III. THE FREIGHT TRANSPORTATION SYSTEM

Freight in America travels over an extensive network of highways, railroads, waterways, pipelines, and airways. Existing and anticipated increases in the number of freight vehicles, vessels, and other conveyances on both public and private infrastructure are stressing system capacity, increasing maintenance requirements, and threatening system performance.

Table 3-1. Miles of Infrastructure by Transportation Mode: 1980-2009

	1980	1990	2000	2008	2009
Public roads, route miles	3,859,837	3,866,926	3,951,101	4,059,343	NA
National Highway System (NHS)	N	N	161,189	164,096	NA
Interstates	41,120	45,074	46,673	47,013	NA
Other NHS	N	N	114,516	117,083	NA
Other	N	N	3,789,912	3,895,246	NA
Strategic Highway Corridor Network (STRAHNET)	N	N	62,066	62,253	NA
Interstate	N	N	46,675	47,013	NA
Non-Interstate	N	N	15,389	15,240	NA
Railroad	183,077[1]	175,909	170,512	139,326	139,118
Class I	NA	133,189	120,597	94,082	93,921
Regional	NA	18,375	20,978	16,690	12,804
Local	NA	24,337	28,937	28,554	32,393
Inland waterways					
Navigable channels	11,000	11,000	11,000	11,000	11,000
Great Lakes-St. Lawrence Seaway	2,342	2,342	2,342	2,342	2,342
Pipelines					
Oil	218,393	208,752	176,996	173,000	171,328
Gas	1,051,774	1,189,200	1,369,300	1,525,000	1,526,400

Key: N = not applicable; NA = not available.
[1]Excludes Class III railroads.

Since 1980, road infrastructure increased slowly despite a large increase in the volume of traffic. Over the same period, rail miles declined by 24 percent while gas pipeline mileage increased by more than 30 percent.

TABLE 3-1. MILES OF INFRASTRUCTURE BY TRANSPORTATION MODE: 1980-2009
Sources: Public Roads: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: annual issues), tables HM-16 and HM-49, available at www.fhwa.dot.gov/policyinformation/statistics/2009/ as of October 5, 2011. **Rail:** Association of American Railroads, *Railroad Facts* (Washington, DC: annual issues). **Navigable channels:** U.S. Army Corps of Engineers, *A Citizen's Guide to the USACE*, available at www.corpsreform.org/sitepages/downloads/CitzGuideChptr1.pdf as of October 5, 2011. **Great Lakes-St. Lawrence Seaway:** The St. Lawrence Seaway Management Corporation, "The Seaway," available at www.greatlakes-seaway.com/en/seaway/facts/index.html as of October 5, 2011. **Oil pipelines: 1980-2000:** Eno Transportation Foundation, *Transportation in America, 2002* (Washington, DC: 2002). **2001-2009:** U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, *Pipeline Statistics*, available at www.phmsa.dot.gov/pipeline/library/data-stats as of October 5, 2011. **Gas pipelines:** American Gas Association, *Gas Facts* (Arlington, VA: annual issues).

Table 3-2. Number of U.S. Vehicles, Vessels, and Other Conveyances: 1980-2009

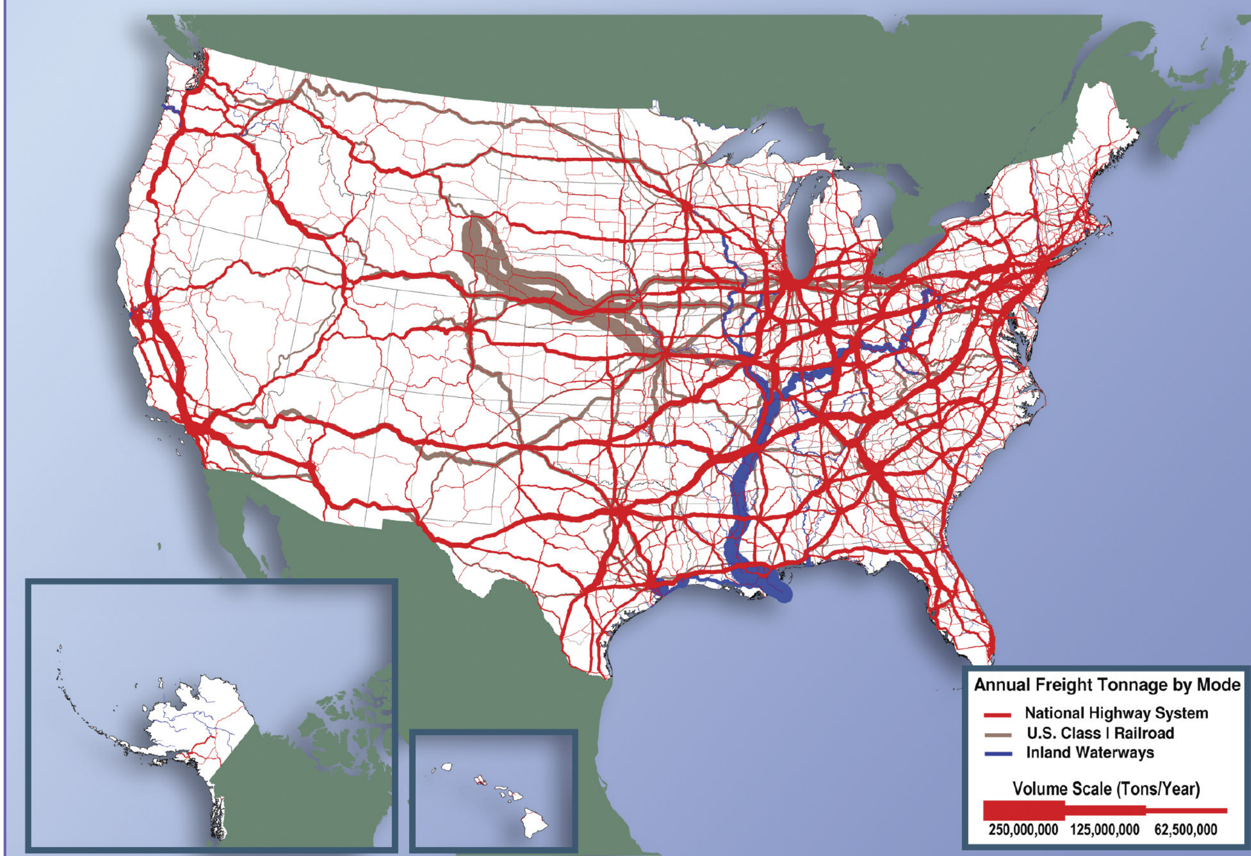
	1980	1990	2000	2008	2009
Highway[1]	-	-	-	**255,917,664**	**254,212,610**
Truck, single-unit 2-axle 6-tire or more	-	-	-	8,288,046	8,356,097
Truck, combination	-	-	-	2,585,229	2,617,118
Truck, total	-	-	-	10,873,275	10,973,215
Trucks as percent of all highway vehicles	-	-	-	4.2	4.3
Rail					
Class I, locomotive	28,094	18,835	20,028	24,003	24,045
Class I, freight cars[2]	1,168,114	658,902	560,154	450,297	416,180
Nonclass I, freight cars[2]	102,161	103,527	132,448	109,487	108,233
Car companies and shippers freight cars[2]	440,552	449,832	688,194	833,188	839,020
Water	**38,788**	**39,445**	**41,354**	**40,301**	**40,109**
Nonself-propelled vessels[3]	31,662	31,209	33,152	31,238	31,008
Self-propelled vessels[4]	7,126	8,236	8,202	9,063	9,101

[1]Based on a new methodology, FHWA revised its annual vehicle miles travelled, number of vehicles, and fuel economy data beginning with 2007. Information on the new methodology is available at www.fhwa.dot.gov/policyinformation/statistics.cfm. Data in this table should not be compared to those in previous editions of *Freight Facts and Figures*.
[2]Beginning with 2001 data, Canadian-owned U.S. railroads are excluded. Canadian-owned U.S. railroads accounted for over 46,000 freight cars in 2000.
[3]Nonself-propelled vessels include dry-cargo barges, tank barges, and railroad-car floats.
[4]Self-propelled vessels include dry cargo, passenger, off-shore support, tankers, and towboats.

A vast number of vehicles and vessels move goods over the transportation network. The number of commercial trucks has been relatively stable in recent years, while the number of rail freight cars declined by about 10 percent with improved utilization and the deployment of larger cars.

Table 3-2. Number of U.S. Vehicles, Vessels, and Other Conveyances: 1980-2009
Sources: Highway: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: annual issues), table VM-1, available at www.fhwa.dot.gov/policyinformation/statistics/2009/ as of October 5, 2011. **Rail: Locomotive:** Association of American Railroads, *Railroad Facts* (Washington, DC: annual issues). **Freight cars:** Association of American Railroads, Railroad Equipment Report (Washington, DC: annual issues). **Water: Nonself-propelled vessels and self-propelled vessels:** U.S. Army, Corps of Engineers, *Waterborne Transportation Lines of the United States, Volume 1, National Summaries* (New Orleans, LA: annual issues). **Oceangoing steam motor ships and U.S. Flag fleet:** U.S. Department of Transportation, Maritime Administration, Merchant Fleets of the World, available at www.marad.dot.gov/library_landing_page/data_and_statistics/Data_and_Statistics.htm as of September 20, 2011.

Figure 3-1. Tonnage on Highways, Railroad, and Inland Waterways: 2007



Trucks carry most of the tonnage and value of freight in the United States, but railroads and waterways carry significant volumes over long distances. The largest volume of freight transported by rail is coal moving between the Powder River Basin in Wyoming and the Midwest, while the principal inland waterways movement by volume is along the Lower Mississippi River.

Figure 3-1. Tonnage on Highways, Railroad, and Inland Waterways: 2007
Sources: Highways: U.S. Department of Transportation, Federal Highway Administration, Freight Analysis Framework, version 3.1, 2010. **Rail:** Based on Surface Transportation Board, Annual Carload Waybill Sample and rail freight flow assignments done by Oak Ridge National Laboratory. **Inland Waterways:** U.S. Army Corps of Engineers (USACE), Annual Vessel Operating Activity and Lock Performance Monitoring System data, as processed for USACE by the Tennessee Valley Authority; and USACE, Institute for Water Resources, Waterborne Foreign Trade Data. Water flow assignments were done by Oak Ridge National Laboratory.

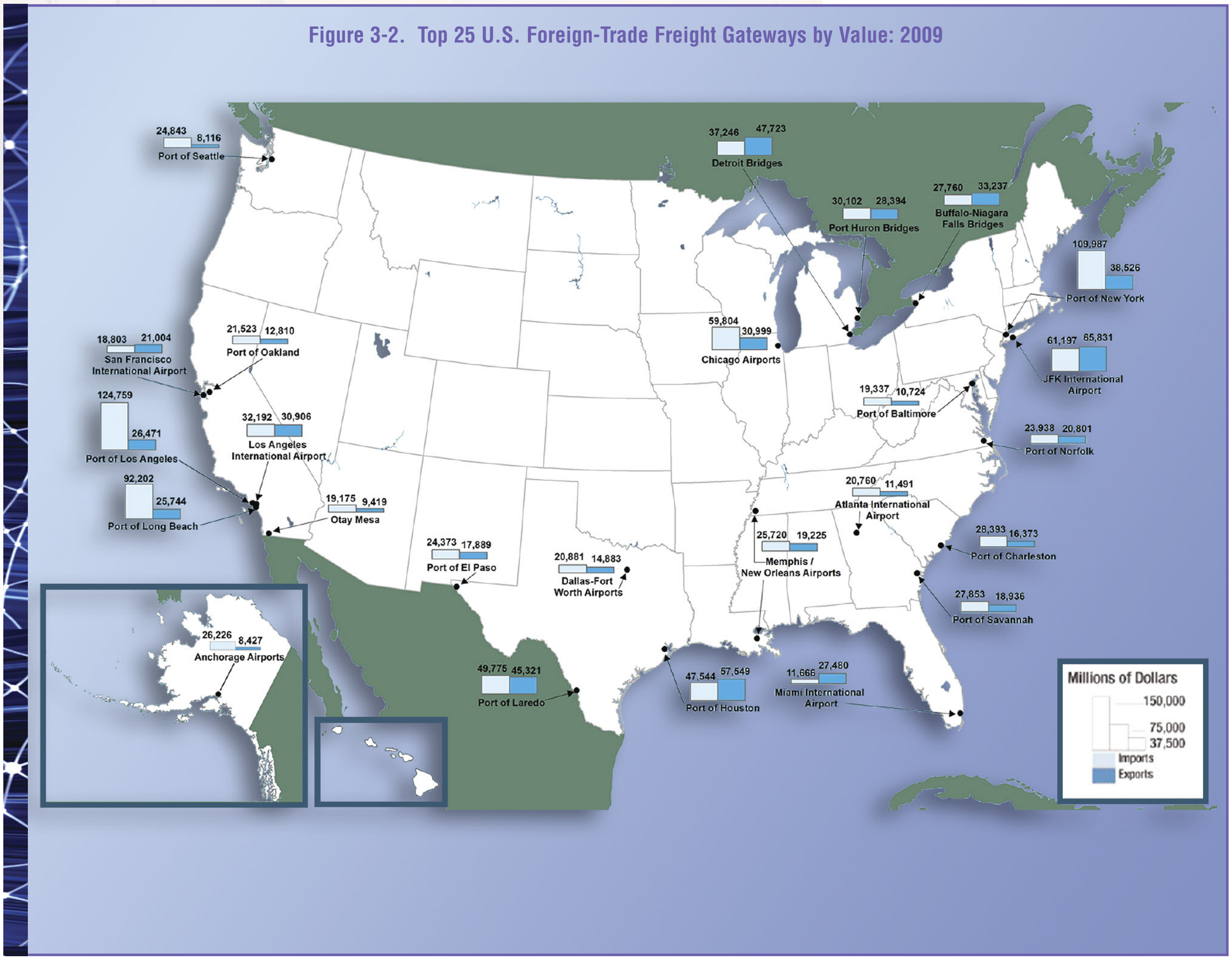
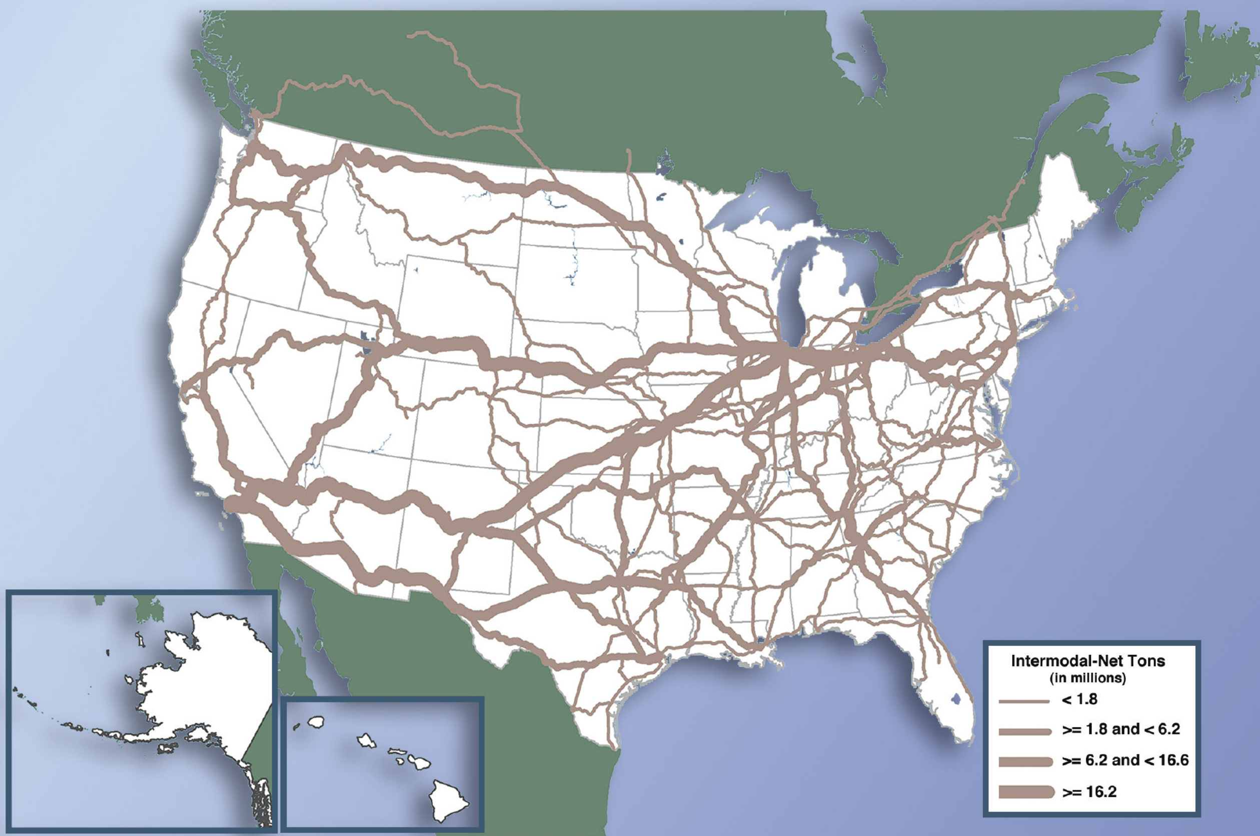


Figure 3-2. Top 25 U.S. Foreign-Trade Freight Gateways by Value: 2009

Transportation facilities that move international trade into and out of the United States demonstrate the importance of all modes and intermodal combinations to global connectivity. The top 25 foreign-trade gateways measured by value of shipments are comprised of 10 water ports, 6 land-border crossings, and 9 air gateways.

Figure 3-2. Top 25 U.S. Foreign-Trade Freight Gateways by Value: 2009
Source: Air: U.S. Department of Commerce, U.S. Census Bureau, Foreign Trade Division, special tabulation, July 22, 2011; **Water:** U.S. Army Corps of Engineers, Navigation Data Center, special tabulation, July 22, 2011; **Land:** U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, North American Transborder Freight Data, July 22, 2011.

Figure 3-3. Tonnage of Trailer-on-Flatcar and Container-on-Flatcar Rail Intermodal Moves: 2009



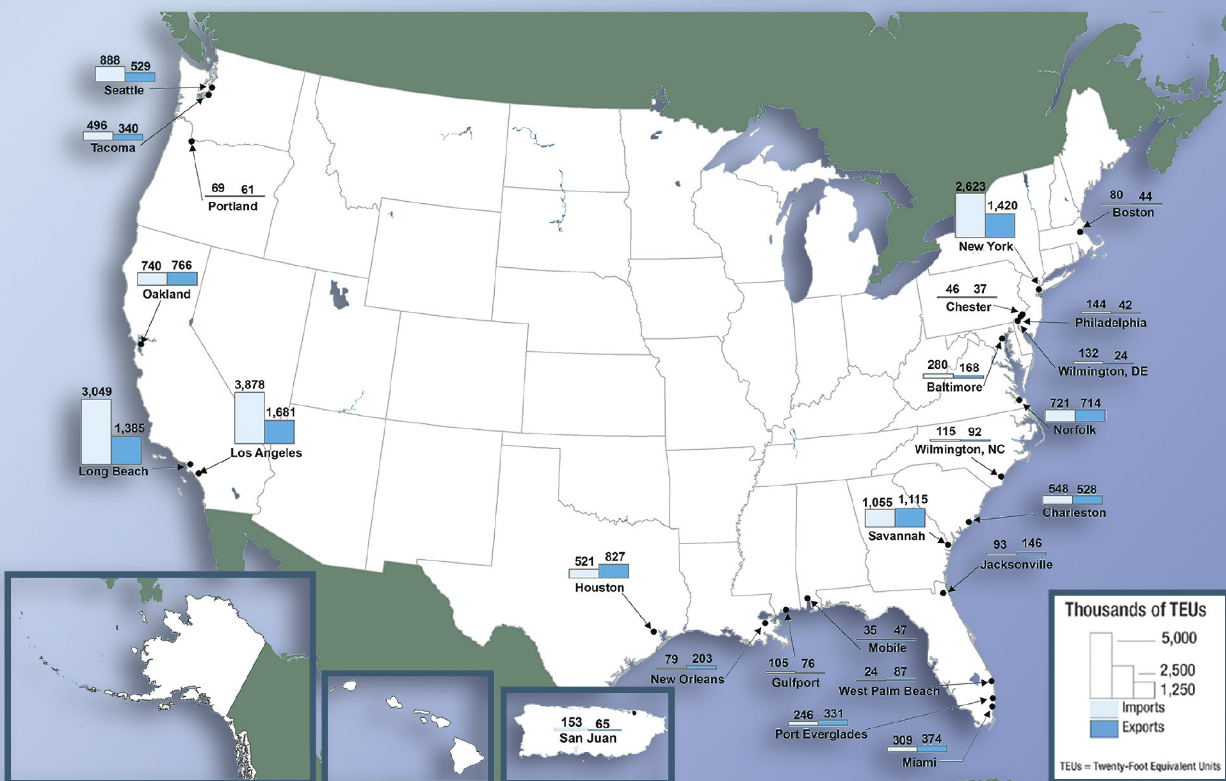
Notes: All data: Trade levels reflect the mode of transportation as a shipment enters or exits at a border port. Flows through individual ports are based on reported data collected from U.S. trade documents. Trade does not include low-value shipments. (In general, these are imports valued at less than $1,250 and exports that are valued at less than $2,500). **Air:** Data for all air gateways 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 U.S. Census Bureau confidentiality regulations, data for courier operations are included in the airport totals for JFK International Airport, New Orleans, Los Angeles, Chicago, Miami, and Anchorage.

Modes of transportation frequently work together to move high-value, time-sensitive cargo. The classic forms of rail intermodal transportation are trailer-on-flatcar and container-on-flatcar, and these are spread throughout the United States. The largest concentrations are on routes between Pacific Coast ports and Chicago, southern California and Texas, and Chicago and New York.

Figure 3-3. Tonnage of Trailer-on-Flatcar and Container-on-Flatcar Rail Intermodal Moves: 2009
Source: U.S. Department of Transportation, Federal Railroad Administration, special tabulation, October 2011.

Containerized cargo has grown rapidly over the past decade and is concentrated at a few large water ports. The Ports of Los Angeles and Long Beach together handle about 38 percent of all container traffic at water ports in the United States. While container trade at these two ports increased by 54 percent between 2000 and 2010, this growth rate was slightly lower than that reported for container cargo overall.

Figure 3-4. Top 25 Water Ports by Containerized Cargo: 2010



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

Figure 3-4. Top 25 Water Ports by Containerized Cargo: 2010
Source: U.S. Department of Transportation, Maritime Administration, *U.S. Waterborne Container Trade by U.S. Custom Ports*, based on data provided by Port Import/Export Reporting Service, available at www.marad.dot.gov/library_landing_page/data_and_statistics/Data_and_Statistics.htm as of August 29, 2011.

Although the top ports for containerized cargo are primarily on the Pacific and Atlantic coasts, bulk cargo, such as coal, crude petroleum, and grain move through ports on the Gulf Coast and inland waterway system. The top 25 water ports by tonnage handle about two-thirds of the weight of all foreign and domestic goods moved by water.

Figure 3-5. Top 25 Water Ports by Tonnage: 2009

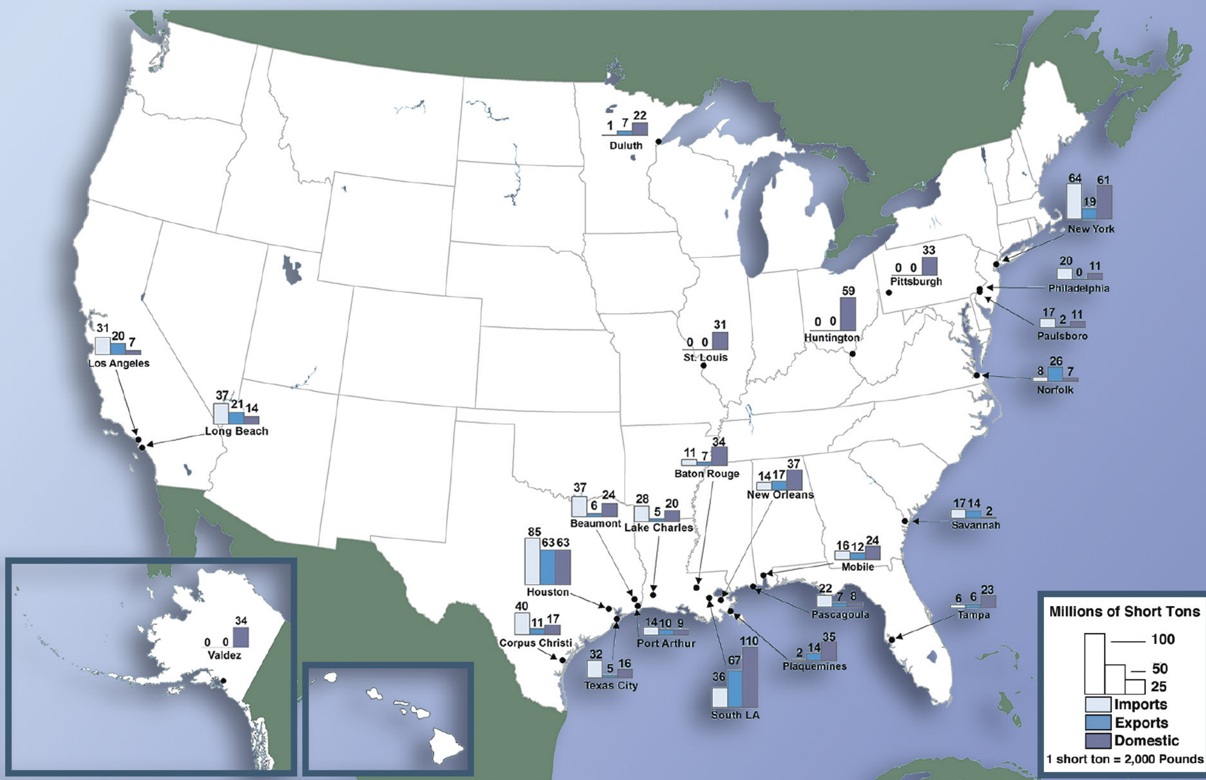


Figure 3-5. Top 25 Water Ports by Tonnage: 2009
Source: U.S. Army Corps of Engineers, *2009 Waterborne Commerce of the United States, Part 5, National Summaries* (New Orleans, LA: 2010), table 5-2, available at www.ndc.iwr.usace.army.mil//wcsc/wcsc.htm as of August 20, 2011.

Table 3-3. Top 25 Airports by Landed Weight of All-Cargo Operations: 2000-2009[1]

Airport	2009 Rank	Landed weight (thousands of short tons) 2000	2006	2007	2008	2009
Memphis, TN (Memphis International)	1	6,318	9,425	9,772	9,750	9,464
Anchorage, AK (Ted Stevens Anchorage International)[2]	2	8,084	10,588	10,562	8,976	7,762
Louisville, KY (Louisville International-Standiford Field)	3	3,987	5,015	5,216	5,223	5,139
Miami, FL (Miami International)	4	2,929	3,591	3,715	3,494	3,176
Indianapolis, IN (Indianapolis International)	5	2,892	2,627	2,652	2,564	2,288
Los Angeles, CA (Los Angeles International)	6	2,884	3,627	3,431	2,876	1,884
Chicago, IL (O'Hare International)	7	2,793	2,208	2,201	2,103	1,750
New York, NY (John F. Kennedy International)	8	2,062	2,615	2,557	2,222	1,591
Newark, NJ (Newark Liberty International)	9	1,811	1,867	1,873	1,727	1,464
Fort Worth, TX (Dallas/Fort Worth International)	10	1,961	1,722	1,753	1,614	1,436
Oakland, CA (Metropolitan Oakland International)	11	1,691	1,798	1,811	1,742	1,341
Atlanta, GA (William B. Hartsfield International)	12	1,220	1,180	1,261	1,167	1,278
Ontario, CA (Ontario International)	13	1,454	1,401	1,394	1,350	1,168
Philadelphia, PA (Philadelphia International)	14	1,090	1,366	1,375	1,264	1,132
Honolulu, HI (Honolulu International)	15	692	979	1,134	1,032	1,021
Seattle, WA (Seattle-Tacoma International)	16	1,267	709	691	747	803
Houston, TX (George Bush Intercontinental)	17	480	696	769	754	784
San Francisco, CA (San Francisco International)	18	1,060	829	1,039	775	747
Denver, CO (Denver International)	19	654	711	642	625	624
Phoenix, AZ (Sky Harbor International)	20	920	726	711	675	610
Chicago/Rockford, IL (Chicago/Rockford International)	21	882	696	737	710	564
Cincinnati, OH (Cincinnati/Northern Kentucky International)[3]	22	900	100	97	104	564
Portland, OR (Portland International)	23	622	730	713	656	545
San Juan, PR (Luis Munoz Marin International)	24	751	606	522	431	543
Minneapolis, MN (Minneapolis-St Paul International/Wold-Chamberlain)	25	703	620	612	562	474
Top 25 airports[4]		**52,381**	**56,973**	**57,715**	**53,621**	**48,153**
United States, all airports[5]		**74,743**	**76,362**	**76,583**	**71,281**	**63,191**
Top 25 as % of U.S. total		**70.1**	**74.6**	**75.4**	**75.2**	**76.2**

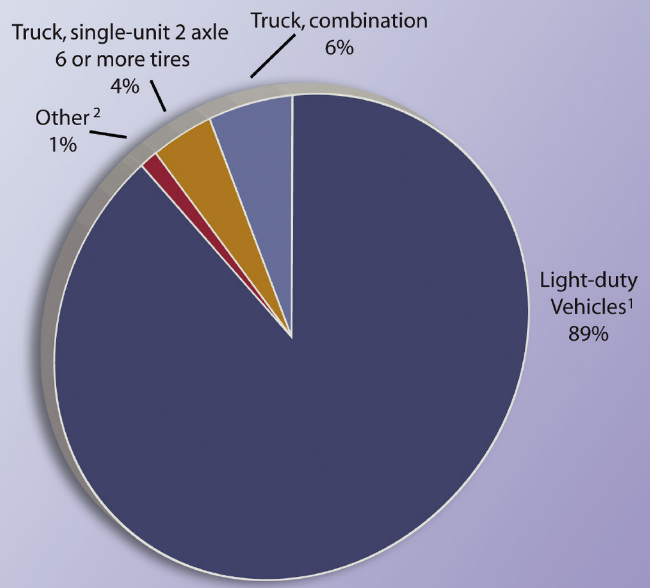
[1]Dedicated to the exclusive transportation of cargo, all-cargo operations do not include aircraft carrying passengers that also may be carrying cargo. Aircraft landed weight is the certificated maximum gross landed weight of the aircraft as specified by the aircraft manufacturers.
[2]Anchorage includes a large share of all-cargo operations in-transit.
[3]The significant 2006 decrease in landed weight at Cincinnati/Northern Kentucky International Airport was due to a major reduction in DHL Airways' cargo operations, which have since rebounded.
[4]Airport rankings change each year. Totals represent the top 25 airports for each year, not necessarily the top 25 airports listed here for 2009.
[5]Limited to airports with an aggregate landed weight in excess of 100 million pounds (50,000 short tons) annually.
Note: 1 short ton = 2,000 pounds.

The three most important U.S. airports that handle all-cargo aircraft are Memphis, Anchorage, and Louisville. Memphis and Louisville are major hubs for FedEx and the United Parcel Service. Anchorage is a major international gateway for trade with Asia.

Table 3-3. Top 25 Airports by Landed Weight of All-Cargo Operations: 2000-2009
Sources: U.S. Department of Transportation, Federal Aviation Administration, Air Carrier Activity Information System (ACAIS) database, All-Cargo Data, available at www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/as of August 19, 2011.

Despite doubling over the past two decades, truck traffic remains a relatively small share of highway traffic as a whole. In 2009, commercial trucks accounted for about 10 percent of highway vehicle miles traveled. Truck tractors hauling semitrailers and other truck combinations accounted for approximately 58 percent of commercial truck travel, while single-unit trucks with six or more tires accounted for the remainder.

Figure 3-6. Share of Highway Vehicle Miles Traveled by Vehicle Type: 2009



[1]Includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase equal to or less than 121 inches and large passenger cars, vans, pickup trucks, and sport utility vehicles with a wheelbase larger than 121 inches.

[2]Includes buses and motorcycles.

Notes: Based on a new methodology, FHWA revised its annual vehicle miles travelled, number of vehicles, and fuel economy data beginning with 2007. Information on the new methodology is available at www.fhwa.dot.gov/ policyinformation/statistics.cfm. Data in this figure should not be compared to those in previous editions of *Freight Facts and Figures*.

Figure 3-6. Share of Highway Vehicle Miles Traveled by Vehicle Type: 2009

Source: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: annual issues), table VM-1, available at www.fhwa.dot.gov/policyinformation/statistics/2009/ as of October 5, 2011.

Table 3-4. Trucks and Truck Miles by Average Weight: 1987-2002[1]

	1987		1992		1997		2002		Percent Change, 1987 to 2002	
Average weight (pounds)	Number (thousands)	VMT (millions)	Number (thousands)	VMT (millions)	Number (thousands)	VMT (millions)	Number (thousands)	VMT (millions)	Number	VMT
Total	**3,624**	**89,972**	**4,008**	**104,987**	**4,701**	**147,876**	**5,415**	**145,624**	**49.4**	**61.9**
Light-heavy	**1,030**	**10,768**	**1,259**	**14,012**	**1,436**	**19,815**	**1,914**	**26,256**	**85.9**	**143.8**
10,001 to 14,000	525	5,440	694	8,000	819	11,502	1,142	15,186	117.6	179.2
14,001 to 16,000	242	2,738	282	2,977	316	3,951	396	5,908	63.6	115.8
16,001 to 19,500	263	2,590	282	3,035	301	4,362	376	5,161	43.2	99.3
Medium-heavy	**766**	**7,581**	**732**	**8,143**	**729**	**10,129**	**910**	**11,766**	**18.8**	**55.2**
19,501 to 26,000	766	7,581	732	8,143	729	10,129	910	11,766	18.8	55.2
Heavy-heavy	**1,829**	**71,623**	**2,017**	**82,832**	**2,536**	**117,931**	**2,591**	**107,602**	**41.7**	**50.2**
26,001 to 33,000	377	5,411	387	5,694	428	7,093	437	5,845	15.9	8.0
33,001 to 40,000	209	4,113	233	5,285	257	6,594	229	3,770	9.7	-8.4
40,001 to 50,000	292	7,625	339	9,622	400	13,078	318	6,698	9.0	-12.2
50,001 to 60,000	188	7,157	227	8,699	311	12,653	327	8,950	73.8	25.1
60,001 to 80,000	723	45,439	781	51,044	1,070	74,724	1,179	77,489	63.1	70.5
80,001 to 100,000	28	1,254	33	1,529	46	2,427	69	2,950	144.3	135.2
100,001 to 130,000	8	440	12	734	18	1,051	26	1,571	238.5	257.2
130,001 or more	4	185	5	227	6	312	6	329	43.2	77.9

Key: VMT = vehicle miles traveled.
[1]Excludes trucks with an average weight of 10,000 pounds or less.
Notes: Weight includes the empty weight of the vehicle plus the average weight of the load carried. Numbers may not add to totals due to rounding.

The nation's truck fleet has grown significantly in number and distance driven. Of trucks weighing more than 10,000 pounds registered to businesses, individuals, and organizations other than government, most growth has occurred at either end of the weight spectrum. Distance traveled has more than doubled in 15 years for trucks weighing between 10,000 pounds and 26,000 pounds and for trucks weighing over 80,000 pounds. Trucks between 60,000 pounds and 80,000 pounds form the largest category in both number of trucks and vehicle miles traveled because in most cases 80,000 pounds is the maximum weight allowed on the highway system without special permits.

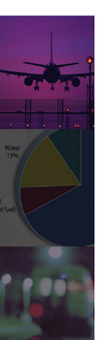


TABLE 3-4. TRUCKS AND TRUCK MILES BY AVERAGE WEIGHT: 1987-2002
Sources: U.S. Department of Commerce, Census Bureau, *2002 Vehicle Inventory and Use Survey: United States*, EC02TV-US (Washington, DC: 2004), available at www.census.gov/prod/ec02/ec02tv-us.pdf as of August 22, 2011; U.S. Department of Commerce, Census Bureau, *1992 Truck Inventory and Use Survey: United States*, TC92-T-52 (Washington, DC: 1995), available at www.census.gov/prod/ec97/97tv-us.pdf as of August 22, 2011.

Table 3-5. Commercial Vehicle Weight Enforcement Activities: 2006-2010 (thousands)

	2006	2007	2008	2009	2010
All weighs	229,451	217,444	200,419	182,257	198,565
Weigh-in-motion	142,599	132,258	119,826	116,176	118,026
Static weighs[1]	86,852	85,186	80,593	66,081	80,539
Semiportable scales	423	426	358	373	285
Fixed scales	85,900	84,214	79,645	65,182	79,704
Portable scales	529	547	591	525	550
Violations[2]	621	530	555	490	479
Axle weight violations	270	234	249	221	217
Gross weight violations	150	127	120	116	114
Bridge weight violations	202	170	186	153	148
Permits[3]	4,598	4,828	5,216	4,529	4,839
Non-divisible trip permits	3,399	3,743	3,693	3,286	3,510
Non-divisible annual permits	251	332	322	299	303
Divisible trip permits	426	398	490	370	342
Divisible annual permits	522	354	710	574	683

[1]Static weighs include the total number of vehicles weighed from semiportable, portable, and fixed scales.

[2]Violations include those from axle, gross, and bridge formula weight limits.

[3]Permits issued are for divisible and non-divisible loads on a trip or on an annual basis, as well as the over-width movement of a divisible load.

Note: Incomplete data from Washington, D.C. (2008), Hawaii (2008, 2009, and 2010), Massachusetts (2010), Michigan (2008), Pennsylvania (2006), and South Dakota (2006 and 2007).

Table 3-6. Annual Vehicle Distance Traveled by Highway Category and Vehicle Type: 2009

	Combination Trucks	Single-Unit Trucks[1]	Other[2]	Light-duty Vehicles[3]	Total, All Motor Vehicles
Interstate vehicle miles (millions)	79,118	26,640	7,574	603,503	716,836
Interstate percent	47.1	22.2	21.5	22.9	24.3
Non-Interstate vehicle miles (millions)	88,724	93,523	27,584	2,026,835	2,236,665
Non-Interstate percent	52.9	77.8	78.5	77.1	75.7
Total vehicle miles, all roadways	**167,842**	**120,163**	**35,158**	**2,630,338**	**2,953,501**

[1]Trucks on a single frame with at least two axles and six tires.

[2]Includes buses and motorcycles.

[3]Includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase equal to or less than 121 inches and large passenger cars, vans, light trucks, and sport utility vehicles with a wheelbase larger than 121 inches.

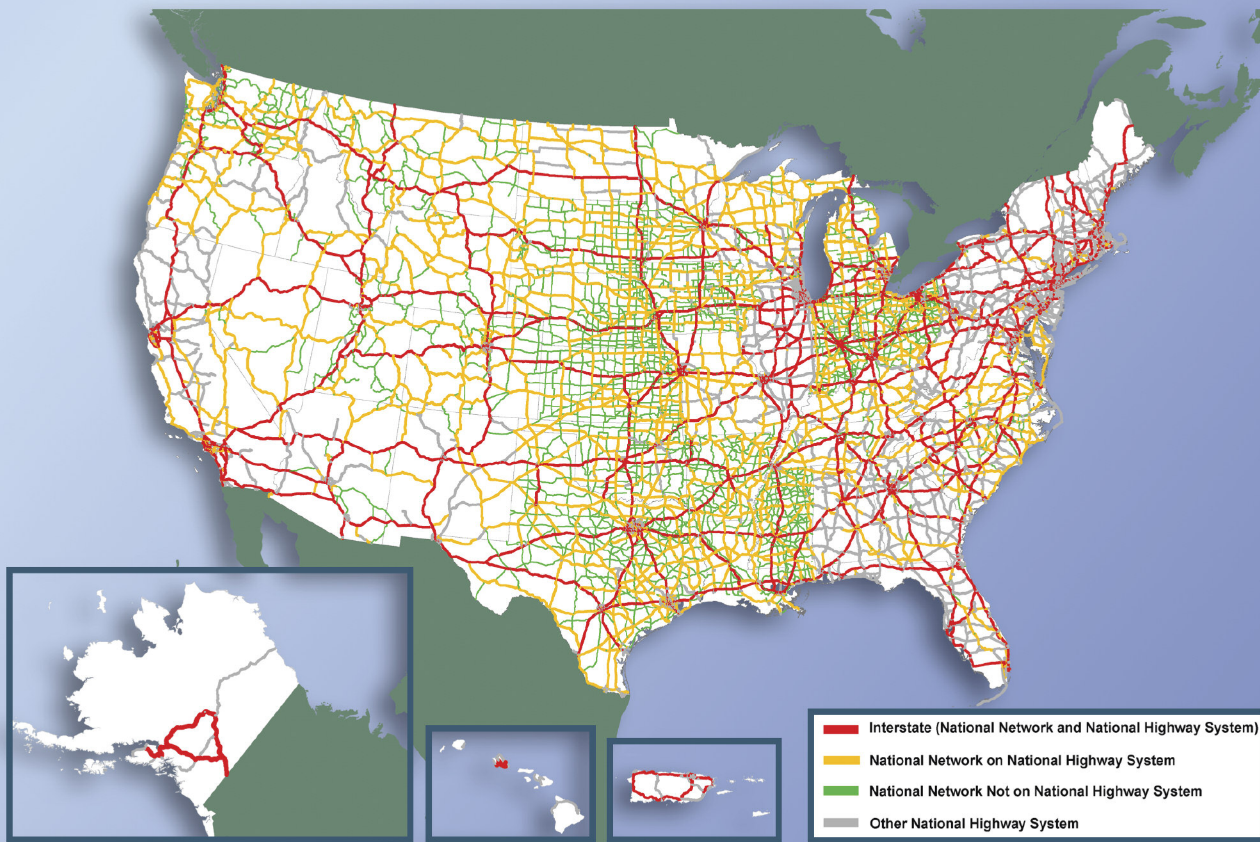
Notes: Based on a new methodology, FHWA revised its annual vehicle miles travelled, number of vehicles, and fuel economy data beginning with 2007. Information on the new methodology is available at www.fhwa.dot.gov/policyinformation/statistics.cfm. Data in this table should not be compared to those in previous editions of *Freight Facts and Figures*. Numbers may not add to totals due to rounding.

Federal and state governments are concerned about truck weight because of the damage that heavy trucks can do to roads and bridges. To monitor truck weight, approximately 198 million weighs were made in 2010, about 59 percent were weigh-in motion and 41 percent were static. Considerably less than 1 percent of weighs discover violations.

Table 3-5. Commercial Vehicle Weight Enforcement Activities: 2006-2010
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Annual State Certifications of Size and Weight Enforcement on Federal-aid Highways, as prescribed under CFR Part 657, August 31, 2011.

Table 3-6. Annual Vehicle Distance Traveled by Highway Category and Vehicle Type: 2009
Source: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics*, Table VM-1, available at www.fhwa.dot.gov/policyinformation/statistics/2009/ as of October 5, 2011.

Figure 3-7. National Network for Conventional Combination Trucks: 2010



Freight moving in combination trucks depends heavily on the Interstate System. Although only one-fourth of the distance traveled by all traffic is on the Interstate System, nearly one-half of combination-truck vehicle miles of travel is on the Interstate System.

The National Network was established by Congress in 1982 to facilitate interstate commerce and encourage regional and national economic growth by requiring states to allow conventional combination trucks on the Interstate System and portions of the Federal-aid Primary System of highways. The National Network, which is approximately 200,000 miles in length, has not changed significantly in three decades.

Figure 3-7. National Network for Convention Trucks: 2010
Source: U.S. Code of Federal Regulations, title 23, part 658, appendix A, as of August 10, 2011.

Longer combination vehicles (LCVs) include truck tractors pulling a long semi-trailer and a short trailer (often called a Rocky Mountain Double), a long semi-trailer and a long trailer (often called a Turnpike Double) or a short semi-trailer and two trailers (called a Triple). Although all states allow conventional combinations consisting of a 28-foot semi-trailer and a 28-foot trailer, fewer than half of U.S. states allow LCVs on at least some parts of their road networks. Allowable routes for LCVs have been frozen since 1991.

Figure 3-8. Permitted Longer Combination Vehicles on the National Highway System: 2010

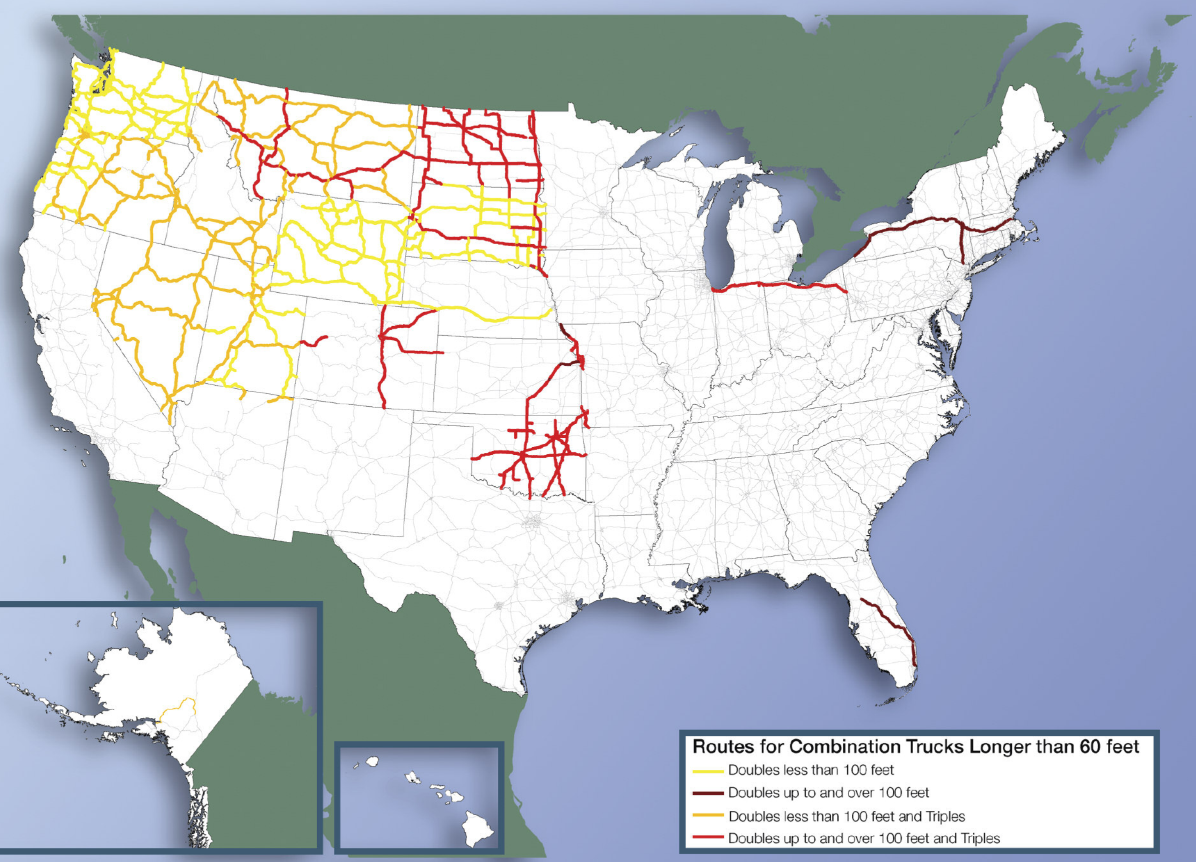


Figure 3-8. Permitted Longer Combination Vehicles on the National Highway System: 2010
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Operations and Technology Team, special tabulation, 2011.

Table 3-7. Trucks, Truck Miles, and Average Distance by Range of Operations and Jurisdiction: 2002

	Number of Trucks (thousands)	Truck Miles (millions)	Miles per Truck (thousands)
Total	**5,521**	**145,173**	**26**
Off the road	183	2,263	12
50 miles or less	2,942	42,531	15
51 to 100 miles	685	19,162	28
101 to 200 miles	244	11,780	48
201 to 500 miles	232	17,520	76
501 miles or more	293	26,706	91
Not reported	716	25,061	35
Not applicable	226	150	1
Operated in Canada	2	72	43
Operated in Mexico	2	29	19
Operated within the home base state	4,196	84,974	20
Operated in states other than the home base state	496	40,901	83
Not reported	599	19,046	32
Not applicable	226	150	1

Notes: Includes trucks registered to companies and individuals in the United States except pickups, minivans, other light vans, and sport utility vehicles. Numbers may not add to totals due to rounding.

Most trucks larger than pickups, minivans, other light vans, and sport utility vehicles typically operate close to home. About one-half of all trucks usually travel to destinations within 50 miles of their base, and three-fourths stayed within their base state. Less than 10 percent of trucks larger than pickups, minivans, other light vans, and sport utility vehicles typically travel to places more than 200 miles away, but these trucks account for 30 percent of the mileage.

Three-fourths of the miles traveled by trucks larger than pickups, minivans, other light vans, and government-owned vehicles are for the movement of products that range from electronics to sand and gravel. Most of the remaining mileage is for empty backhauls and empty shipping containers.

Table 3-7. Trucks, Truck Miles, and Average Distance by Range of Operations and Jurisdiction: 2002
Source: U.S. Department of Commerce, Census Bureau, *2002 Vehicle Inventory and Use Survey: United States*, EC02TV-US, table 3a (Washington, DC: 2004), available at www.census.gov/prod/ec02/ec02tv-us.pdf as of August 22, 2011.

Table 3-8. Truck Miles by Products Carried: 2002

Products carried	Millions of miles
Total[1]	**145,173**
Animals and fish, live	735
Animal feed and products of animal origin	2,088
Grains, cereal	1,368
All other agricultural products	2,661
Basic chemicals	876
Fertilizers and fertilizer materials	1,666
Pharmaceutical products	305
All other chemical products and preparations	1,351
Alcoholic beverages	1,124
Bakery and milled grain products	3,553
Meat, seafood, and their preparations	3,056
Tobacco products	445
All other packaged foodstuffs	7,428
Logs and other wood in the rough	1,149
Paper or paperboard articles	3,140
Printed products	765
Pulp, newsprint, paper, paperboard	1,936
Wood products	3,561
Articles of base metal	3,294
Base metal in primary or semifinished forms	2,881
Nometallic mineral products	3,049
Tools, nonpowered	7,759
Tools, powered	6,478
Electronic and other electrical equipment	3,024
Furniture, mattresses, lamps, etc.	2,043
Machinery	3,225
Miscellaneous manufactured products	4,008
Precision instruments and apparatus	734
Textile, leather, and related articles	1,538
Vehicles, including parts	3,844
All other transportation equipment	636
Coal	301
Crude petroleum	132
Gravel or rushed stone	2,790
Metallic ores and concentrates	45
Monumental or building stone	462
Natural sands	1,089
All other nonmetallic minerals	499
Fuel oils	1,232
Gasoline and aviation turbine fuel	849
Plastic and rubber	2,393
All other coal and refined petroleum products	1,172
Hazardous waste (EPA manifest)	190
All other waste and scrape (non-EPA manifest)	2,647
Recyclable products	922
Mail and courier parcels	4,760
Empty shipping containers	794
Passengers	274
Mixed freight	14,659
Products, equipment , or materials not elsewhere classified	265
Products not specified	6,358
Not applicable[2]	150
No product carried	28,977

[1]Detail lines may not add to total because multiple products/hazardous materials may be carried at the same time.

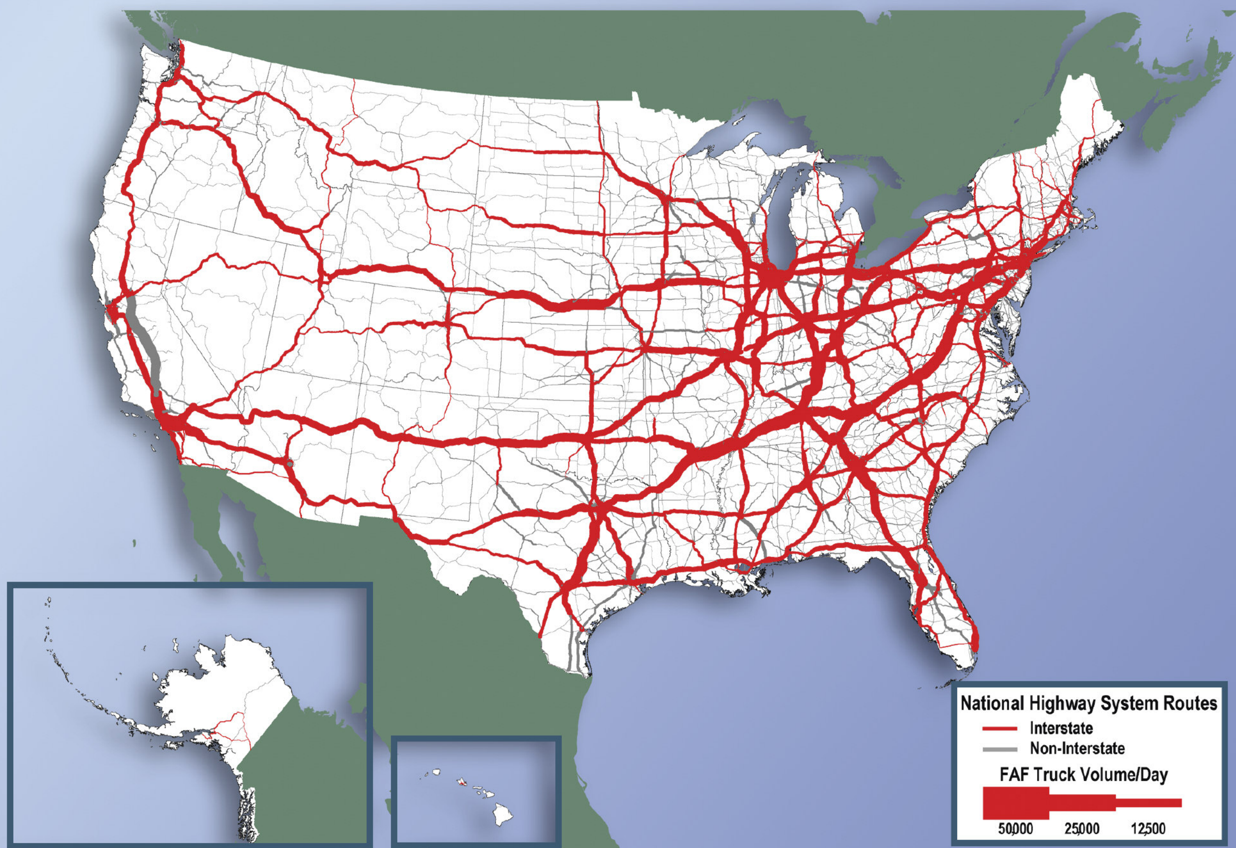
[2]Vehicles not in use. When the survey respondent had partial-year ownership of the vehicle, annual miles were adjusted to reflect miles traveled when not owned by the respondent.

Notes: Includes trucks registered to companies and individuals in the United States except pickups, minivans, other light vans, and sport utility vehicles. Numbers may not add to totals due to rounding.

Table 3-8. Truck Miles by Products Carried: 2002

Source: U.S. Department of Commerce, Census Bureau, *2002 Vehicle Inventory and Use Survey: United States*, EC02TV-US (Washington, DC: 2004), available at www.census.gov/prod/ec02/ec02tv-us.pdf as of August 22, 2011.

Figure 3-9. Average Daily Long-Haul Truck Traffic on the National Highway System: 2007



Long-haul freight truck traffic in the United States is concentrated on major routes connecting population centers, ports, border crossings, and other major hubs of activity. Except for Route 99 in California and a few toll roads and border connections, most of the heaviest traveled routes are on the Interstate System.

Figure 3-9. Average Daily Long-Haul Truck Traffic on the National Highway System: 2007
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework, version 3.1, 2010.

By 2040, long-haul freight truck traffic in the United States is expected to increase dramatically on Interstate highways and other arterials throughout the Nation. Forecast data indicate that truck travel may reach 662 million miles per day.

Figure 3-10. Average Daily Long-Haul Truck Traffic on the National Highway System: 2040

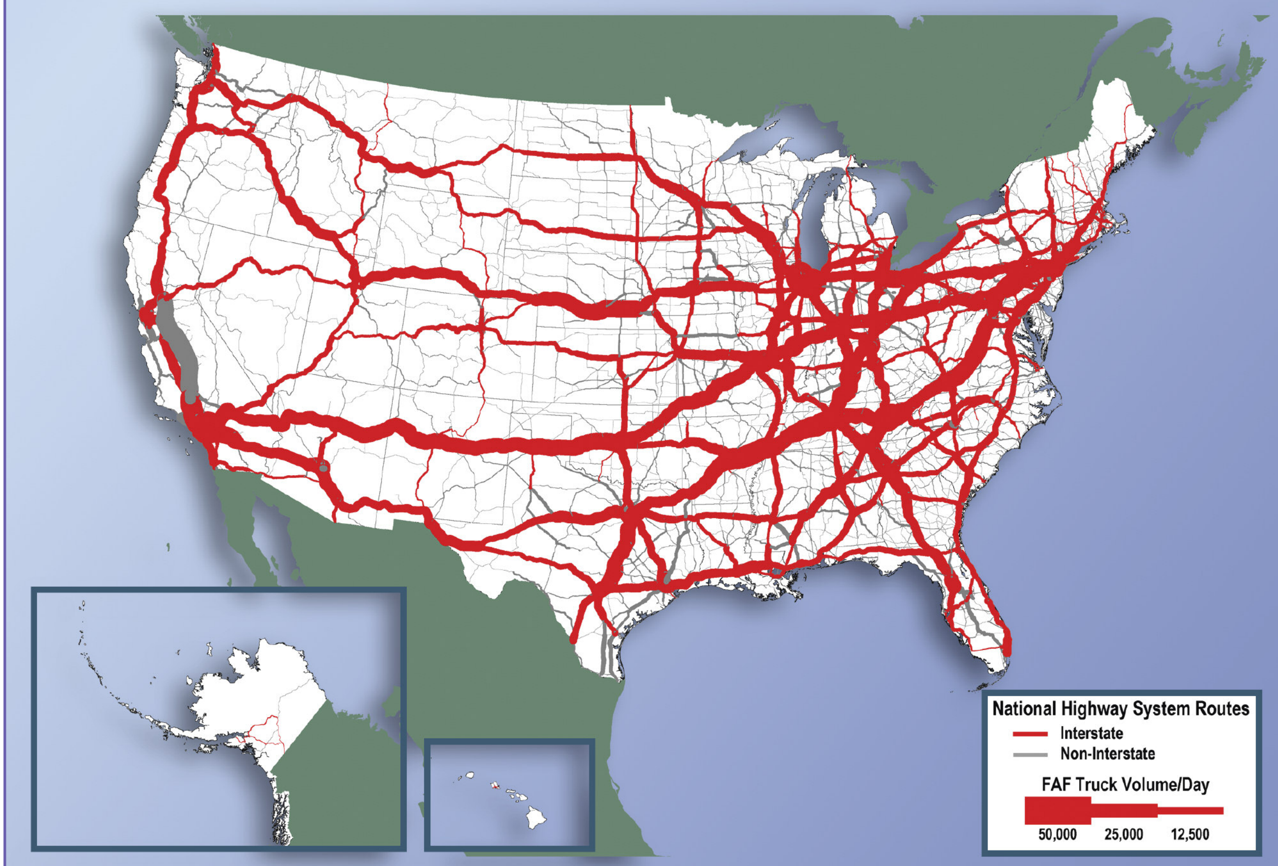
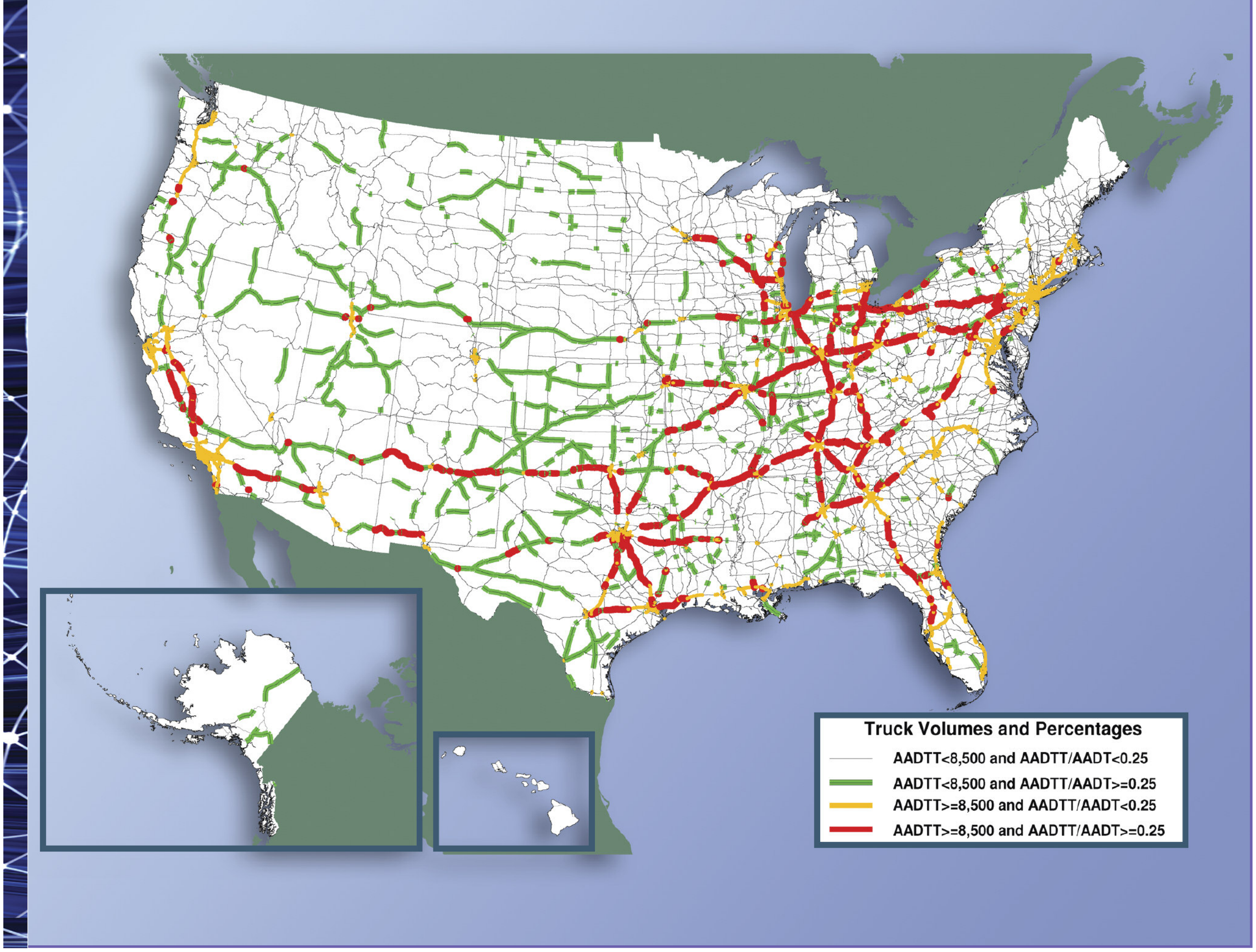


Figure 3-10. Average Daily Long-Haul Truck Traffic on the National Highway System: 2040
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework, version 3.1, 2010.

Figure 3-11. Major Truck Routes on the National Highway System: 2007



Selected routes carry a significant concentration of trucks, either as an absolute number or as a percentage of the traffic stream. Nearly 6,000 miles of the NHS carry more than 8,500 trucks per day on sections where at least every fourth vehicle is a truck. With each truck carrying an average of 16 tons of cargo, 8,500 trucks per day move approximately 50 million tons per year.

Figure 3-11. Major Truck Routes on the National Highway System: 2007
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework, version 3.1, 2010.

The number of NHS miles carrying large volumes and high percentages of trucks is forecast to increase dramatically by 2040. Segments with more than 8,500 trucks per day and where at least every fourth vehicle is a truck are forecast to approach 21,000 miles, an increase of almost 250 percent from 2007.

Figure 3-12. Major Truck Routes on the National Highway System: 2040

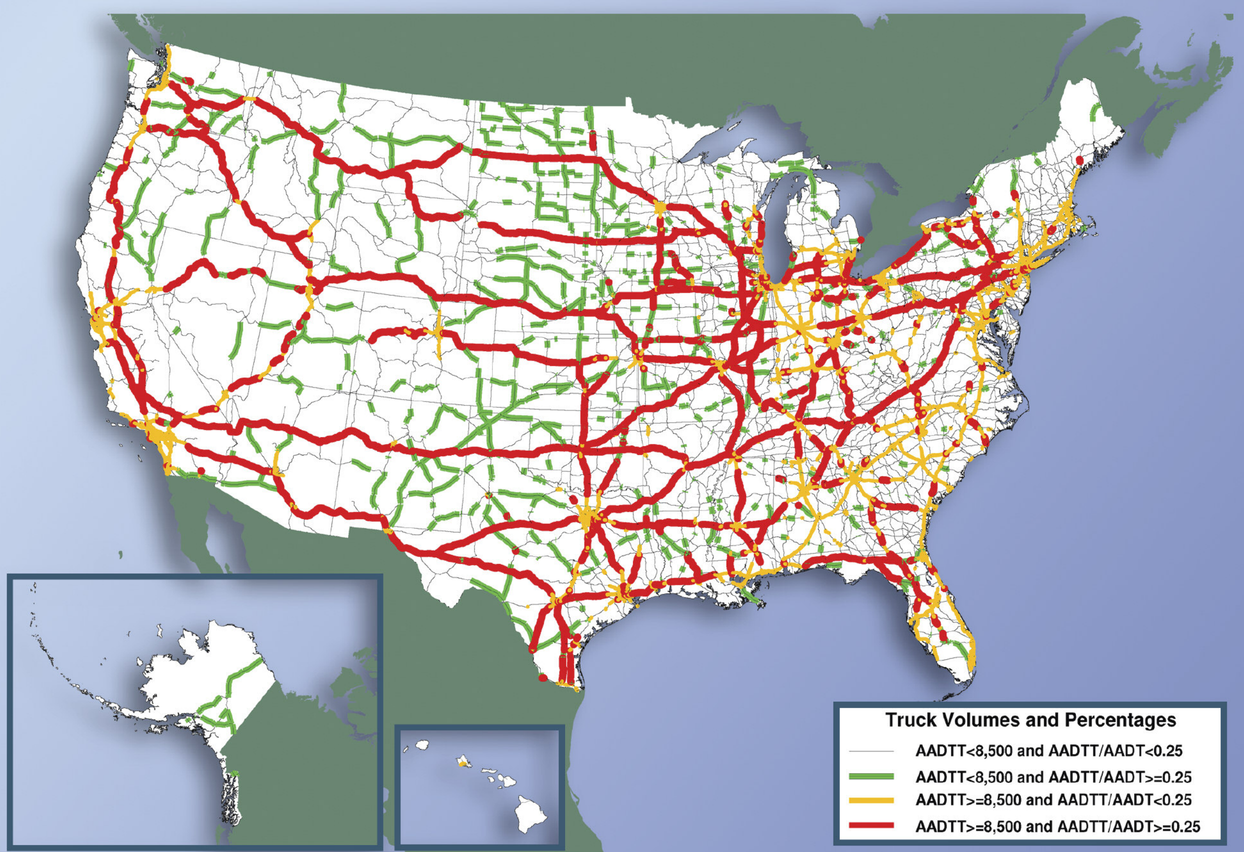
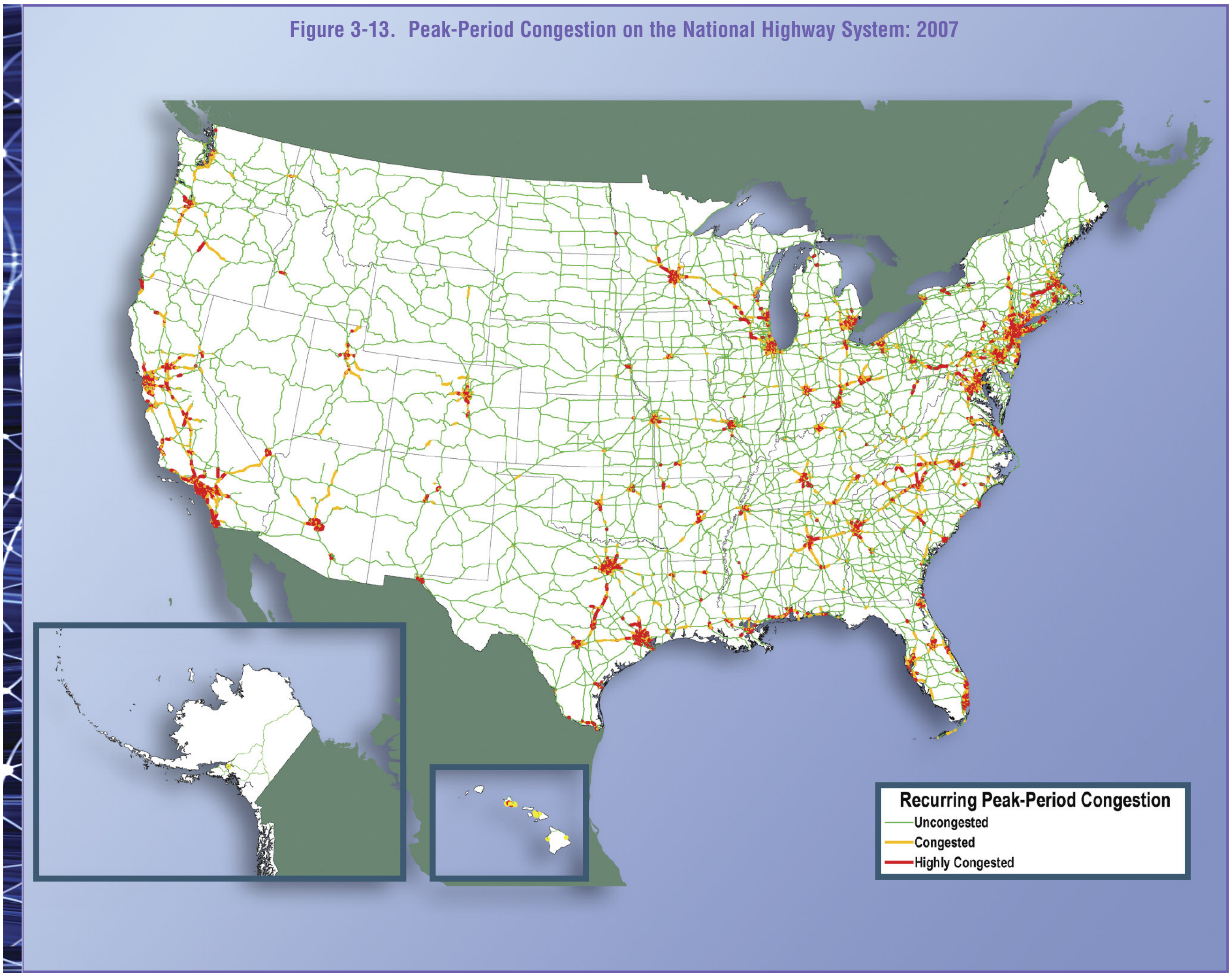


FIGURE 3-12. MAJOR TRUCK ROUTES ON THE NATIONAL HIGHWAY SYSTEM: 2040
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework, version 3.1, 2010.



Recurring congestion caused by volumes of passenger vehicles and trucks that exceed capacity on roadways during peak periods is concentrated primarily in major metropolitan areas. In 2007, peak-period congestion resulted in traffic slowing below posted speed limits on 11,700 miles of the NHS and created stop-and-go conditions on an additional 6,700 miles.

Figure 3-13. Peak-Period Congestion on the National Highway System: 2007
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Policy Information, Highway Performance Monitoring System, and Office of Freight Management and Operations, Freight Analysis Framework, version 3.1, 2010.

Assuming no changes in network capacity, increases in truck and passenger vehicle traffic are forecast to expand areas of recurring peak-period congestion to 36 percent of the NHS in 2040 compared with 11 percent in 2007. This will slow traffic on 20,300 miles of the NHS and create stop-and-go conditions on an additional 39,000 miles.

Figure 3-14. Peak-Period Congestion on the National Highway System: 2040

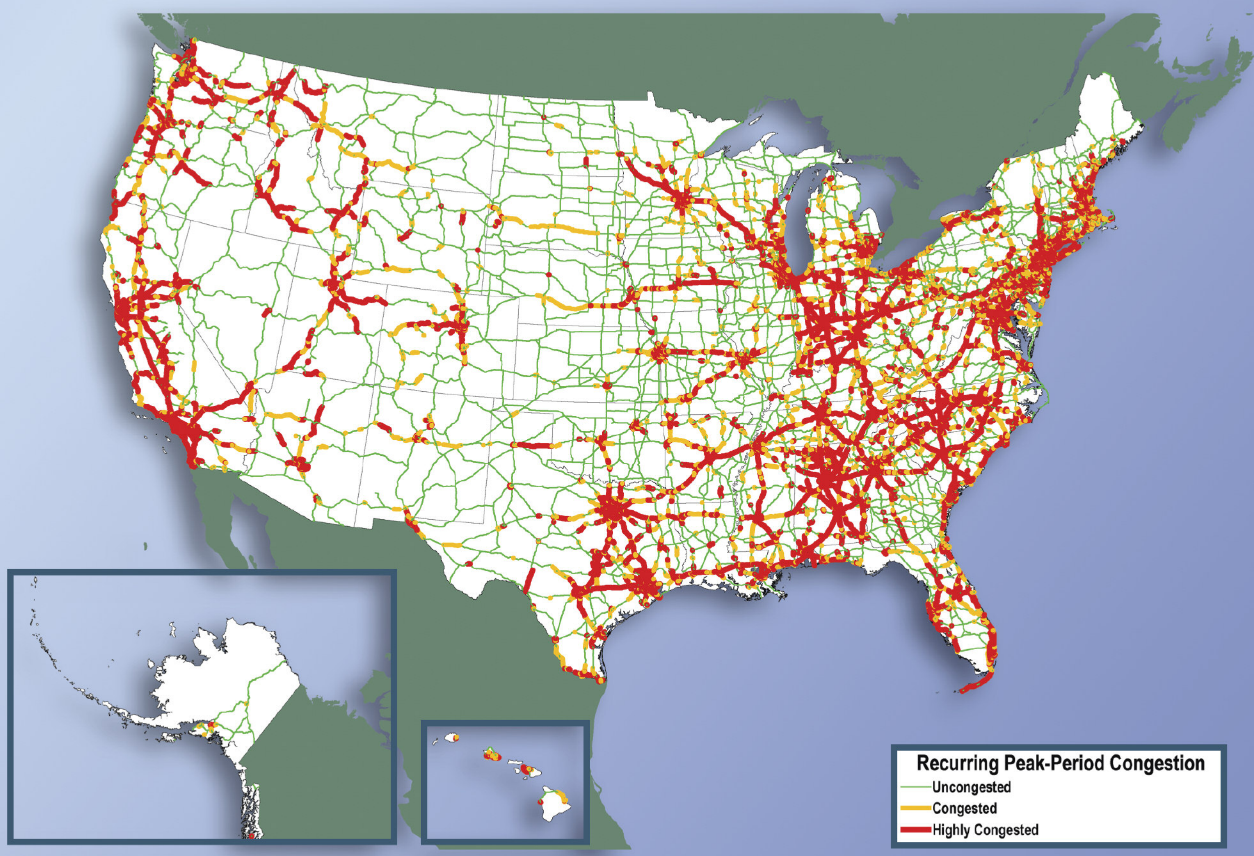
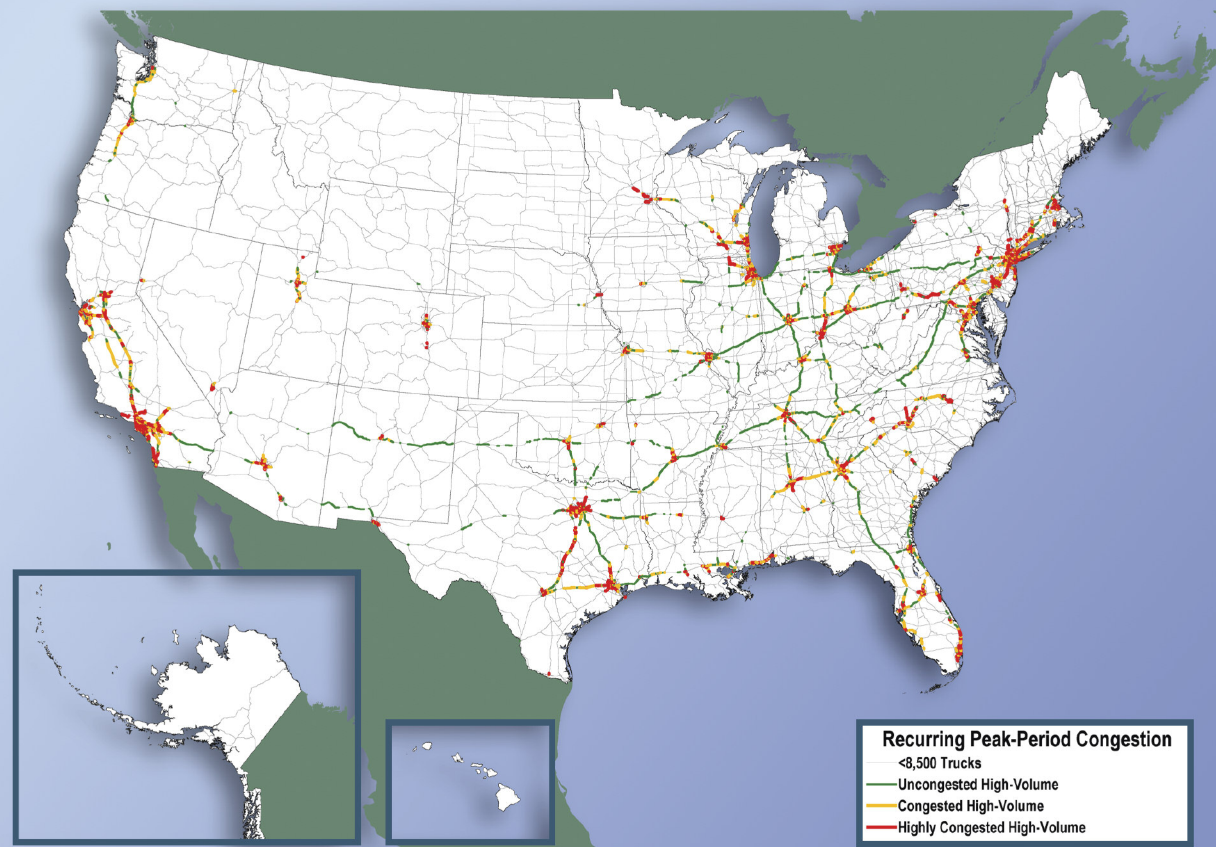


Figure 3-14. Peak-Period Congestion on the National Highway System: 2040
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Policy Information, Highway Performance Monitoring System, and Office of Freight Management and Operations, Freight Analysis Framework, version 3.1, 2010.

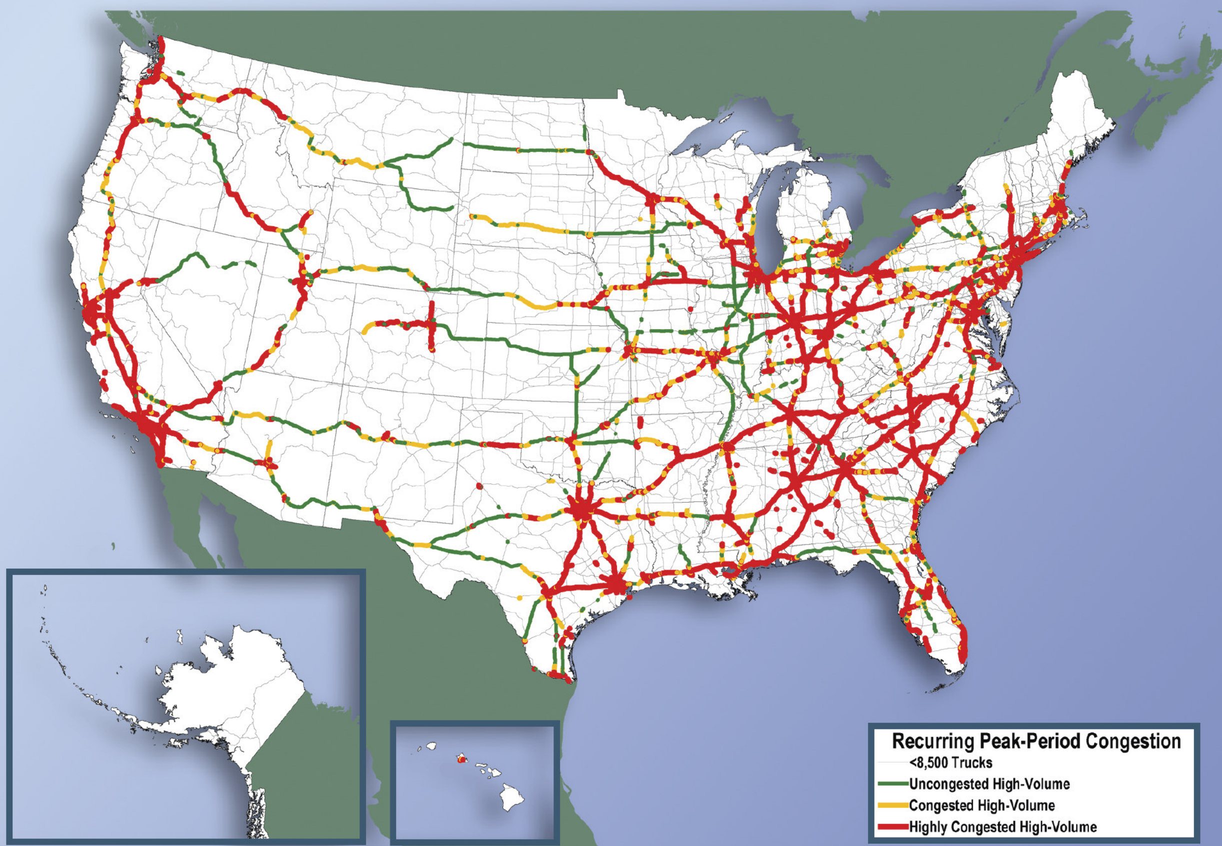
Figure 3-15. Peak-Period Congestion on High-Volume Truck Portions of the National Highway System: 2007



Congested highways carrying a large number of trucks substantially impede interstate commerce, and trucks on those segments contribute significantly to congestion. Recurring congestion slows traffic on 4,700 miles and creates stop-and-go conditions on 3,700 miles of the NHS that carry more than 8,500 trucks per day.

Figure 3-15. Peak-Period Congestion on High-Volume Truck Portions of the National Highway System: 2007
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Policy Information,Highway Performance Monitoring System, and Office of Freight Management and Operations, Freight Analysis Framework, version 3.1, 2010.

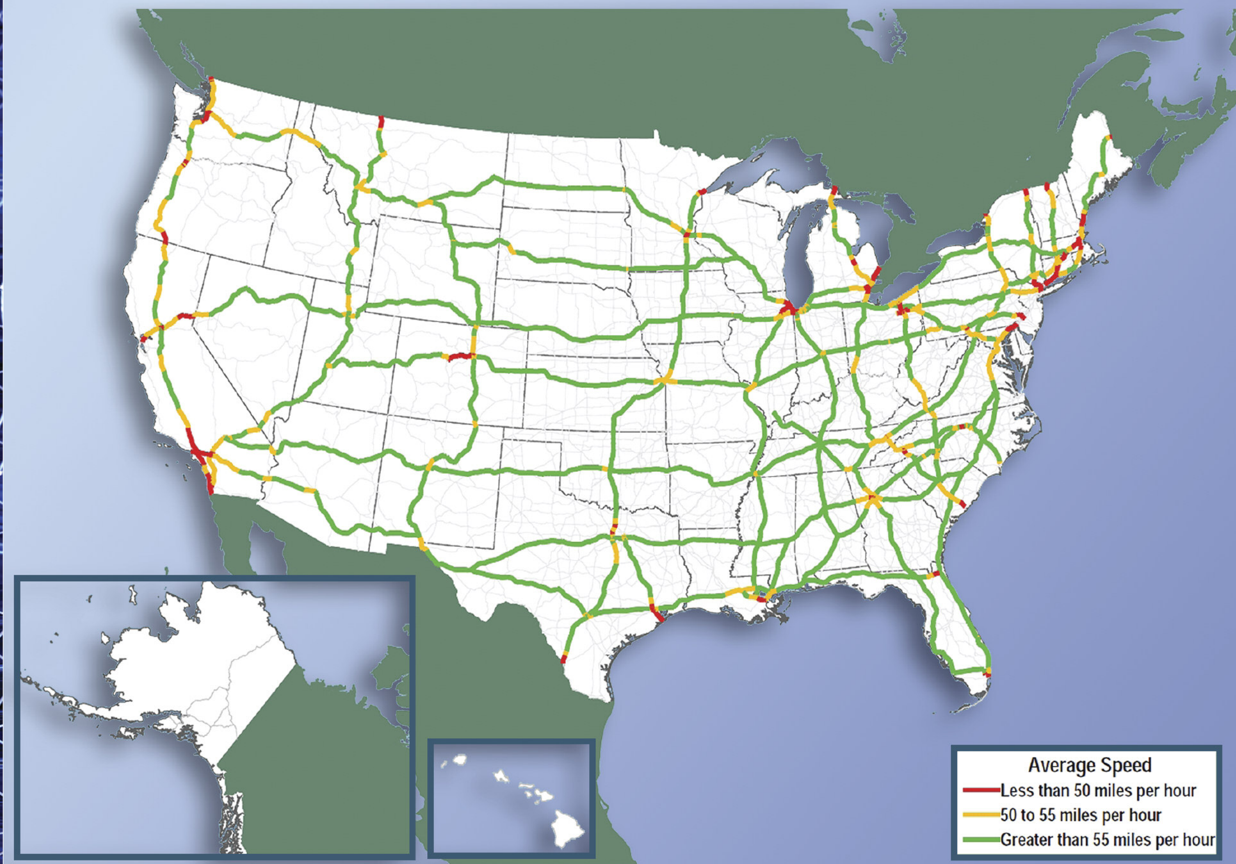
Figure 3-16. Peak-Period Congestion on High-Volume Truck Portions of the National Highway System: 2040



Assuming no change in network capacity, the number of NHS miles with recurring congestion and a large number of trucks is forecast to increase nearly four-fold between 2007 and 2040. On highways carrying more than 8,500 trucks per day, recurring congestion will slow traffic on close to 7,200 miles and create stop-and-go conditions on an additional 23,500 miles.

Figure 3-16. Peak-Period Congestion on High-Volume Truck Portions of the National Highway System: 2040
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Policy Information, Highway Performance Monitoring System, and Office of Freight Management and Operations, Freight Analysis Framework, version 3.1, 2010.

Figure 3-17. Average Truck Speeds on Selected Interstate Highways: 2010



In addition to calculating peak-period congestion from traffic volumes, as shown in other figures, the Federal Highway Administration (FHWA), in cooperation with private industry, measures the speed and travel time reliability of more than 500,000 trucks at 250 freight-significant highway infrastructure locations on an annual basis. Average truck speeds drop below 55 miles per hour near major urban areas, border crossings and gateways, and in mountainous terrain.

Figure 3-17. Average Truck Speeds on Selected Interstate Highways: 2010
Source: U.S. Department of Transportation, Federal Highway Administration Office of Freight Management and Operations, Freight Performance Measurement Program, 2011.

Table 3-9. Top 20 Freight-Significant Locations by Freight Congestion Index Rating: 2010

Location	Congestion Ranking	Average Speed (mph)	Peak Period Average Speed (mph)	Non-Peak Period Average Speed (mph)	Non-Peak/ Peak Ratio
Chicago, IL: I-290 at I-90/I-94	1	29.41	22.34	31.89	1.43
Fort Lee, NJ: I-95 at SR 4	2	28.98	22.67	31.84	1.40
Houston, TX: I-45 at US 59	3	38.55	30.19	42.49	1.41
Houston, TX: I-10 at I-45	4	41.28	32.18	45.51	1.41
Houston, TX: I-10 at US 59	5	41.01	31.02	46.41	1.50
Gary, IN: I-65 at I-80	6	47.35	45.06	48.26	1.07
Austin, TX: I-35	7	34.55	20.35	43.42	2.13
Chicago, IL: I-90 at I-94 (North)	8	35.39	22.64	40.99	1.81
Atlanta, GA: I-285 at I-85 (North)	9	45.69	34.87	50.94	1.46
Los Angeles, CA: SR 60 at SR 57	10	46.43	39.01	49.30	1.26
Minneapolis - St. Paul, MN: I-35W at I-494	11	44.80	35.01	49.74	1.42
Houston, TX: I-610 at US 290	12	44.55	35.80	48.77	1.36
Dallas, TX: I-45 at I-30	13	41.40	32.78	45.08	1.38
Houston, TX: I-45 at I-610 (North)	14	45.82	38.60	49.03	1.27
Cincinnati, OH: I-71 at I-75	15	46.76	37.34	50.79	1.36
Denver, CO: I-70 at I-25	16	43.88	37.09	46.91	1.26
Buffalo-Niagara Falls, NY: I-90 at I-290	17	41.93	39.25	43.24	1.10
Hartford, CT: I-84 at I-91	18	46.73	37.04	50.69	1.37
Louisville, KY: I-65 at I-64/I-71	19	45.04	35.77	49.64	1.39
Atlanta, GA: I-75 at I-285 (North)	20	48.75	38.99	53.30	1.37

Key: mph = miles per hour.
Notes: FHWA monitors 250 freight-significant highway infrastructure locations on an annual basis. These locations were identified over several years through reviews of past research, available highway speed and volume datasets, and surveys of private- and public-sector stakeholders. FHWA developed a freight congestion index to rank congestion's impact on freight. The index factors in the number of trucks using a particular highway facility and the impact that congestion has on average commercial vehicle speed in each of the 250 study areas. These data represent truck travel during weekdays at all hours of the day in 2010. Average speeds below a free flow of 55 miles per hour indicate congestion.

Truck speed and travel time reliability data can be used to identify and quantify major freight truck chokepoints and bottlenecks along highways that are critical to the Nation's freight transportation system. FHWA developed a freight congestion index that ranks congestion's impact on freight movement. The index factors in both the number of trucks using a particular highway facility and the impact that congestion has on the average speed of those vehicles

On weekdays, average speeds during peak periods (between 6:00 a.m. and 9:00 a.m. and between 4:00 p.m. and 7:00 p.m.) are typically less than those recorded during non-peak periods. Freight traveling across urban Interstate interchanges is affected to the greatest degree by peak-period congestion. At several locations, congestion affects freight mobility during all hours of the day.

Table 3-9. Top 20 Freight-Significant Locations by Freight Congestion Index Rating: 2010
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Performance Measurement Program, special tabulation, 2011.

Table 3-10. Largest Improvements in Average Speed for Congested Freight-Significant Highway Locations: 2010

Location	Average Speed (mph)			Peak Period Average Speed (mph)			Non-Peak Period Average Speed (mph)		
	2009	2010	Percent change, 2009 to 2010	2009	2010	Percent change, 2009 to 2010	2009	2010	Percent change, 2009 to 2010
Las Vegas, NV: I-15 at I-515	38.24	50.64	12.39	34.49	47.46	12.96	40.14	52.43	12.30
Oakland, CA: I-880 at I-238	44.85	48.92	4.07	39.75	41.74	1.98	47.24	52.14	4.90
New Haven, CT: I -95 at I-91	41.70	44.74	3.05	34.94	38.51	3.57	44.25	46.65	2.39
Albuquerque, NM: I-25 at I-40	50.10	53.09	2.99	45.98	49.52	3.54	51.77	54.58	2.81
Tampa , FL: I-4 at I-275	45.17	47.16	1.98	36.44	38.05	1.61	49.99	52.03	2.04

Key: mph = miles per hour.

Several monitored locations have seen significant improvements in performance from 2009 to 2010 when looking at averages over 24 hours.

Table 3-10. Largest Improvements in Average Speed for Congested Freight-Significant Highway Locations: 2010
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Performance Measurement Program, special tabulation, 2011.

Delay, reliability, and similar performance measures are typically based on the difference between speed limits and actual speeds. Speed limits for trucks vary from state to state and differ from limits set for passenger vehicles in nine states.

Table 3-11. Maximum Posted Speed Limits on Rural Interstates: 2011 (miles per hour)

State	Truck	Car
Alabama	70	70
Alaska	65	65
Arizona	75	75
Arkansas	65	70
California	55	70
Colorado	75	75
Connecticut	65	65
Delaware	65	65
District of Columbia[1]	55	55
Florida	70	70
Georgia	70	70
Hawaii	60	60
Idaho	65	75
Illinois	65	65
Indiana	65	70
Iowa	70	70
Kansas	70	70
Kentucky	[2]65	[2]65
Louisiana	70	70
Maine	65	65
Maryland	65	65
Massachusetts	65	65
Michigan	60	70
Minnesota	70	70
Mississippi	70	70
Missouri	70	70
Montana	65	75
Nebraska	75	75
Nevada	75	75
New Hampshire	65	65
New Jersey	65	65
New Mexico	75	75
New York	65	65
North Carolina	70	70
North Dakota	75	75
Ohio	65	65
Oklahoma	75	75
Oregon	55	65
Pennsylvania	65	65
Rhode Island	65	65
South Carolina	70	70
South Dakota	75	75
Tennessee	70	70
Texas	[3]70	[3]75
Utah	[4]75	[4]75
Vermont	65	65
Virginia	[5]70	[5]70
Washington	60	70
West Virginia	70	70
Wisconsin	65	65
Wyoming	75	75

[1]Urban Interstate.
[2]Effective July 10, 2007, the posted speed limit is 70 miles per hour (mph) in designated areas on I-75 and I-71.
[3]In sections of I-10 and I-20 in rural West Texas, the speed limit for passenger cars and light trucks is 80 mph. For large trucks, the speed limit is 70 mph in the daytime and 65 mph at night. For cars, it is also 65 mph at night.
[4]Portions of I-15 have a posted limit of 80 mph.
[5]Effective July 1, 2010, the posted speed limit may be as high as 70 mph where indicated by lawfully placed signs, erected subsequent to a traffic engineering study.

Table 3-11. Maximum Posted Speed Limits on Rural Interstates: 2011
Source: Insurance Institute for Highway Safety, Maximum Posted Speed Limits for Passenger Vehicles, available at www.iihs.org/laws/speedlimits.aspx as of August 19, 2011.