9. Motor Vehicle Fuel Consumption and Travel

TABLE 4-11. Passenger Car and Motorcycle Fuel Consumption and Travel

TABLE 4-12. Other 2-Axle 4-Tire Vehicle Fuel Consumption and Travel

TABLE 4-13. Single-Unit 2-Axle 6-Tire or More Truck Fuel Consumption and Travel

TABLE 4-14. Combination Truck Fuel Consumption and Travel

TABLE 4-15. Bus Fuel Consumption and Travel

Fuel consumption data are collected quite differently than supply data collected by the U.S. Department of Energy, Energy Information Administration (EIA). Highway fuel consumption, for example, is based on U.S. Department of Transportation, Federal Highway Administration (FHWA) data collected from states in the course of revenue collection. EIA starts from the fuel delivered to transportation entities.

Highway

Highway fuel data (tables 4-5, 4-9, and 4-11 through 4-15) are collected mainly by FHWA. All states plus the District of Columbia report total fuel sold along with travel by highway category and vehicle registration. Data typically flows from state revenue offices to the state departments of transportation to FHWA. Even if reporting is reasonably accurate, some data are always anomalous or missing and must be modified to fit expected patterns. In addition, as discussed earlier, there are some significant differences in methodology and definitions among the states. In particular, states differ in where the tax is applied in the fuel supply system, how gasohol is counted, how nonhighway use is treated, and how losses are handled.

Nonhighway use of gasoline and diesel fuel is a particularly large source of potential error. Some states designate nonhighway users as tax-exempt, others make the tax refundable. In either case, many people won't bother to apply if the amount of money is small. Nonhighway use of diesel fuel is especially large because many construction and agricultural vehicles are diesel powered. Thus, the fraction of petroleum attributed to transportation could be overestimated. On the other hand, some nonhighway fuel finds its way into the transportation system because heating oil can be used as diesel fuel, evading the tax. Tracers are now added to heating oil, which appears to have reduced the level of such tax evasion-if found in a truck's fuel tank, the tracer indicates diversion from a nontaxed source.

Breaking fuel use down by class of motor vehicle introduces the potential for error. FHWA must estimate the miles each class is driven and the fuel economy. Estimation of miles is based on the 1995 Nationwide Personal Transportation Survey (NPTS), administered by FHWA, and the Vehicle Inventory and Use Survey (formerly known

as the Truck Inventory and Use Survey) conducted by the U.S. Census Bureau. For information about these two surveys, the reader is referred to the technical appendix of *Our Nation's Travel*, available from the FHWA, Office of Highway Information Management; and the 1997 Census of Transportation, available from the Economics and Statistics Administration within the Census Bureau. Fuel economy is based on state-supplied data, TIUS, and the National Highway Traffic Safety Administration data on new car fuel economy, which must be reduced by about 15 percent to reflect actual experience on the road. Overall, both vehicle-miles of travel and fuel economy are estimates.

Fuel consumption by buses is particularly uncertain. FHWA collects data on intercity buses, and the American Public Transit Association (APTA) covers local travel. Very little data are collected on school buses. APTA figures are based on data from the USDOT, Federal Transit Administration's (FTA's) National Transit Database, which covers about 90 to 95 percent of total passenger-miles. These data are generally accurate because FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or may misinterpret data. APTA conservatively adjusts the FTA data to include transit operators that do not report to FTA, such as private and very small operators and rural operators. Prior to 1984, APTA did not include most rural and demand responsive systems.

Air

The U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information (OAI) is the source of these data. The numbers are based on 100-percent reporting of fuel use by large certificated air carriers (those with revenues of more than $100 million annually) via Form 41.The data are probably reasonably accurate because the airlines report fuel use regularly, and the limited number of airlines aids data management.

Smaller airlines, such as medium size regional and commuter air carriers, are not required to report energy data. OAI estimates that about 8 percent would have to be added to the total of the larger airlines to account for this use, but that has not been done in table 4-5 or 4-8.

General aviation aircraft and air taxis are covered in the General Aviation and Air Taxi and Avionics Survey, conducted by the Federal Aviation Administration (FAA). The survey is conducted annually and encompasses a stratified, systematic design from a random start to generate a sample of all general aviation aircraft in the United States. It is based on the FAA registry as the sampling frame. For instance, in 2000, a sample of 31,039 aircraft was identified and surveyed from an approximate population of 256,927 registered general aviation aircraft.

The reliability of the GAATA survey can be impacted by two factors: sampling and nonsampling error. A measure, called the standard error, is used to indicate the magnitude of sampling error. Standard errors can be converted for comparability by dividing the standard error by the estimate (derived from the sample survey results) and multiplying it by 100. This quantity, referred to as the percent standard error, totaled two and four-tenths of a percent in 2000 for the general aviation fleet. A large standard error relative to an estimate indicates lack of precision, and inversely, a small standard error indicates precision.

Nonsampling errors could include nonresponse, a respondent's inability or unwillingness to provide correct information, differences in interpretation of questions, and data entry mistakes. The reliability of general aviation fleet data comparisons over time would decrease because of changes implemented in 1978 and sampling errors discussed above. Readers should note that nonresponse bias may be a component of reliability errors in the data from 1980 to 1990. The FAA conducted telephone surveys of nonrespondents in 1977, 1978, and 1979 and found no significant differences or inconsistencies between respondent and nonrespondent replies. The FAA discontinued the telephone survey of nonrespondents in 1980 to save costs. Nonresponse surveys were resumed in 1990; and the FAA found notable differences and make adjustments to its data to reflect nonresponse bias.

The U.S. Government, in particular the Department of Defense (DOD), uses a large amount of jet fuel as shown in table4-19 (see discussion on government consumption below). However, DOD reports all fuel purchased, including from foreign sources for operations abroad. While the data may be accurate, it is not comparable to EIA's overall U.S. supply and consumption figures on jet fuel.

International operations are included in table 4-8 but not table 4-5. The fuel use for international operations includes that purchased by U.S. airlines for return trips. OAI does not collect data on foreign airline purchases of fuel in the United States. Thus, a significant use of U.S. jet fuel is missed. However, these two factors approximately balance each other out. As shown in table 1-34,foreign carrier traffic is just slightly less than U.S. carrier international traffic, so presumably the fuel purchased here by foreign carriers is very close to the fuel purchased abroad by U.S. carriers.

Rail

The data are from *Railroad Facts*, published annually by the Association of American Railroads (AAR). AAR figures are based on 100 percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. Thus, the data are considered accurate. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2001, the adjusted threshold for Class I railroads was $266.7 million. Although Class I railroads represent only 1 percent of the number of railroads in the country, they account for over 70 percent of the industry's mileage operated and more than 90 percent of all freight revenue; energy consumption should be of the same order. For passenger travel, information is unavailable. Amtrak no longer provides data on a national basis, and the regional data appears to be inconsistent.

Transit

The APTA figures are based on information in FTA's National Transit Database. APTA conservatively adjusts FTA data to include transit operators that do not report to the FTA Database (private and very small operators and rural operators), which accounts for about 90 to 95 percent of the total passenger-miles. The data are generally accurate because the FTA reviews and validates information submitted by individual transit agencies. Reliability may vary because some transit agencies cannot obtain accurate information or misinterpret certain data definitions in federal guidelines.

Water

The EIA collects data on residual and distillate fuel oils and diesel through its *Annual Fuel Oil and Kerosene Sales Report* survey, form EIA-821.The survey targets companies that sell fuel oil and kerosene to end users. This survey commenced in 1984 and data from previous years should be used with caution.

Sampling Frame and Design

The sample's target universe includes all companies that sell fuel oil and kerosene to end users. EIA derives the sampling frame from the EIA-863 database containing identity information for approximately 22,300 fuel oil and kerosene sellers. EIA stratifies the sampling frame into two categories: companies selected with certainty and uncertainty. Those in the certainty category varied but included the end use "vessel bunkering," or sales for the fueling of commercial and private watercraft.

Sampling Error, Imputation, and Estimates

EIA reported a 92.5 percent response rate for the 2000 survey. The EIA also provides estimates of the sampling error for geographic areas and U.S. averages are 1.8 for residential distillate fuel oil, 0.8 for nonresidential retail distillate fuel oil, and 0.1 for retail residual fuel oil. Some firms inevitably ignore survey requests, causing data gaps. EIA estimates the volumes of these firm's sales by imputation; more detailed information and the algorithm can be obtained at EIA's web site in the technical notes for the Annual Fuel Oil and Kerosene Sales Report. See http://www.eia.doe.gov/oil gas/petroleum/data publications/fuel oil and kerosene sales/foks.html.

TABLE 4-19. U.S. Government Energy Consumption by Agency and Source

Energy consumption data are collected by DOE's Office of Federal Energy Management Programs in cooperation with most departments and agencies. DOD is by far the largest consumer, accounting for about 80 percent of the total. As discussed above, the data includes fuel purchased abroad for military bases. Since government agencies are required to report these data, they are probably accurate. However, it is possible that some consumption is missed. For example, some agencies may report only fuel supplied directly, missing consumption such as gasoline purchased by employees while on government business for which they are then reimbursed. In addition, smaller agencies were neglected. Overall, however, the data should provide a fairly good approximation of government energy consumption.

ENERGY EFFICIENCY

TABLE 4-20. Energy Intensity of Passenger Modes

TABLE 4-21. Energy Intensity of Certificated Air Carriers, All Services

TABLE 4-22. Energy Intensity of Passenger Cars, Other 2-Axle 4-Tire Vehicles, and Motorcycles

TABLE 4-24. Energy Intensity of Transit Motor Buses

TABLE 4-25. Energy Intensity of Class I Railroad Freight Service

TABLE 4-26. Energy Intensity of Amtrak Service

TABLE 4-27. Energy Intensity of Amtrak Service (Loss-adjusted conversion factors)

Total energy consumed for each mode can be estimated with reasonable accuracy. Miles traveled are known for some modes, such as air carriers, but less accurately for others, most notably automobiles. When the numbers of passengers or tons are required to calculate energy efficiency, another uncertainty is introduced. Again, air carriers and intercity buses know how many passengers are on board and how far they travel, but only estimates are available for automobiles and intracity buses.

Thus, table 4-21 should be quite accurate for certificated air carriers, though it is missing small airlines and private aircraft. Table 4-22 is based on FHWA fuel tax data, derived from state fuel tax revenues. VMT is as discussed for tables 1-9 and 1-10.Data for motorcycles must be adjusted significantly more than for automobiles because less information is collected from the states or from surveys. Transit bus data (table 4-24) are very uncertain because, unlike intercity buses, the distance each passenger travels is not measured by ticket sales.

The intermodal comparison of passenger travel in table 4-20 must be viewed with considerable caution. Data for the different modes are collected in different ways, and the preparation of the final results is based on different assumptions. As noted above, airlines accurately record passenger miles, but the data on occupancy of private automobiles must be estimated from surveys. Even relatively certain data, such as state sales of gasoline, must be modified to resolve anomalies, and transit data are even harder to make consistent. Furthermore, different groups collect the data for the various modes, and they have different needs, assumptions, and methodologies. Thus, the comparisons are only approximate.

Freight service data (table 4-25) are from *Railroad Facts*, published annually by the Association of American Railroads (AAR).AAR figures are based on 100 percent reporting by Class I railroads to the Surface Transportation Board (STB) via Schedule 700 of the *R1 Annual Report*. STB defines Class I railroads as having operating revenues at or above a threshold indexed to a base of $250 million (1991) and adjusted annually in concert with changes in the Railroad Freight Rate Index published by the Bureau of Labor Statistics. In 2000, the adjusted threshold for Class I railroads was $ 261.9 million. Although Class I railroads comprise only 1 percent of the number of railroads in the country, they account for over 71 percent of the industry's mileage and 91 percent of all freight revenue; energy data should be of the same order.

TABLE 4-28. Annual Wasted Fuel Due to Congestion

TABLE 4-29. Wasted Fuel per Eligible Driver

The Texas Transportation Institute's (TTI) *Urban Roadway Congestion Annual Report* provided figures for tables 4-27 and 4-28. TTI relies on data from the U.S. Department of Transportation, Federal Highway Administration, Highway Performance Monitoring System database (HPMS). (See box 1-1 for detailed information about the HPMS.) TTI utilizes these data as inputs for its congestion estimation model. Detailed documentation for the TTI model and estimations can be found at http://mobility.tamu.edu/.

The sum of fuel wasted in typical congestion (recurring delay) and incident related delays equal the annual wasted fuel for an urban area. Recurring delay is the product of recurring delay (annual hours in moderate, heavy, and severe delays) and average peak period system speed divided by average fuel economy. Incident delay hours are

multiplied by the average peak period system speed and divided by the average fuel economy to produce the amount of incident fuel wasted.

Structure, Assumptions, and Parameters

Urban roadway congestion levels are estimated using a formula measuring traffic density. Average daily travel volume per lane on freeways and principal arterial streets are estimated using area wide estimates of vehicle-miles of travel and lane miles of roadway. The resulting ratios are combined using the amount of travel on each portion of the system (freeway and principal arterials) so that the combined index measures conditions overall. This variable weighting factor allows comparisons between areas such as Phoenix-where principal arterial streets carry 50 percent of the amount of travel of freeways-and cities such as Phoenix where the ratio is reversed. Values greater than one are indicative of undesirable congestion levels. Readers seeking the algorithm for the congestion index should examine http://mobility.tamu.edu/.

In previous reports, TTI assumed that 45 percent of all traffic, regardless of the urban location, occurred in congested conditions. TTI indicated that this presumption overestimated travel in congested periods. Its 2002 estimates now vary by urban area anywhere from 18 to 50 percent of travel that occurs in congestion. TTI's model structure applies to two types of roads: freeways and principal arterial streets. The model derives estimates of vehicle traffic per lane and traffic speed for an entire urban area. Based on variation in these amounts, travel is then classified under 5 categories: uncongested, moderately congested, heavily congested, severely congested, and extremely congested (a new category in 1999). The threshold between uncongested and congested was changed in 1999. Previous editions classified congested travel when area wide traffic levels reached 14,000 vehicles per lane per day on highways and 5,500 vehicles per lane per day on principal arterial streets. For the current edition these values are 15,500 and 5,500 vehicles per lane per day respectively. Previous years values have been re-estimated based on these new assumptions. Readers should refer to the TTI website for more detailed information on its estimation procedures http://mobility.tamu.edu/.

TTI reviews and adjusts the data used in its model, including statewide average fuel cost estimates (published by the American Automobile Association) and the number of eligible drivers for each urban area (taken from the Statistical Abstract of the United States, published by the U.S. Department of Commerce, Bureau of the Census).The model has some limitations because it does not include local variations (such as bottlenecks, local travel patterns, or transportation improvements) that affect travel times. TTI documentation does not provide information on peer-review, sensitivity analysis, or estimation errors for their model. Information about sensitivity analysis or external reviews of the model could not be obtained and users should interpret the data cautiously.

ENVIRONMENT

TABLE 4-43. Estimated National Average Vehicle Emissions Rates by Vehicle Type and Fuel

TABLE 4-44. National Average Vehicle Emissions Rates by Vehicle Type Using Reformulated Gasoline

The U.S. Environmental Protection Agency uses its Mobile Source Emissions Factor Model (MOBILE) to generate average emissions factors for each vehicle and fuel type. The methods used in the model are theoretically sound, the assumptions are reasonable, but the data vary in quality, and no formal analysis of the accuracy of these estimates has been performed. Emissions rate estimates for light-duty vehicles are considered more reliable than those for heavy-duty vehicles because in-use emissions tests are performed on a sample of vehicles each year. Deterioration for heavy-duty vehicles in the national fleet are based only on manufacturer's engine deterioration tests. In addition, because reformulated fuels (table 4-39) are newer than other gasoline fuels (table 4-38), in use emissions test data for reformulated fuels are not as extensive.

The estimates in the tables represent average emissions rates taking into account the characteristics of the nation's fleet, including vehicle type and age, and fuel used. The model also assumes Federal Test Procedure conditions. The model does not take into account actual travel distributions across different highway types with their associated average speeds and operating mode fractions, nor do they consider ambient local temperatures. However, fleet composition and deterioration because of age are considered. Thus, these rates illustrate only trends due to vehicle emissions control improvements and their increasing use in the national fleet and should not be used for other purposes.

TABLES 4-45, 4-46, 4-47, 4-48, 4-49, 4-50. Estimates of National Emissions of Carbon Monoxide, Nitrogen Oxides, Volatile Organic Compounds, Particular Matter, Sulfur Dioxide

Emissions by sector and source are estimated using various models and calculation techniques and are based on a number of assumptions and on data that vary in precision and reliability. The methods used are theoretically sound, the assumptions are reasonable, but the data vary in quality, and no formal analysis of the accuracy of these estimates has been performed.

Carbon Monoxide (CO), Nitrogen Oxides (NOx), and Volatile Organic Compounds (VOCs)

Highway vehicle emissions of CO, NOx, and VOC are generated by the U.S. Environmental Protection Agency's (EPA's) Mobile Source Emissions Factor Model (MOBILE), which uses per-mile vehicle emissions factors and vehicle travel (vehicle-miles) to calculate county-level emissions. Emissions rates are then adjusted based on fuel characteristics, vehicle fleet composition, emissions control measures, average vehicle speed, and other factors that can affect emissions. (Emissions rates used in MOBILE are based on vehicle certification tests, emissions standards, and in-use vehicle tests and are updated approximately every three years.) The U.S. Department of Transportation, Federal Highway Administration's Highway Performance Monitoring System is the source of vehicle travel estimates used in the model. Although the methodology for this survey data is sound and well documented, analyses have shown that individual states vary in how rigorously they follow the established sampling guidelines.

The non-highway vehicle emissions are calculated annually by running EPA's NONROAD model for all categories except aircraft, commercial marine vessels, and railroads, which are calculated via emission factors and relevant activity data. Inputs to the NONROAD model include average temperatures, Reid vapor pressure, fuel usage programs and controls.

Particulate Matter Under 10 Microns (PM-10) and 2.5 Microns (PM-2.5) in Size

Highway vehicle emissions are estimated using the U.S. Environments Protection Agency's PART model, which estimates emissions factors for exhaust emissions and brake and tire wear by vehicle type. Exhaust emissions factors are based on certification tests, while brake wear (per vehicle) and tire wear (per tire) are assumed values, which are constant over all years. Per-mile emissions factors are multiplied by vehicle travel (vehicle-miles) and adjusted to account for other factors that effect exhaust emissions (e.g., fuel composition, weather, etc.). The U.S. Department of Transportation, Federal Highway Administration's Highway Performance Monitoring System is the source of vehicle-miles of travel (VMT) estimates used in the model. While the methodology for this survey data is sound and well documented, analyses have shown that individual states vary in how rigorously they follow the established sampling guidelines.

Fugitive dust estimates for paved and unpaved roads are calculated by multiplying VMT on each type of road by emissions factors for each vehicle type and road type.

The non-highway vehicle emissions are calculated annually by running EPA's NONROAD model for all categories except aircraft, commercial marine vessels, and railroads, which are calculated via emission factors and relevant activity data. Inputs to the NONROAD model include average temperatures, Reid vapor pressure, fuel usage programs and controls.

Sulfur Dioxide (SO2)

Highway vehicle SO2 emissions are estimated by multiplying vehicle travel (for each vehicle type and highway type) by an emissions factor reflecting each vehicle type and highway type. Highway SO2 emissions factors are based on vehicle type and model year, sulfur content of fuel by type and year, fuel density by fuel type, and vehicle fuel efficiency by type and model year.

In general, estimates for non-highway vehicles are calculated based on fuel consumption and sulfur content of fuel, though other factors may be considered.

Lead

In general, lead emissions are estimated by multiplying an activity level by an emissions factor that represents the rate at which lead is emitted for the given source category. This estimate is then adjusted by a factor that represents the assumed effectiveness of control technologies. For lead released during combustion, a top-down approach is used to share national estimates of fuel consumption by fuel type to each consumption category (e.g., motor fuel, electric utility, etc.) and, subsequently, each source (e.g., passenger cars, light-duty trucks, etc.).

TABLE 4-51. Air Pollution Trends in Selected Metropolitan Statistical Areas (MSAs)

TABLE 4-52. Areas in Nonattainment of National Ambient Air Quality Standards for Criteria Pollutants

The U.S. Environmental Protection Agency measures concentrations of pollutants in the ambient air at its air quality monitoring sites, which are operated by state and local agencies. These sites conform to uniform criteria for monitor siting, instrumentation, and quality assurance, and each site is weighted equally in calculating the composite average trend statistics. Furthermore, trend sites must have complete data for 8 of the 10 years in the trend time period to be included. However, monitoring devices are placed in areas most likely to observe significant concentrations of air pollutants rather than a random sampling of sites throughout the nation.

TABLE 4-53. U.S. Carbon Dioxide Emissions from Energy Use by Sector

The combustion of fossil fuels, such as coal, petroleum, and natural gas, is the principal anthropogenic (human caused) source of carbon dioxide (CO2) emissions. Since fossil fuels are typically 75 percent to 90 percent carbon by weight, emissions from the combustion of these fuels can be easily measured in carbon units, as is shown in the table.

CO2 emissions data are derived from estimates. The U.S. Department of Energy, Energy Information Administration (EIA), estimates CO2emissions by multiplying energy consumption for each fuel type by its carbon emissions coefficient, then subtracting carbon that is sequestered by nonfuel use of fossil fuels. Carbon emissions coefficients are values used for scaling emissions to specific activities (e.g., pounds of CO2emitted per barrel of oil consumed).

Emissions estimates are based on energy consumption data collected and published by EIA Several small adjustments are made to its energy consumption data to eliminate double counting or miscounting of emissions. For example, EIA subtracts the carbon in ethanol from transportation gasoline consumption because of its biological origin.

Emissions coefficients are based on the density, carbon content, and heat content of petroleum products. For many fuels, except liquefied petroleum gas (LPG), jet fuel, and crude oil, EIA assumed coefficients to be constant over time. For LPG, jet fuel, and crude oil, EIA annualized carbon emissions coefficients to reflect changes in chemical composition or product mix.

Since the combustion of fossil fuels is a major producer of CO2emissions, sources of uncertainty are related to: 1) volumes of fuel consumed; 2) characteristics of fuel consumed; 3) emissions coefficients; and 4) coverage. EIA notes that volumetric fuel data are fairly reliable in the 3 percent to 5 percent range of uncertainty. The density and energy content of fuels are usually estimated. According to EIA, the reliability of these estimates vary. For example, estimates of the energy content of natural gas are reliable to 0.5 percent, while estimates for coal and petroleum products are lower because they are more heterogeneous fuels. The reliability of emissions coefficients depends on whether the characteristics of a fuel are difficult to measure accurately. Finally, uncertainties may result because data may be excluded or unknown sources of emissions not included.

EIA's estimation methods, emissions coefficients, and the reliability of emissions estimates are discussed in detail in U.S. Department of Energy, Energy Information Administration, *Emissions of Greenhouse Gases in the United States*, 1998 available on: www.eia.doe.gov/oiaf/1605/ggrpt/index.html.

TABLE 4-54. Petroleum Oil Spills Impacting U.S. Waterways

The U. S. Coast Guard's (USCG) Marine Safety Information System (MSIS) is the source of these data. It includes data on all oil spills impacting U.S. navigable waters and the Coastal Zone. The USCG learns of spills through direct observation, reports from responsible parties and third parties. Responsible parties are required by law to report spills to the National Response Center (NRC).Reports may be made to the USCG or Environmental Protection Agency pre-

designated On Scene Coordinator for the geographic area where the discharge occurs if direct reporting to the NRC is not practicable. There is no standard format for these reports, but responsible personnel face significant penalties for failing to do so. Most reports are made by telephone, and USCG personnel complete investigations based on the information provided. The type and extent of an investigation conducted varies depending on the type and quantity of the material spilled. Each investigation will determine as closely as possible source of the pollutant, the quantity of the material spilled, the cause of the accident, as well as whether there is evidence that any failure of material (either physical or design) was involved or contributed to the incident. These are so financial responsibility may be properly assigned for the incidents, as well as proper recommendations for the prevention of the recurrence of similar incidents may be made.

Some spills may not be entered into MSIS because they are either not reported to or discovered by the USCG. The probability of a spill not being reported is inversely proportional to its size. Large spills impact a large area and a large number of people, resulting in numerous reports of such spills. Small spills are less likely to be reported, particularly if they occur at night or in remote areas where persons other than the responsible party are unlikely to detect them. Responsible parties are required by law to report spills and face penalties for failing to do so, providing a strong incentive to report spills that might be detected by others. Experience with harbor patrols shows that the number of spills increases as the frequency of patrols increases. However, the volume of material spilled does not increase significantly, indicating that the spills discovered through increased harbor patrols generally involved very small quantities.

Data Collection

From 1973 to 1985, data were collected on forms completed by the investigator and later entered into the Pollution Incident Reporting System (PIRS) by data entry clerks at USCG headquarters. Since 1985, data have been entered directly into MSIS by the investigator. From 1985 to 1991, data were entered into a specific electronic form that captured information on the spilled substance and pollution response actions. Since 1995, a growing number of reports of pollution incidents of 100 gallons or less of oil have been captured on a Notice of Violation ticket form, which are then entered into MSIS.

The information shown in this table comes from the USCG Spill Compendium, which contains spill data from the applications described above. The Compendium contains summary data from 1969 through 2000 and is intended to provide general information to the public, the maritime industry and other interested persons about spills in and around U.S. waterways. For more information about spill data, please refer to the USCG Internet site at http://www.uscg.mil/hq/g-m/nmc/response/stats/aa.htm

Nonsampling Errors

According to the USCG, nonsampling errors, such as nonreporting and mistakes made in data collection and entry, should not have a major impact on most interpretations of the data, but the impact will vary depending on the data used. The error rate for volume spilled is estimated to be less than 5 percent because larger spills, which account for most of the volume of oil spilled, are thoroughly reviewed at several levels. The error rate for the number of spills is difficult to estimate primarily due to low reporting rates for small spills. Most of the error in spill counts involves spills of less than 100 gallons.

TABLE 4-55. Leaking Underground Storage Tank Releases and Cleanups

A national inventory of reported spills and corrective actions taken for leaking underground storage tanks is compiled biannually based on state counts of leaking tanks reported by owners as required by the Resource Conservation and Recovery Act of 1976.[1] These data may be affected by general accounting errors, some of which have changed semiannual counts by as many as 2,000 actions.

TABLE 4-56. Highway Noise Barrier Construction

State highway agencies (SHAs) provide data on highway noise barrier construction, extent, and costs to the U.S. Department of Transportation, Federal Highway Administration. Individual SHA definitions of barriers and costs may differ. This could lead to nonuniformity and/or anomalies among state data, which will in turn affect national totals.

TABLE 4-57. Number of People Residing in High-Noise Areas Around U.S. Airports

The number of the people exposed to aircraft noise around airports is estimated by computer modeling rather than by actual measurements. The U.S. Department of Transportation (USDOT), Federal Aviation Administration's (FAA's) Integrated Noise Model (INM) has been the primary tool for assessing aircraft noise around airports for nearly 30 years. This model uses information on aircraft mix, average daily operations, flight tracks, and runway distribution to generate and plot contours of Day Night Sound Level (DNL).With the addition of a digitized population census database, the model can estimate the number of residents exposed to noise levels of 65 decibels (db) DNL.

The U.S. Environmental Protection Agency (EPA) produced the first estimate of airport noise exposure in 1975.It reported that 7 million residents were exposed to significant levels of aircraft noise in 1978.This number became the "anchor point" for all future estimates of the nationwide noise impacts. In 1980, FAA developed another methodology for estimating the change in the number of people impacted by noise (from the 1975 anchor value) as a function of changes in both the national fleet and in the FAA's Terminal Area Forecast (TAF). In 1990, the FAA created an improved method of estimating the change in number of people impacted (relative to the 1980 estimates).

In 1993, the FAA began using its newly developed Nationwide Airport Noise Impact Model (NANIM) to estimate the impact of airplane noise on residential communities surrounding U.S. airports that support jet operations. FAA uses this model to determine the relative changes in number of people and land area exposed to 65 db DNL as a result of changes in nationwide aircraft fleet mix and operations. NANIM uses data on air traffic patterns found in the Official Airline Guide (OAG), air traffic growth projections found in FAA's TAF, population figures from the U.S. Census Bureau, and information on noise contour areas for the top 250 U.S. civil airports with jet operations.

The methodology used in NANIM has been peer reviewed and approved. However, a formal evaluation of the model's accuracy has not been conducted. Some data used in NANIM are updated manually, thus the possibility of data entry errors does exist. Entries are reviewed and then corrected as appropriate. The aircraft mix and operations files from FAA's TAF and OAG are updated automatically. Changes to either of the sources could introduce errors. For example, it was recently discovered that OAG redefined some aircraft codes and altered some data fields in its database. These changes make it impossible for the NANIM utility program to accurately read the current OAG database. A rewrite of the source code is necessary to eliminate this error. Also, since airport authorities are not required to produce noise exposure maps and reports unless they intend to apply for Federal grants, 14 of the 50 busiest commercial airports, including JFK and LaGuardia, have not produced (for public consumption) noise exposure maps in several years. In the absence of actual data, the NANIM database contains approximations of the noise contours areas based on airports of similar size and similar operation. Without actual airport data, it is impossible to quantify the error introduced by the approximation.

The number of people exposed to aircraft noise for 1998 through 2001 was estimated by the FAA's latest version of its MAGENTA model. This new, more accurate model is based on 2000 census data and uses input data on aircraft and operations specific to U.S. airports. This revised model also uses the FAA Terminal Forecast (TAF), which provides information on how operations will increase on an airport specific basis. Updated monthly, the TAF allows a more accurate forecast of U.S. operations.

TABLE 4-58. Motor Vehicles Scrapped

The Polk Company's Vehicles in Operation database is the source of these data. This database is a census of vehicles that are currently registered in all states within the United States. It is based on information from state department of motor vehicles. Polk updates the database quarterly (March, June, September, and December).

Scrapped vehicles are those that Polk removes from its database when: 1) States indicate registered vehicles have suffered major damage (such as a flood or accident), or 2) No renewal (reregistration) notice is received by Polk within a state's allotted time (normally one year). In the latter case, if a vehicle is subsequently reregistered, it is returned to the database. The Polk data on motor vehicles is broken down into passenger cars and trucks, and this identification comes with the registration data from the DMV.

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[1] Public Law 94-580, 90 Stat. 2795 (October 21, 1976).