

Chapter 8

Household Vehicles and Characteristics

Summary Statistics from Tables/Figures in this Chapter

Source		
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	Vehicles per household, 2013	2.06
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	<i>1960</i>	<i>2.5%</i>
	<i>1970</i>	<i>5.5%</i>
	<i>1980</i>	<i>17.5%</i>
	<i>1990</i>	<i>17.3%</i>
	<i>2000</i>	<i>18.3%</i>
	<i>2010</i>	<i>19.5%</i>
	<i>2013</i>	<i>19.7%</i>
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	<i>Person-trips</i>	<i>2,554 million</i>
	<i>Person-miles</i>	<i>1,138 billion</i>



The number of vehicles in the United States is growing faster than the population. The growth in vehicle-miles has slowed in recent years. See Table 8.2 for vehicles per capita and vehicle-miles per capita.

Table 8.1
Population and Vehicle Profile, 1950–2013

Year	Resident population ^a (thousands)	Total households (thousands)	Number of vehicles in operation (thousands)	Total vehicle-miles (millions)	Number of licensed drivers (thousands)	Number of civilian employed persons (thousands)
1950	151,868	43,554	43,501	458,246	62,194	58,920
1955	165,069	47,874	56,540	605,646	74,686	62,171
1960	179,979	52,799	67,906	718,762	87,253	65,778
1965	193,526	57,436	82,066	887,812	98,502	71,088
1970	205,052	63,401	98,136	1,109,724	111,543	78,628
1975	215,973	71,120	120,054	1,327,664	129,791	85,846
1980	227,226	80,776	139,831	1,527,295	145,295	99,303
1985	238,466	86,789	157,048	1,774,826	156,868	107,150
1986	240,651	88,458	162,094	1,834,872	159,487	109,597
1987	242,804	89,479	167,193	1,921,204	161,975	112,440
1988	245,021	91,066	171,741	2,025,962	162,853	114,968
1989	247,342	92,830	175,960	2,096,487	165,555	117,342
1990	250,132	93,347	179,299	2,144,362	167,015	118,793
1991	253,493	94,312	181,438	2,172,050	168,995	117,718
1992	256,894	95,669	181,519	2,247,151	173,125	118,492
1993	260,255	96,391	186,315	2,296,378	173,149	120,259
1994	263,436	97,107	188,714	2,357,588	175,403	123,060
1995	266,557	98,990	193,441	2,422,696	176,628	124,900
1996	269,667	99,627	198,294	2,485,848	179,539	126,708
1997	272,912	101,018	201,071	2,561,695	182,709	129,558
1998	276,115	102,528	205,043	2,631,522	184,980	131,463
1999	279,295	103,874	209,509	2,691,056	187,170	133,488
2000	282,385	104,705	213,300	2,746,925	190,625	136,891
2001	285,309	108,209	216,683	2,797,287	191,276	136,933
2002	288,105	109,297	221,027	2,855,508	194,296	136,485
2003	290,820	111,278	225,882	2,890,450	196,166	137,736
2004	293,463	112,000	232,167	2,964,788	198,889	139,252
2005	296,186	113,343	238,384	2,989,430	200,549	141,730
2006	298,996	114,384	244,643	3,014,371	202,810	144,427
2007	302,004	116,011	248,701	3,031,124	205,742	146,047
2008	304,798	116,783	249,813	2,976,528	208,321	145,362
2009	307,439	117,181	248,972	2,956,764	209,618	139,877
2010	309,347	117,538	248,231	2,967,266	210,115	139,064
2011	311,722	118,682	248,932	2,950,402	211,875	139,869
2012	314,112	121,084	251,497	2,969,433	211,815	142,469
2013	316,498	122,459	252,715	2,988,323	212,160	143,929
<i>Average annual percentage change</i>						
1950–2013	1.2%	1.7%	2.8%	3.0%	2.0%	1.4%
2003–2013	0.8%	1.0%	1.1%	0.3%	0.8%	0.4%

Sources:

Resident population and civilian employed persons – U.S. Department of Commerce, Bureau of the Census, Online Data Retrieval, Washington, DC, 2015. (Additional resources: www.census.gov)

Vehicles in operation – IHS Automotive. FURTHER REPRODUCTION PROHIBITED. (Additional resources: <https://www.ihs.com/industry/automotive.html>)

Licensed drivers and vehicle-miles – U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2013*, Tables DL-20 and VM-1, and annual. (Additional resources: www.fhwa.dot.gov)

^a Estimates as of July 1. Includes Armed Forces in the United States.



Vehicle-miles per capita reached 10,000 miles in 2004 but have declined since that time. There were 1.76 vehicles for every employed civilian in the United States in 2013.

Table 8.2
Vehicles and Vehicle-Miles per Capita, 1950–2013^a

Year	Vehicles per capita	Vehicle-miles per capita	Licensed drivers per household	Vehicles per household	Vehicles per licensed driver	Vehicles per civilian employed persons	
1950	0.286	3,017	1.43	1.00	0.70	0.74	
1955	0.343	3,669	1.56	1.18	0.76	0.91	
1960	0.377	3,994	1.65	1.29	0.78	1.03	
1965	0.424	4,588	1.71	1.43	0.83	1.15	
1970	0.479	5,412	1.76	1.55	0.88	1.25	
1975	0.556	6,147	1.82	1.69	0.92	1.40	
1980	0.614	6,707	1.80	1.73	0.96	1.41	
1985	0.659	7,443	1.81	1.81	1.00	1.47	
1986	0.674	7,625	1.80	1.83	1.02	1.48	
1987	0.689	7,913	1.81	1.87	1.03	1.49	
1988	0.701	8,269	1.79	1.89	1.05	1.49	
1989	0.711	8,476	1.78	1.90	1.06	1.50	
1990	0.717	8,573	1.79	1.92	1.07	1.51	
1991	0.716	8,568	1.79	1.92	1.07	1.54	
1992	0.707	8,747	1.81	1.90	1.05	1.53	
1993	0.716	8,824	1.80	1.93	1.08	1.55	
1994	0.716	8,949	1.81	1.94	1.08	1.53	
1995	0.726	9,089	1.78	1.95	1.10	1.55	
1996	0.735	9,218	1.80	1.99	1.10	1.56	
1997	0.737	9,387	1.81	1.99	1.10	1.55	
1998	0.743	9,531	1.80	2.00	1.11	1.56	
1999	0.750	9,635	1.80	2.02	1.12	1.57	
2000	0.755	9,728	1.82	2.04	1.12	1.56	
2001	0.759	9,804	1.77	2.00	1.13	1.58	
2002	0.767	9,911	1.78	2.02	1.14	1.62	
2003	0.777	9,939	1.76	2.03	1.15	1.64	
2004	0.791	10,103	1.78	2.07	1.17	1.67	
2005	0.805	10,093	1.77	2.10	1.19	1.68	
2006	0.818	10,082	1.77	2.14	1.21	1.69	
2007	0.824	10,037	1.77	2.14	1.21	1.70	
2008	0.820	9,766	1.78	2.14	1.20	1.72	
2009	0.810	9,617	1.79	2.12	1.19	1.78	
2010	0.802	9,592	1.79	2.11	1.18	1.79	
2011	0.799	9,465	1.79	2.10	1.17	1.78	
2012	0.801	9,453	1.75	2.08	1.19	1.77	
2013	0.798	9,442	1.73	2.06	1.19	1.76	
			<i>Average annual percentage change</i>				
1950–2013	1.6%	1.8%	0.3%	1.2%	0.8%	1.4%	
2003–2013	0.3%	-0.5%	-0.2%	0.1%	0.3%	0.7%	

Sources:

Resident population and civilian employed persons – U.S. Department of Commerce, Bureau of the Census, Online Data Retrieval, Washington, DC, 2015. (Additional resources: www.census.gov)

Vehicles in operation – IHS Automotive. FURTHER REPRODUCTION PROHIBITED. (Additional resources: <https://www.ihs.com/industry/automotive.html>)

Vehicle-miles – U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2013*, Table VM-1 and annual. (Additional resources: www.fhwa.dot.gov)

^a Includes all vehicles (light and heavy).



Table 8.3
Average Annual Expenditures of Households by Income, 2013^a

	All households	Income before taxes			
		Less than \$5,000	\$5,000–\$9,999	\$10,000–\$14,999	\$15,000–\$19,999
Total expenditures	\$51,100	\$22,830	\$20,697	\$21,452	\$25,506
		Percentage of total expenditures ^b			
Food ^c	12.9%	15.9%	17.3%	15.4%	16.0%
Housing	33.6%	41.6%	39.4%	40.9%	39.2%
Apparel and services	3.1%	3.5%	3.1%	3.1%	3.1%
Transportation	17.6%	15.0%	15.0%	14.4%	14.6%
Vehicle purchases (net outlay)	6.4%	3.8%	4.3%	3.1%	3.6%
Gasoline and motor oil	5.1%	5.7%	5.3%	5.6%	5.5%
Other vehicle expenditures	5.1%	4.6%	4.7%	5.1%	4.6%
Public transportation	1.1%	1.0%	0.7%	0.6%	0.9%
Health care	7.1%	7.3%	6.0%	9.0%	9.7%
Entertainment	4.9%	4.4%	5.1%	4.1%	4.6%
Personal Insurance & pensions	10.8%	1.0%	1.8%	2.6%	3.1%
Others ^d	9.1%	10.3%	11.8%	10.1%	8.7%
Households ^e (thousands)	125,670	5,675	5,686	8,751	8,261
Percentage of households	100.0%	4.5%	4.5%	7.0%	6.6%
Average number of vehicles in HH	1.9	0.9	0.8	1.0	1.1

	Income before taxes				
	\$20,000–\$29,999	\$30,000–\$39,999	\$40,000–\$49,999	\$50,000–\$69,999	\$70,000 and over
Total expenditures	\$32,491	\$36,093	\$41,750	\$50,637	\$85,264
		Percentage of total expenditures ^b			
Food ^c	14.4%	14.1%	13.8%	13.3%	11.7%
Housing	36.3%	36.0%	35.5%	33.5%	31.4%
Apparel and services	3.1%	3.2%	3.0%	3.1%	3.1%
Transportation	18.2%	19.0%	18.8%	19.1%	17.4%
Vehicle purchases (net outlay)	6.4%	6.4%	6.8%	6.5%	6.9%
Gasoline and motor oil	5.5%	6.2%	6.2%	6.0%	4.5%
Other vehicle expenditures	5.6%	5.6%	5.0%	5.8%	4.8%
Public transportation	0.8%	0.8%	0.8%	0.9%	1.3%
Health care	8.8%	8.4%	7.9%	7.9%	6.1%
Entertainment	4.5%	4.2%	4.4%	4.8%	5.1%
Personal Insurance & pensions	4.9%	6.4%	7.9%	9.6%	14.6%
Others ^d	8.9%	7.8%	7.9%	8.0%	9.7%
Households ^e (thousands)	14,750	13,031	11,179	17,887	40,451
Percentage of households	11.7%	10.4%	8.9%	14.2%	32.2%
Average number of vehicles in HH	1.4	1.6	1.9	2.1	2.6

Source:

U.S. Department of Labor, Bureau of Labor Statistics, website: www.bls.gov/cex/, March 2015. (Additional resources: www.bls.gov)

^a Public assistance monies are included in reported income. Data for those reporting income.

^b Percentages may not sum to totals due to rounding.

^c Includes alcoholic beverages.

^d Includes personal care, reading, education, tobacco and smoking supplies, cash contributions, and miscellaneous items.

^e The term household refers to a “consumer unit,” which is defined differently than households on Table 8.1.



The average amount of money that a household spends in a year has changed very little between 1985 and 2013 in constant dollar terms. Expenditures on transportation were 19.4% of the total in 1985, but were 17.6% in 2013. Vehicle purchases made up more than one-third of transportation expenditures in 2013, while gas and oil were 29%.

Table 8.4
Annual Household Expenditures for Transportation, 1985-2013
(constant 2013 dollars)

Year	Transportation expenditures					Average annual household expenditures	Transportation share of annual expenditures
	Vehicle purchases	Gas & Oil	Other vehicle expenses ^a	Public transportation	Total transportation		
1985	4,466	2,265	2,763	574	10,065	51,909	19.4%
1986	4,969	1,962	2,920	531	10,383	51,946	20.0%
1987	4,134	1,807	2,935	531	9,409	50,808	18.5%
1988	4,702	1,839	3,058	524	10,122	51,965	19.5%
1989	4,411	1,854	3,126	522	9,914	53,210	18.6%
1990	3,870	1,879	2,973	540	9,261	51,800	17.9%
1991	3,684	1,707	3,038	527	8,954	52,145	17.2%
1992	3,598	1,616	2,999	477	8,687	50,688	17.1%
1993	3,731	1,575	3,044	513	8,860	50,680	17.5%
1994	4,249	1,556	3,127	618	9,551	51,464	18.6%
1995	4,091	1,550	3,153	561	9,356	51,356	18.2%
1996	4,338	1,642	3,188	635	9,802	52,844	18.5%
1997	4,145	1,611	3,356	566	9,680	52,464	18.5%
1998	4,349	1,472	3,266	610	9,697	53,251	18.2%
1999	4,764	1,498	3,265	571	10,099	54,734	18.5%
2000	4,689	1,780	3,172	597	10,238	54,435	18.8%
2001	4,970	1,697	3,219	533	10,417	54,451	19.1%
2002	4,892	1,621	3,302	523	10,339	55,108	18.8%
2003	4,901	1,713	3,059	506	10,180	54,114	18.8%
2004	4,189	1,971	2,917	544	9,620	53,516	18.0%
2005	4,227	2,401	2,790	534	9,953	55,357	18.0%
2006	3,953	2,573	2,721	584	9,831	55,926	17.6%
2007	3,645	2,679	2,912	604	9,840	55,770	17.6%
2008	2,981	2,938	2,836	555	9,309	54,626	17.0%
2009	2,885	2,157	2,754	520	8,316	53,280	15.6%
2010	2,765	2,278	2,632	527	8,202	51,397	16.0%
2011	2,764	2,750	2,541	534	8,589	51,477	16.7%
2012	3,257	2,796	2,526	550	9,130	52,196	17.5%
2013	3,271	2,611	2,584	537	9,004	51,100	17.6%

Source:

U.S. Department of Labor, Bureau of Labor Statistics, Consumer Expenditure Survey, www.bls.gov/cex, March 2015. (Additional resources: www.bls.gov)

^a Other vehicle expenses include vehicle finance charges, maintenance and repairs, insurance, licenses, and other vehicle charges.



Household vehicle ownership shows a dramatic increase from 1960 to 1990. In 1960, nearly 79% of households owned less than two vehicles; by 1990, it declined to 45%. Census data prior to 1990 indicated that the majority of households owned one vehicle; in 1990 that changed to two vehicles. Since 2000, less than 10% of households had no vehicles. The American Community Survey now collects these data on an annual basis, thus annual data are available after 2010.

Table 8.5
Household Vehicle Ownership, 1960–2013 Census
(percentage)

	No vehicles	One vehicle	Two vehicles	Three or more vehicles
1960	21.5%	56.9%	19.0%	2.5%
1970	17.5%	47.7%	29.3%	5.5%
1980	12.9%	35.5%	34.0%	17.5%
1990	11.5%	33.7%	37.4%	17.3%
2000	9.4%	33.8%	38.6%	18.3%
2010	9.1%	33.8%	37.6%	19.5%
2011	9.3%	34.1%	37.5%	19.1%
2012	9.2%	34.1%	37.3%	19.3%
2013	9.1%	33.9%	37.3%	19.7%

Source:

U. S. Department of Transportation, Volpe National Transportation Systems Center, *Journey-to-Work Trends in the United States and its Major Metropolitan Area, 1960–1990*, Cambridge, MA, 1994, p. 2-2.

2000 data – U.S. Bureau of the Census, American Fact Finder, factfinder.census.gov, Table QT-04, August 2001.
(Additional resources: www.census.gov)

2010-2013 data – U.S. Bureau of the Census, American Community Survey, Table CP04, 2014.



2009 National Household Travel Survey Daily Trip Data

The Department of Transportation (DOT) collected data on daily trips in 1969, 1977, 1983, 1990 and 1995 via the Nationwide Personal Transportation Survey (NPTS). For 2001, the DOT combined the collection of long trip and daily trip data into one survey – the 2001 National Household Travel Survey (NHTS). The long trip data were not included in the 2009 NHTS.

The NHTS is the nation's inventory of daily travel. The survey includes demographic characteristics of households, people, vehicles, and detailed information on daily travel for all purposes by all modes. NHTS survey data are collected from a sample of U.S. households and expanded to provide national estimates of trips and miles by travel mode, trip purpose, and a host of household attributes.

The NHTS was designed to continue the NPTS series, but as with all data surveys, caution should be used when comparing statistics from one survey to another due to changes in terminology, survey procedures, and target population. The 2001 and 2009 surveys collected data on trips of children under 5 years of age, while the previous NPTS did not. Improved methodologies first used in the collection of trip information in the 1995 NPTS make it difficult to compare these data with past NPTS survey data. Thus, the 1990 NPTS trip data have been adjusted to make it comparable with the later surveys.

The next NHTS will be conducted in 2015.

Table 8.6
Demographic Statistics from the 1969, 1977, 1983, 1990, 1995 NPTS and 2001, 2009 NHTS

	1969	1977	1983	1990	1995	2001	2009	Percent change 1969–2009
Persons per household	3.16	2.83	2.69	2.56	2.63	2.58	2.50	-21%
Vehicles per household	1.16	1.59	1.68	1.77	1.78	1.89	1.87	61%
Workers per household	1.21	1.23	1.21	1.27	1.33	1.35	1.34	11%
Licensed drivers per household	1.65	1.69	1.72	1.75	1.78	1.77	1.88	14%
Vehicles per worker	0.96	1.29	1.39	1.40	1.34	1.39	1.40	46%
Vehicles per licensed driver	0.70	0.94	0.98	1.01	1.00	1.06	1.00	42%
Average vehicle trip length (miles)	8.89	8.34	7.90	8.98	9.06	9.87	9.72	9%

Note: Average vehicle trip length for 1990 and 1995 is calculated using only those records with trip mileage information present. The 1969 survey does not include pickups and other light trucks as household vehicles. Data on vehicles per household and licensed drivers per household will not match Table 8.2.

Sources:

U.S. Department of Transportation, Federal Highway Administration, *1990 Nationwide Personal Transportation Survey: Summary of Travel Trends*, FHWA-PL-92-027, Washington, DC, March 1992, Table 2. Data for 1995, 2001 and 2009 were generated from the website nhts.ornl.gov. (Additional resources: www.fhwa.dot.gov)



Due to methodology improvements in collecting trip information, the 2001 and 1995 data should be compared only to the 1990 adjusted data. The original 1990 data are comparable to all previous surveys; however, comparisons should always be made with caution because of differing survey methodologies.

Table 8.7
Average Annual Vehicle-Miles, Vehicle Trips and Trip Length per Household
1969, 1977, 1983, 1990, 1995 NPTS and 2001, 2009 NHTS

	Journey-to-work ^a	All trips
<i>Average annual vehicle-miles per household</i>		
1969	4,183	12,423
1977	3,815	12,036
1983	3,538	11,739
1990 original	4,853	15,100
1990 adjusted	4,853	18,161
1995	6,492	20,895
2001	5,724	21,171
2009	5,513	19,850
<i>Average annual vehicle trips per household</i>		
1969	445	1,396
1977	423	1,442
1983	414	1,486
1990 original	448	1,702
1990 adjusted	448	2,077
1995	553	2,321
2001	479	2,171
2009	457	2,068
<i>Average vehicle trip length (miles)</i>		
1969	9.4	8.9
1977	9.0	8.4
1983	8.5	7.9
1990 original	11.0	9.0
1990 adjusted	11.0	8.9
1995	11.8	9.1
2001	12.2	9.9
2009	12.2	9.7

Sources:

U.S. Department of Transportation, Federal Highway Administration, *1990 Nationwide Personal Transportation Survey: Summary of Travel Trends*, FHWA-PL-92-027, Washington, DC, March 1992, Table 7. 1990 adjusted data – Oak Ridge National Laboratory, Oak Ridge, TN, August 1998. 1995 NPTS, 2001, 2009 NHTS data were generated from the website nhts.ornl.gov. (Additional resources: www.fhwa.dot.gov, nhts.ornl.gov)

^a It is believed that the methodology changes in the 1995 NPTS did not affect journey-to-work trips; therefore, no adjustment is necessary.



In 2001 and 2009 annual vehicle-miles traveled (vmt) for a three-person household is around 28,000 miles. The number of drivers in a household makes a big difference in vmt, as does the presence of children in the household. Households with children have more than double the vmt of households without children.

Table 8.8
Average Number of Vehicles and Vehicle Travel per Household,
1990 NPTS and 2001 and 2009 NHTS

	Average number of vehicles per household			Average vehicle-miles traveled per household		
	1990	2001	2009	1990	2001	2009
Number of licensed drivers						
1	1.5	1.2	1.1	15,200	9,700	8,800
2	2.1	2.2	2.2	22,900	25,800	23,500
3	2.9	3.0	3.0	29,400	37,900	37,700
4 or more	3.8	3.8	3.9	40,500	47,200	55,200
Household size						
1 person	1.2	1.0	1.0	11,400	7,500	7,100
2 persons	1.9	2.0	2.0	19,300	21,200	17,500
3 persons	2.2	2.3	2.3	23,700	28,400	27,900
4 persons	2.4	2.4	2.4	25,300	28,600	33,200
5 persons	2.4	2.4	2.4	24,900	33,200	33,700
6 or more persons	2.7	2.5	2.4	29,200	33,800	33,600
Household urban status						
Urban	1.9	1.8	1.7	19,000	19,300	17,600
Rural	2.1	2.3	2.4	22,200	28,400	27,700
Household composition						
With children	2.2	2.2	2.2	24,100	28,300	30,400
Without children	1.8	1.7	1.7	17,600	16,700	14,400
All households	1.8	1.9	1.9	18,300	21,200	19,900

Source:

Generated from the Department of Transportation, Federal Highway Administration, Nationwide Personal Transportation Survey Public Use Files, Washington, DC, 2000 and the National Household Travel Survey website: nhts.ornl.gov. (Additional resources: nhts.ornl.gov)



In 2009, 22% of vehicle trips were traveling to and from work. Another 22% of trips were for shopping. Shopping is done close to home, as the average trip length for shopping was only 6.5 miles.

Table 8.9
Trip Statistics^a by Trip Purpose, 2001 and 2009 NHTS

Trip purpose	Share of trips		Share of vehicle- miles traveled		Trip length (miles)		Trip length (minutes)	
	2001	2009	2001	2009	2001	2009	2001	2009
To/from work	22.1%	22.3%	27.0%	28.7%	12.1	12.2	22.3	22.9
Work-related business	4.1%	3.9%	8.4%	7.2%	20.3	17.2	30.9	27.5
Shopping	21.1%	22.8%	14.5%	15.5%	6.7	6.5	14.4	14.4
Other family/personal business	24.7%	21.9%	18.7%	15.7%	7.5	6.8	15.2	14.8
School/church	4.9%	5.0%	3.7%	4.6%	7.5	8.8	15.8	17.5
Medical/dental	2.2%	2.6%	2.2%	2.6%	9.9	9.9	20.7	21.2
Vacation	0.4%	0.7%	1.8%	2.3%	47.4	31.4	59.6	41.3
Visit friends/relatives	6.3%	5.7%	9.4%	9.4%	14.9	15.7	24.4	24.6
Other social/recreational	13.7%	14.9%	13.2%	13.5%	9.6	8.6	18.2	17.2
Other	0.5%	0.3%	1.0%	0.6%	18.1	19.0	31.4	29.7
All	100.0%	100.0%	100.0%	100.0%	9.9	9.7	18.7	18.6

Note: The "All" category for average trip length and duration includes records for which trip purpose was not identified.

Source:

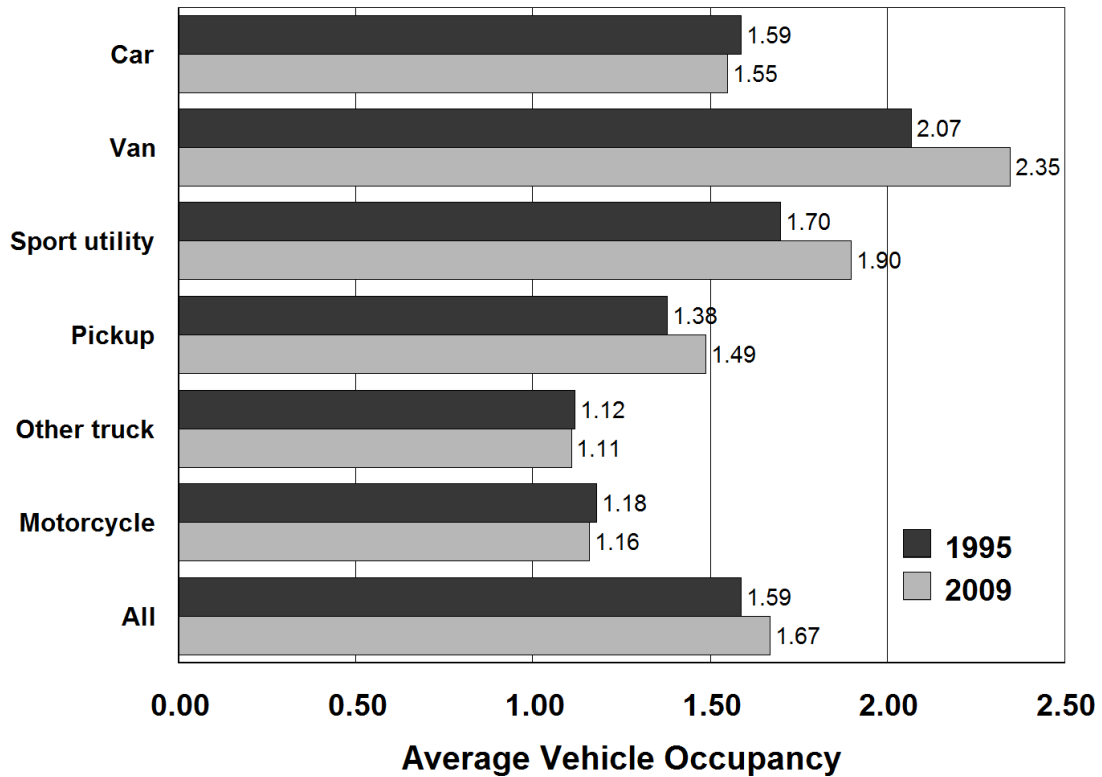
Generated from the National Household Travel Survey website: nhts.ornl.gov.

^a Percentages may not sum to totals due to rounding.



While car occupancy stayed nearly constant from 1995 to 2009, most other vehicle types showed increased occupancy. Vans and sport utility vehicles have higher vehicle occupancies than cars.

Figure 8.1. Average Vehicle Occupancy by Vehicle Type, 1995 NPTS and 2009 NHTS



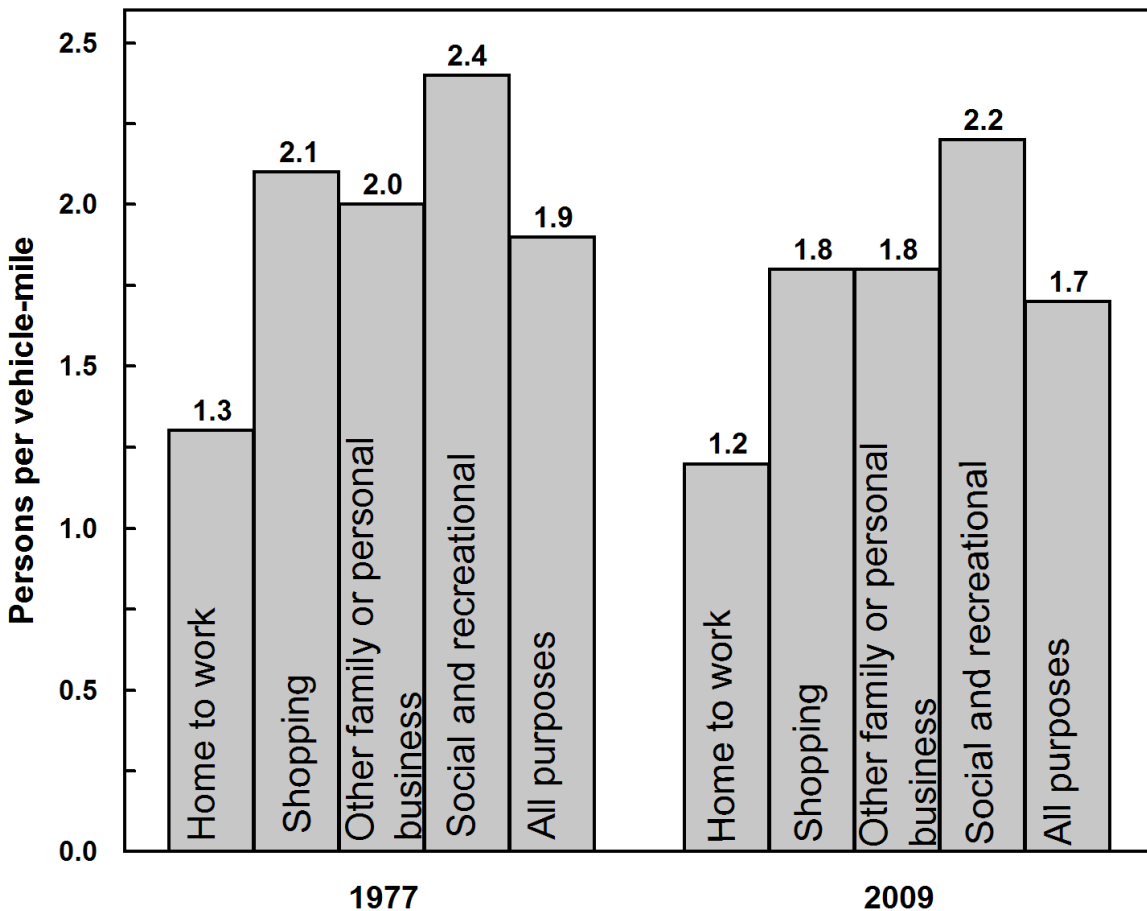
Sources:

U.S. Department of Transportation, Federal Highway Administration, *1995 Nationwide Personal Transportation Survey*, Washington, DC, 1997, and *2009 National Household Travel Survey*, Washington, DC. (Additional resources: www.fhwa.dot.gov, website: nhts.ornl.gov)



The average vehicle occupancy, calculated as person-miles per vehicle-mile, is highest for social and recreational purposes. The highest vehicle occupancy levels for all purposes were in 1977. The increase in number of vehicles per household and the decrease in average household size could have contributed to the decline since then.

**Figure 8.2. Average Vehicle Occupancy by Trip Purpose
1977 NPTS and 2009 NHTS**



Sources:

U.S. Department of Transportation, Federal Highway Administration, *1990 Nationwide Personal Transportation Survey: Summary of Travel Trends*, FHWA-PL-92027, Washington, DC, March 1992, Figure 6. Data from 2009 NHTS were generated from the website nhts.ornl.gov, March 2011. (Additional resources: www.fhwa.dot.gov, nhts.ornl.gov)



The 1990 household survey reports the highest average annual miles per vehicle and the 1983 survey reports the lowest. These data show that younger vehicles are typically driven more miles than older vehicles.

Table 8.10
Average Annual Miles per Household Vehicle by Vehicle Age

Vehicle age (years)	1983 self-reported	1990 self-reported	1995 self-reported	2001 self-reported	2009 self-reported
Under 1	8,200	19,600	15,900	15,500	13,200
1	15,200	16,800	16,800	14,300	14,600
2	16,800	16,600	15,500	14,000	13,900
3	14,500	14,700	14,400	13,100	12,700
4	13,000	13,600	14,100	12,500	12,600
5	12,100	12,900	13,500	12,000	12,800
6	11,300	13,200	13,200	11,800	12,100
7	10,000	12,400	12,800	11,600	11,900
8	9,800	12,600	12,200	10,900	11,500
9	9,000	11,500	12,200	10,800	11,300
10 and older	7,300	9,200	8,900	7,400	9,300
All household vehicles	10,400	12,500	12,200	11,100	11,300

Note: Data include all household vehicles, and have been rounded to the nearest hundred.

Sources:

Nationwide Personal Transportation Study—1983: D. Klinger and J. Richard Kuzmyak, COMSIS Corporation, *Personal Travel in the United States, Volume 1: 1983–84 Nationwide Personal Travel Study*, prepared for the U.S. Department of Transportation, Washington, DC, August 1986, Table 4-22, p. 4-21. 1990: Generated from the *1990 Nationwide Personal Transportation Study Public Use Tape*, March 1992. 1995, 2001 and 2009: Generated from the 2009 NHTS datasets, version 2, February 2011. (Additional resources: nhts.ornl.gov)



Historically, the data from the Nationwide Personal Transportation Survey (NPTS) are based on estimates reported by survey respondents. For the 1995 NPTS and the 2001 National Household Travel Survey (NHTS), odometer data were also collected. The 1995 data indicate that respondents overestimate the number of miles they drive in a year, but the 2001 data do not show that same trend.

Table 8.11
Self-Reported vs. Odometer Average Annual Miles, 1995 NPTS and 2001 NHTS

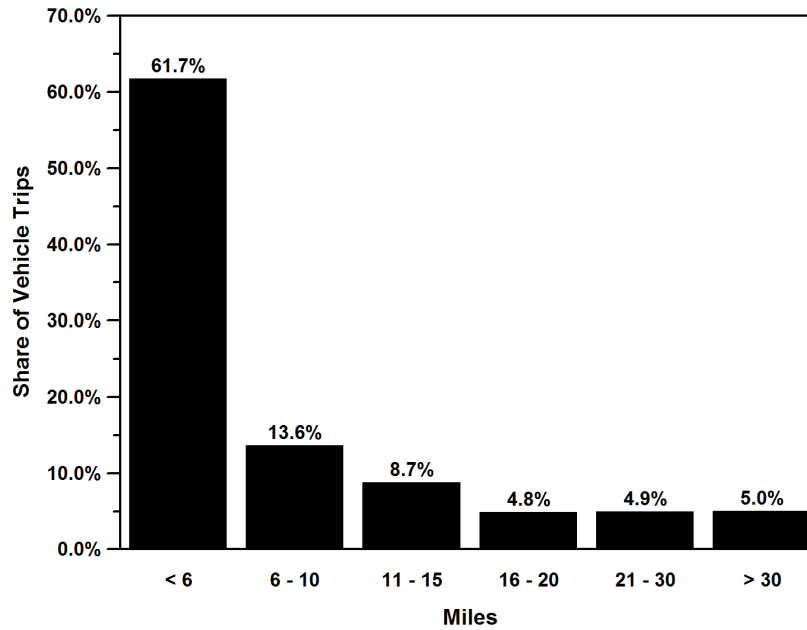
Vehicle age (years)	1995 self-reported	1995 odometer	2001 self-reported	2001 odometer
Under 1	15,900	15,600	15,500	14,500
1	16,800	14,500	14,300	14,200
2	15,500	14,800	14,000	13,700
3	14,400	13,800	13,100	14,100
4	14,100	12,900	12,500	13,400
5	13,500	12,700	12,000	12,900
6	13,200	12,400	11,800	12,400
7	12,800	11,600	11,600	12,100
8	12,200	11,300	10,900	11,300
9	12,200	11,200	10,800	10,500
10 and older	8,900	9,000	7,400	8,100
All household vehicles	12,200	11,800	11,000	11,800

Note: The 2009 NHTS did not collect similar data. Survey methodology on odometer reading data differs from 1995 to 2001 data.

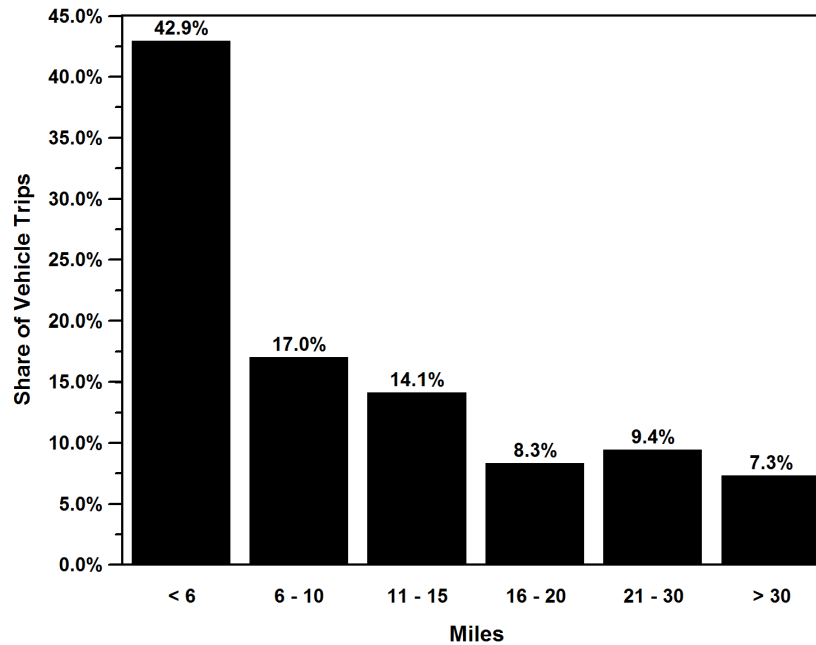
Source:

Generated from the website: nhts.ornl.gov and 2001 NHTS public use file.



Figure 8.3. Share of Vehicle Trips by Trip Distance, 2009 NHTS**Source:**

National Household Travel Survey, website nhts.ornl.gov.

Figure 8.4. Share of Vehicle Trips to Work by Trip Distance, 2009 NHTS**Source:**

National Household Travel Survey, website: nhts.ornl.gov.



Nineteen percent of new vehicles (1 year old and under) travel over 20,000 miles per year. Almost half of the vehicles over 20 years old travel less than 4,000 miles in a year.

Table 8.12
Share of Vehicles by Annual Miles of Travel and Vehicle Age, 2009 NHTS

Annual vehicle miles of travel	Vehicle age (years)						
	1 and under	2	3	4	5	6	7
< 1,000 miles	2%	3%	3%	3%	3%	4%	3%
1 - 2,000 miles	2%	3%	2%	3%	3%	3%	3%
2 - 4,000 miles	5%	6%	7%	7%	6%	7%	9%
4 - 6,000 miles	7%	10%	9%	8%	8%	10%	10%
6 - 8,000 miles	10%	10%	11%	11%	10%	12%	12%
8 - 10,000 miles	11%	11%	11%	11%	11%	12%	12%
10 - 12,000 miles	9%	11%	11%	11%	12%	11%	11%
12 - 15,000 miles	16%	15%	14%	15%	15%	14%	13%
15 - 20,000 miles	18%	15%	17%	17%	16%	14%	14%
20 - 30,000 miles	13%	11%	12%	11%	11%	10%	9%
>30,000 miles	6%	5%	4%	3%	4%	4%	3%
All	100%	100%	100%	100%	100%	100%	100%

Annual vehicle miles of travel	Vehicle age (years)					
	8	9	10	11-15	16-20	Over 20
< 1,000 miles	4%	4%	4%	6%	9%	19%
1 - 2,000 miles	4%	4%	4%	5%	7%	8%
2 - 4,000 miles	9%	9%	10%	11%	16%	19%
4 - 6,000 miles	11%	12%	12%	14%	14%	14%
6 - 8,000 miles	12%	12%	11%	14%	13%	12%
8 - 10,000 miles	13%	11%	12%	12%	10%	7%
10 - 12,000 miles	11%	11%	11%	10%	8%	6%
12 - 15,000 miles	13%	13%	12%	10%	8%	5%
15 - 20,000 miles	12%	13%	14%	9%	7%	5%
20 - 30,000 miles	9%	8%	7%	7%	4%	3%
>30,000 miles	3%	3%	3%	3%	2%	2%
All	100%	100%	100%	100%	100%	100%

Source:

Generated from the Department of Transportation, Federal Highway Administration, *2009 National Household Travel Survey* website: nhts.ornl.gov. (Additional resources: nhts.ornl.gov)



The average driver makes three trips per day with an average of 9.7 miles for each trip.

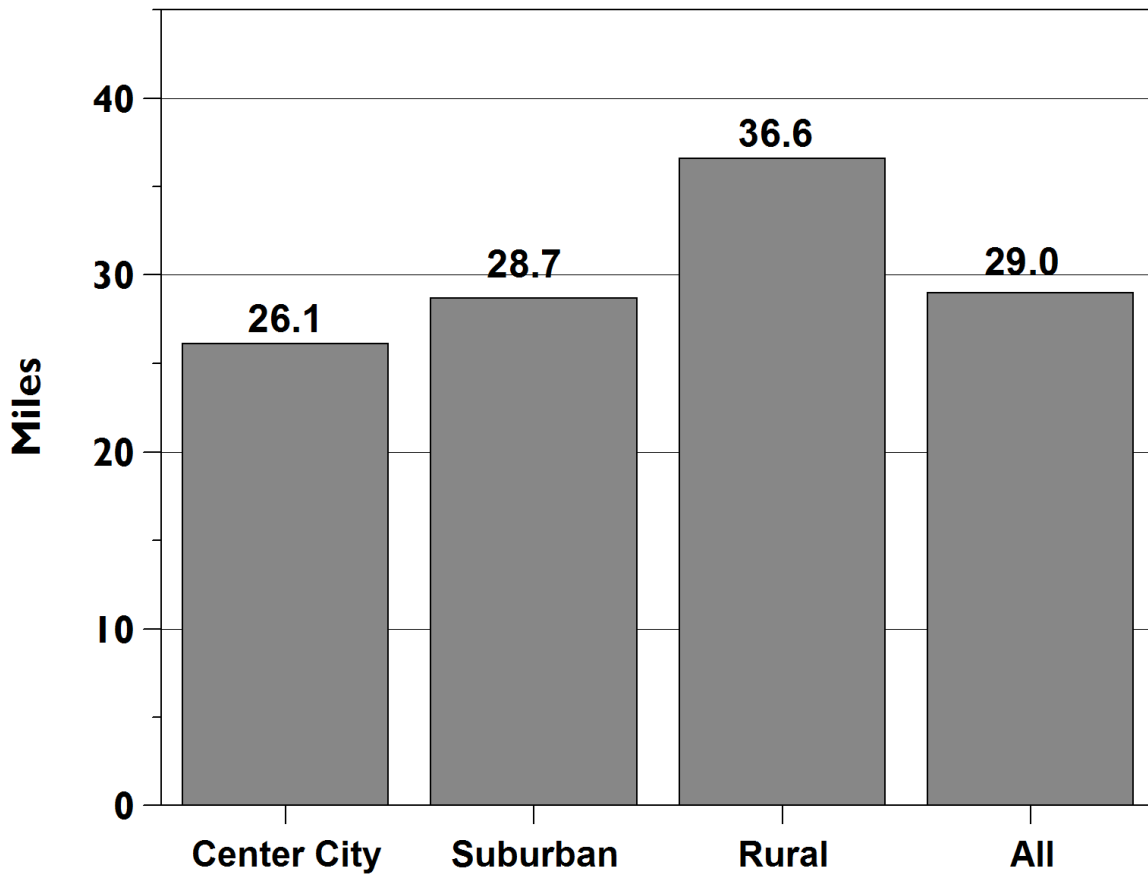
Table 8.13
Household Vehicle Trips, 2009 NHTS

	Number of daily vehicle trips (per driver)	Average vehicle trip length (miles)	Daily vehicle miles of travel (per driver)
1990	3.3	8.9	28.5
1995	3.6	9.1	32.1
2001	3.4	9.9	32.7
2009	3.0	9.7	29.0

Source:

National Household Travel Survey website: nhts.ornl.gov.

Figure 8.5. Average Daily Miles Driven (per Driver), 2009 NHTS



Source:

National Household Travel Survey website: nhts.ornl.gov.



Table 8.14
Daily Vehicle Miles of Travel (per Vehicle) by Number of Vehicles
in the Household, 2009 NHTS

Number of household vehicles	Daily miles per vehicle	
	2001	2009
1	25.6	29.1
2	27.5	32.7
3	24.2	31.3
4	23.0	30.2
5	21.1	27.6
More than 5	18.4	27.2
All	25.2	31.1

Source:

2009 National Household Travel Survey, website: nhts.ornl.gov.

Table 8.15
Daily and Annual Vehicle Miles of Travel and Average Age for
Each Vehicle in a Household, 2009 NHTS

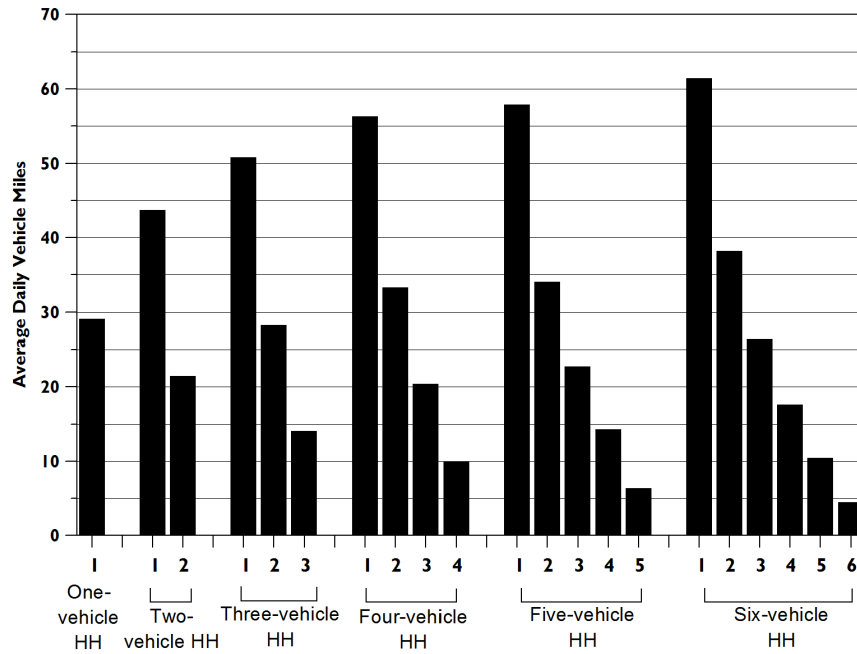
Vehicle number	Average daily miles	Average annual miles	Average age (years)
One-vehicle household			
1	29.0	10,600	9.0
Two-vehicle household			
1	43.6	15,900	7.6
2	21.4	7,800	9.0
Three-vehicle household			
1	50.7	18,500	7.9
2	28.2	10,300	9.1
3	14.0	5,100	11.8
Four-vehicle household			
1	56.2	20,500	8.5
2	33.2	12,100	8.8
3	20.3	7,400	11.4
4	9.9	3,600	13.2
Five-vehicle household			
1	57.8	21,100	8.5
2	34.0	12,400	9.4
3	22.7	8,300	12.3
4	14.2	5,200	12.7
5	6.3	2,300	16.8
Six-vehicle household			
1	61.4	22,400	10.2
2	38.1	13,900	9.8
3	26.3	9,600	12.2
4	17.5	6,400	12.5
5	10.4	3,800	14.5
6	4.4	1,600	17.9

Source:

2009 National Household Travel Survey, website: nhts.ornl.gov.

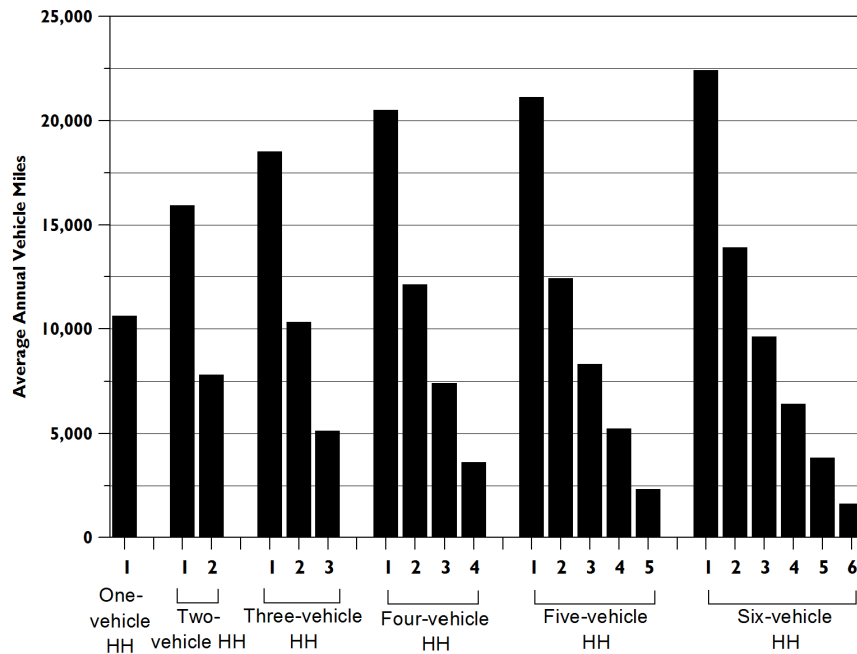


Figure 8.6. Daily Vehicle Miles of Travel for Each Vehicle in a Household, 2009 NHTS



Source:
 2009 National Household Travel Survey, website: nhts.ornl.gov.

Figure 8.7. Annual Vehicle Miles of Travel for Each Vehicle in a Household, 2009 NHTS



Source:
 2009 National Household Travel Survey, website: nhts.ornl.gov.



According to the U.S. Census data, the percentage of workers who car pooled has dropped from 19.7% in 1980 to 9.8% in 2013. The percent of workers using public transit declined from 6.4% to 5.3% in the ten-year period between 1980 and 1990, but stayed relatively the same from 1990 to 2013 (~5.0%). The average travel time increased by 4.1 minutes from 1980 to 2013. The American Community Survey (ACS) now collects journey-to-work data on an annual basis. It shows the average commute time as 25.8 minutes in 2013.

Table 8.16
Means of Transportation to Work, 1980, 1990, 2000, and 2013

Means of transportation	1980 Census		1990 Census		2000 Census		2013 ACS	
	Number of workers (thousands)	Share	Number of workers (thousands)	Share	Number of workers (thousands)	Share	Number of workers (thousands)	Share
Private vehicle	81,258	84.1%	99,593	86.5%	112,737	87.9%	120,357	86.1%
<i>Drove alone</i>	62,193	64.4%	84,215	73.2%	97,102	75.7%	106,725	76.3%
<i>Car pooled</i>	19,065	19.7%	15,378	13.4%	15,635	12.2%	13,631	9.8%
Public transportation	6,175	6.4%	6,068	5.3%	6,068	4.7%	7,159	5.1%
<i>Bus or trolley bus^a</i>	3,925	4.1%	3,445	3.0%	3,207	2.5%	3,670	2.6%
<i>Streetcar or trolley car^a</i>	<i>b</i>	<i>b</i>	78	0.1%	73	0.1%	84	0.1%
<i>Subway or elevated</i>	1,529	1.6%	1,755	1.5%	1,886	1.5%	2,441	1.7%
<i>Railroad</i>	554	0.6%	574	0.5%	658	0.5%	763	0.5%
<i>Ferryboat</i>	<i>b</i>	<i>b</i>	37	0.0%	44	0.0%	42	0.0%
Taxicab	167	0.2%	179	0.2%	200	0.2%	158	0.1%
Motorcycle	419	0.4%	237	0.2%	142	0.1%	295	0.2%
Bicycle	468	0.5%	467	0.4%	488	0.4%	802	0.6%
Walked only	5,413	5.6%	4,489	3.9%	3,759	2.9%	3,923	2.8%
Other means	703	0.7%	809	0.7%	901	0.7%	1,204	0.9%
Worked at home	2,180	2.3%	3,406	3.0%	4,184	3.3%	6,046	4.3%
Total workers	96,616	100.0%	115,069	100.0%	128,279	100.0%	139,787	100.0%
Average travel time (minutes)	21.7		22.4		25.5		25.8	

Sources:

1980-1990 data – Provided by the Journey-to-Work and Migration Statistics Branch, Population Division, U.S. Bureau of the Census.

2000 data – U.S. Bureau of the Census, *Journey to Work: 2000*, Tables 1 and 2, 1990-2000, March 2004 (www.census.gov/population/www/socdemo/journey.html).

2013 data – U.S. Bureau of the Census, *2009-2013 American Community Survey Five-Year Estimates*, Tables B08301 and GCT0801. (Additional resources: www.census.gov)

^a This category was "Bus or streetcar" in 1980.

^b Data are not available.



Table 8.17
Characteristics of U.S. Daily per Vehicle Driving vs. Dwelling Unit Type and Density

	Share of vehicles in density type	Hours per vehicle per day	Average vehicle speed (miles/hour)	Miles per vehicle per day
All classes detached single house	77.0%	0.92	32.0	29.6
All classes other	23.0%	0.99	27.7	27.4
<1,000/sq. mile detached single house	81.6%	0.91	34.7	31.6
<1,000/sq. mile all other	18.4%	0.91	32.5	29.5
1,000-4,000/sq. mile detached single house	75.5%	0.94	27.5	26.0
1,000-4,000/sq. mile all other	24.5%	1.03	25.1	25.9
4,000-10,000/sq. mile detached single house	42.5%	0.96	26.1	25.1
4,000-10,000/sq. mile all other	57.5%	1.15	21.5	24.6
10,000-25,000/sq. mile detached single house	17.8%	1.02	18.2	18.5
10,000-25,000/sq. mile all other	82.2%	1.05	21.3	22.3
>25,000/sq. mile detached single house	9.8%	0.72	20.5	14.8
>25,000/sq. mile all other	90.2%	1.23	21.9	26.9

Source:

Generated from the 2009 National Household Survey website: nhts.ornl.gov.

Table 8.18
Housing Unit Characteristics, 2013

	Share of occupied housing units	% with garage or carport
Type of housing unit		
New construction (< = 4 years)	2.0%	78.2%
Manufactured/mobile homes	6.0%	40.6%
Geographic location (Census Region)		
Northeast	18.2%	51.5%
Midwest	22.4%	74.5%
South	37.1%	60.1%
West	22.3%	80.1%
Tenure		
Owner	65.3%	80.4%
Renter	34.7%	39.7%
All occupied units	115,852 units	66.3%

Source:

U.S. Bureau of the Census, 2013 American Housing Survey, Table C-02-AO. (Additional information: www.census.gov/housing/ahs)



The average commute time was 25.5 minutes in 2013. Over 64% of workers traveled less than 30 minutes to work in 2013. In 1990, 32.5% of workers commuted less than 15 minutes; in 2013 that number dropped to 27.8%.

Table 8.19
Workers by Commute Time, 1990, 2000 and 2013

Commute time	1990	2000	2013
Less than 15 minutes	32.5%	29.4%	27.8%
15–29 minutes	37.0%	36.1%	36.4%
30–39 minutes	15.2%	15.8%	16.4%
40–59 minutes	9.2%	10.7%	11.3%
60 minutes or more	6.1%	8.0%	8.1%
Average travel time (minutes)	22.4	25.5	25.5

Sources:

1990-2000 – U.S. Bureau of the Census, *Journey to Work: 2000*, Tables 1 and 2, 1990-2000, March 2004.

2013 – U.S. Bureau of the Census, *2009-2013 American Community Survey, 5-Year Estimates*, Tables S0802 and B08303. (Additional resources: www.census.gov)



Sales of bicycles with wheel sizes of 20 inches and over have grown at an average annual rate of 0.7% from 1981 to 2013. Bicycle sales experienced a large decline in 2009, which brought total sales to 14.9 million—a new low in the 18-year series. Sales in 2013 were 16.2 million.

Table 8.20
Bicycle Sales, 1981–2013
(millions)

	Wheel sizes under 20 inches	Wheel sizes of 20 inches and over	All wheel sizes
1981	a	8.9	a
1982	a	6.8	a
1983	a	9.0	a
1984	a	10.1	a
1985	a	11.4	a
1986	a	12.3	a
1987	a	12.6	a
1988	a	9.9	a
1989	a	10.7	a
1990	a	10.8	a
1991	a	11.6	a
1992	3.7	11.6	15.3
1993	3.8	13.0	16.8
1994	4.2	12.5	16.7
1995	4.1	12.0	16.1
1996	4.5	10.9	15.4
1997	4.2	11.0	15.2
1998	4.7	11.1	15.8
1999	5.9	11.6	17.5
2000	9.0	11.9	20.9
2001	5.4	11.3	16.7
2002	5.9	13.6	19.5
2003	5.6	12.9	18.5
2004	5.3	13.0	18.3
2005	5.8	14.0	19.8
2006	5.5	12.7	18.2
2007	5.4	12.8	18.2
2008	5.1	13.4	18.5
2009	4.7	10.2	14.9
2010	6.3	13.5	19.8
2011	4.7	11.0	15.7
2012	5.7	13.0	18.7
2013	4.9	11.3	16.2
<i>Average annual percentage change</i>			
1981–2013	a	0.7%	a
2003–2013	-1.3%	-1.3%	-1.3%

Source:

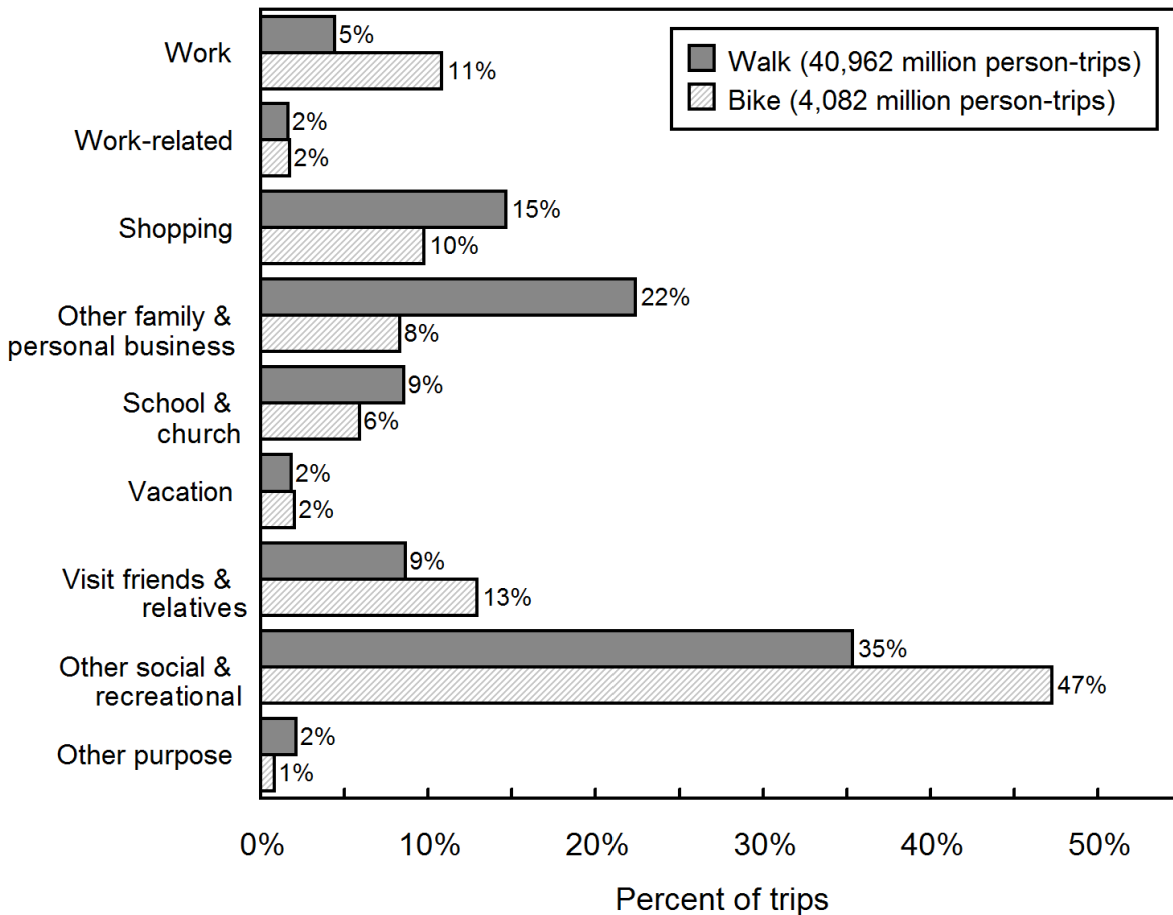
1981–1996: Bicycle Manufacturers Association. 1997–on: National Bicycle Dealers Association. (Additional resources: www.nbda.com)

^a Data are not available.



In 2009, 4.5% of walk trips and 10.9% of bike trips were to/from work. Forty-seven percent of all bike trips were for social/recreational purposes. Nearly 15% of walk trips were shopping trips.

Figure 8.8. Walk and Bike Trips by Trip Purpose, 2009 NHTS



Note: Percentages may not sum to totals due to rounding.

Source:

U.S. Department of Transportation, Federal Highway Administration, *2009 National Household Travel Survey* website: nhts.ornl.gov.



In 2009 only data on daily trips were collected in the NHTS. The 2001 data are still the latest available on long-distance trips.

Long Distance Trips – 2001 National Household Travel Survey

The 2001 National Household Travel Survey (NHTS) collected data on long-distance trips as well as everyday travel. The everyday travel data is a continuation of the Nationwide Personal Transportation Survey (NPTS), while the long-distance travel data is a continuation of the American Travel Survey (ATS) which was collected in 1977 and 1985. The survey collected trip-related data such as mode of transportation, duration, distance and purpose of trip. It also gathered demographic, geographic, and economic data for analysis purposes.

A long-distance trip is defined as a trip of 50 miles or more, one-way. Long-trip data from the 2001 NHTS were released in the summer of 2004. For additional information about the 2001 NHTS data, contact the Bureau of Transportation Statistics at 202-366-3282 or visit the following website: www.bts.gov/programs/national_household_travel_survey.



Table 8.21
Long-Distance Trip^a Characteristics, 2001 NHTS

Trip characteristic	Person trips		Person miles	
	(thousands)	(percent)	(thousands)	(percent)
Total	2,554,068	100.0	1,138,322,697	100.0
Principal means of transportation:				
Personal use vehicles	2,310,376	90.5	735,882,255	64.7
Airplane	165,039	6.5	367,888,741	32.3
Commercial airplane	158,880	6.2	361,717,015	31.8
Bus ^b	52,962	2.1	23,747,433	2.1
Intercity bus	3,456	0.1	1,765,696	0.2
Charter, tour, or school bus	45,952	1.8	21,019,942	1.9
Train	20,672	0.8	9,266,373	0.8
Round trip distance:				
100 to 300 miles	1,688,358	66.1	284,586,370	25.0
300 to 499 miles	373,550	14.6	143,571,597	12.6
500 to 999 miles	261,802	10.3	180,669,482	15.9
1,000 to 1,999 miles	125,665	4.9	178,629,838	15.7
2,000 miles or more	104,694	4.1	350,865,409	30.8
Mean (miles)	446	c	c	c
Median (miles)	206	c	c	c
Calendar quarter:				
1st quarter	566,502	22.2	246,556,190	21.7
2nd quarter	653,310	25.6	298,154,812	26.2
3rd quarter	734,878	28.8	341,021,290	30.0
4th quarter	599,378	23.5	252,590,405	22.2
Main purpose of trip:				
Commuting	329,395	12.9	65,877,968	5.8
Other business	405,866	15.9	242,353,212	21.3
Personal/leisure	1,406,411	55.1	667,471,358	58.7
Personal business	322,645	12.6	130,020,982	11.4
Other	88,230	3.5	32,031,679	2.8
Nights away from home:				
None	1,454,847	57.0	304,469,524	26.8
1 to 3 nights	808,281	31.7	414,219,147	36.4
4 to 7 nights	214,464	8.4	269,265,597	23.7
8 or more nights	76,475	3.0	150,368,429	13.2
Destination:				
Within Census division	2,077,810	81.4	549,651,116	48.3
Across Census division, within Census	196,890	7.7	134,930,113	11.9
Across Census region	279,367	10.9	453,741,468	39.9

Note: Long-distance trips were not included in the 2009 NHTS.

Source:

U.S. Bureau of Transportation Statistics and the U.S. Federal Highway Administration, *2001 National Household Transportation Survey*. (Additional resources: www.bts.gov/programs/national_household_travel_survey)

^a A long-distance trip is defined as a trip of 50 miles or more, one-way.

^b Includes other types of buses.

^c Not applicable.

