

II. FREIGHT FLOWS

In terms of tons transported, domestic freight transportation by the truck, rail, water, and air modes grew by about 20 percent from 1993 to 2002 and is expected to increase another 65 percent to 70 percent by 2020.

International shipments are expected to increase even faster over this period (by about 85 percent). In 1998, excluding commodities transported by pipeline, trucks moved 71 percent of total tonnage and 80 percent of the total value of U.S. shipments.

By 2020, trucks are expected to haul about three quarters of total tonnage, followed by rail (14 percent), water (7 percent), and air (less than 1 percent).

A more complete estimate of freight shipments is presented in Table 2-2. This 2002 estimate is from an expanded and improved version of the Freight Analysis Framework (FAF), based on the 2002 Commodity Flow Survey and other public data sources. The data in Table 2-2 are not comparable to those in Table 2-1 because estimation methods have been improved and coverage is more complete. Future editions of this publication will include estimates for 1997 and forecasts through 2035.

Table 2-1. Selected Freight Shipments by Weight and Value

Mode	Tons (millions)			Value (\$ billions)		
	1998	2010	2020	1998	2010	2020
Total	15,271	21,376	25,848	9,312	18,339	29,954
Domestic	13,484	18,820	22,537	7,876	15,152	24,075
Air	9	18	26	545	1,308	2,246
Highway	10,439	14,930	18,130	6,656	12,746	20,241
Rail	1,954	2,528	2,894	530	848	1,230
Water	1,082	1,345	1,487	146	250	358
International	1,787	2,556	3,311	1,436	3,187	5,879
Air	9	16	24	530	1,182	2,259
Highway	419	733	1,069	772	1,724	3,131
Rail	358	518	699	116	248	432
Water	136	199	260	17	34	57
Other ¹	864	1,090	1,259	NA	NA	NA

Key: NA = Not available.

¹Other includes international shipments that moved via pipeline or by an unspecified mode.

Notes: Domestic shipments by pipeline are excluded. Modal numbers may not add to totals due to rounding.

Table 2-2. Total Freight Shipments: 2002

Mode	Tons (millions)	Value (\$ billions)	Ton-Miles (billions)
All modes, total	19,487	13,052	4,409
Truck	11,712	9,075	1,515
Rail	1,979	392	1,372
Water	1,668	673	485
Air (including truck and air)	6	563	13
Pipeline	3,529	896	688
Parcel, U.S. Postal Service, or courier	27	1,022	21
Other multiple and unknown modes	567	430	315

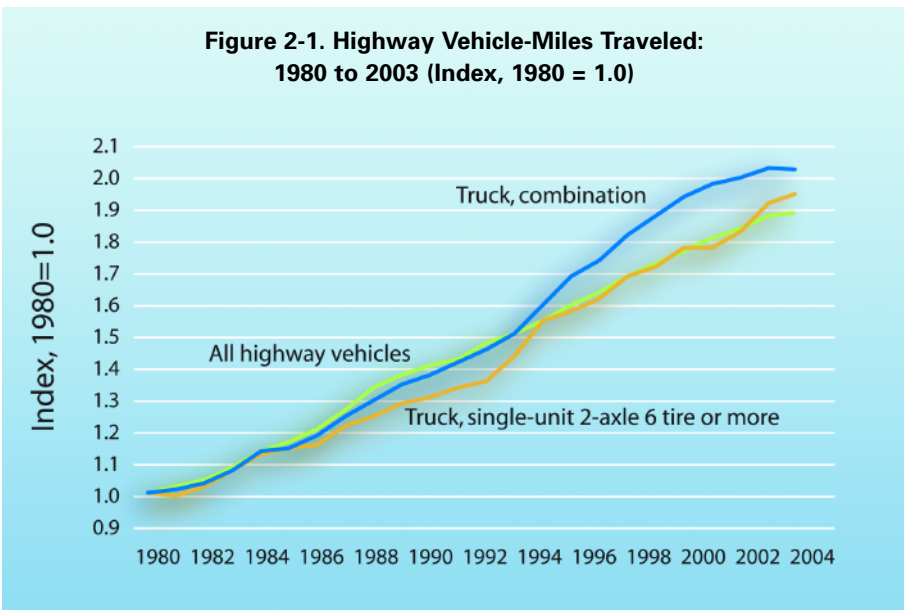
Note: Mode definitions are based on the U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics and U.S. Department of Commerce, Census Bureau, 2002 Commodity Flow Survey, December 2004. Modal numbers may not add to totals due to rounding.

TABLE 2-1. FREIGHT SHIPMENTS BY WEIGHT AND VALUE

Source: U.S. Department of Transportation, Federal Highway Administration, Freight Analysis Framework, 2002.

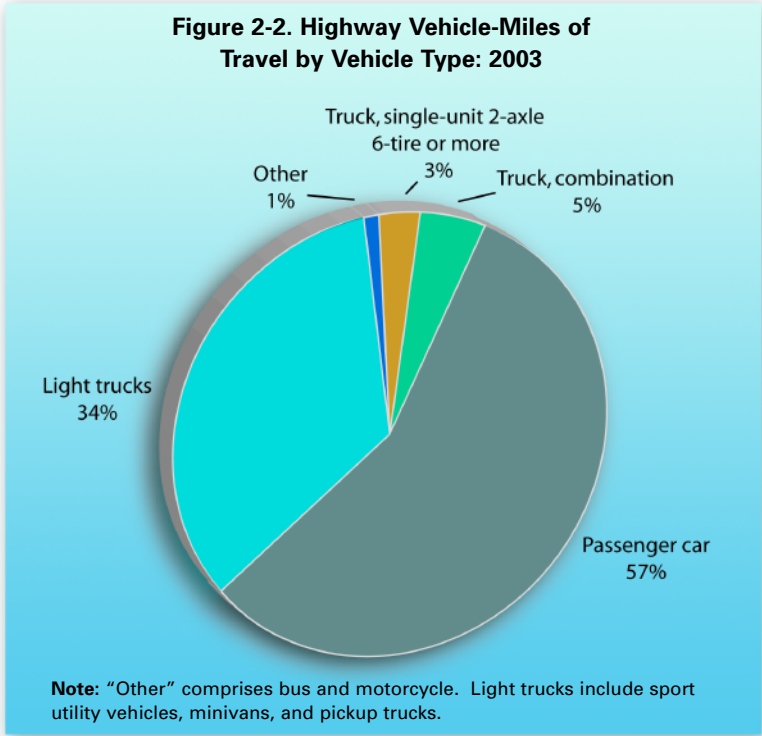
TABLE 2-2. TOTAL FREIGHT SHIPMENTS: 2002

Source: U.S. Department of Transportation, Federal Highway Administration, Freight Analysis Framework, 2005.



As the demand for goods and services grows, so does the amount of truck traffic on the nation's highways. Commercial truck travel has doubled over the past two decades, about the same as highway travel as a whole. Consequently, truck vehicle-miles traveled (VMT) as a share of all VMT has remained relatively stable.

Over this period, travel by combination trucks grew slightly faster than by single unit trucks.



Despite doubling over the past two decades, truck traffic remains a relatively small share of highway traffic as a whole. In 2003, commercial trucks accounted for about 7 percent of highway VMT. Truck VMT is comprised of 64 percent combination truck and 36 percent single-unit truck.

Truck traffic is concentrated on major routes connecting population centers, ports, border crossings, and other major hubs of activity. Most of these routes will experience increases in truck traffic over the next twenty years, that, in

combination with increases in passenger travel, will add to existing congestion.

FIGURE 2-1. HIGHWAY VEHICLE-MILES TRAVELED: 1980-2003 (INDEX, 1980 = 1.0)
Source: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual Issues), table VM-1, available at www.fhwa.dot.gov/policy/ohpi/hss/index.htm as of June 23, 2005.

FIGURE 2-2. HIGHWAY VEHICLE-MILES OF TRAVEL BY VEHICLE TYPE: 2003
Source: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* (Washington, DC: Annual issues), table VM-1, available at www.fhwa.dot.gov/policy/ohpi/hss/index.htm of June 23, 2005.



Figure 2-3. Estimated Average Daily Truck Traffic: 1998

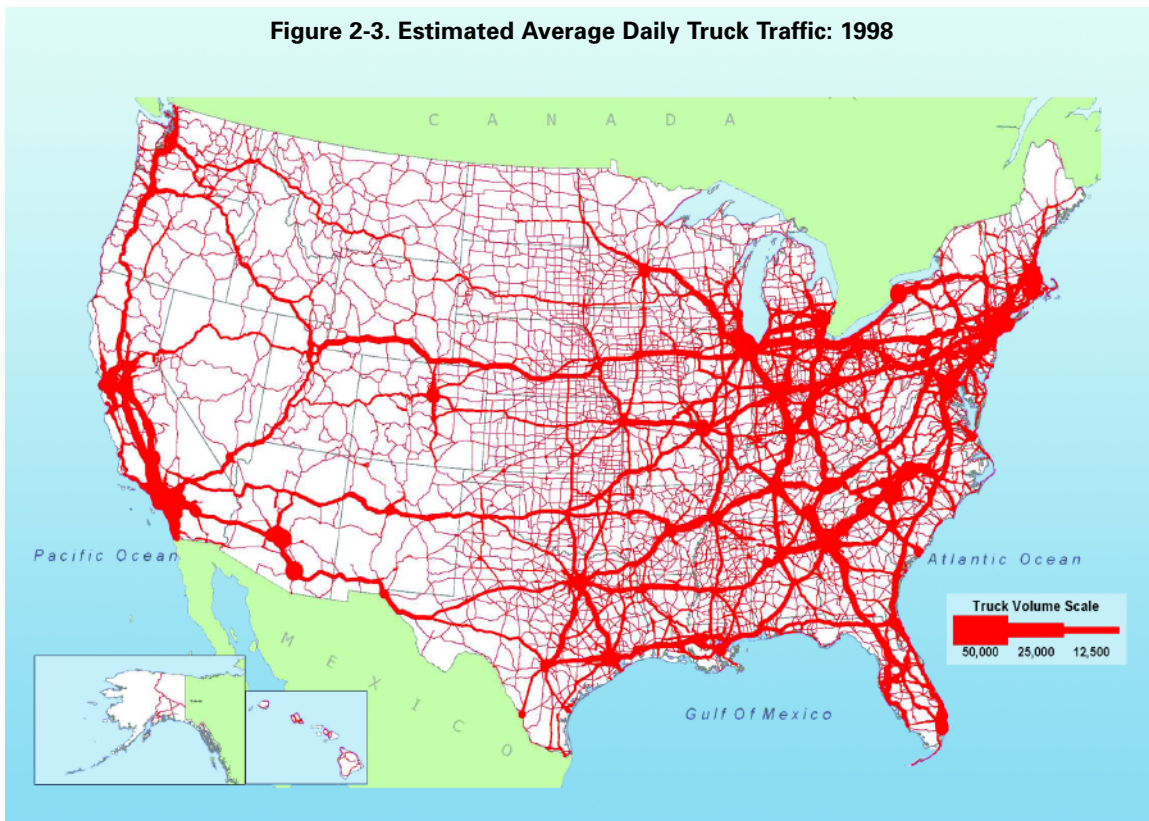


Figure 2-4. Estimated Average Daily Truck Traffic: 2020

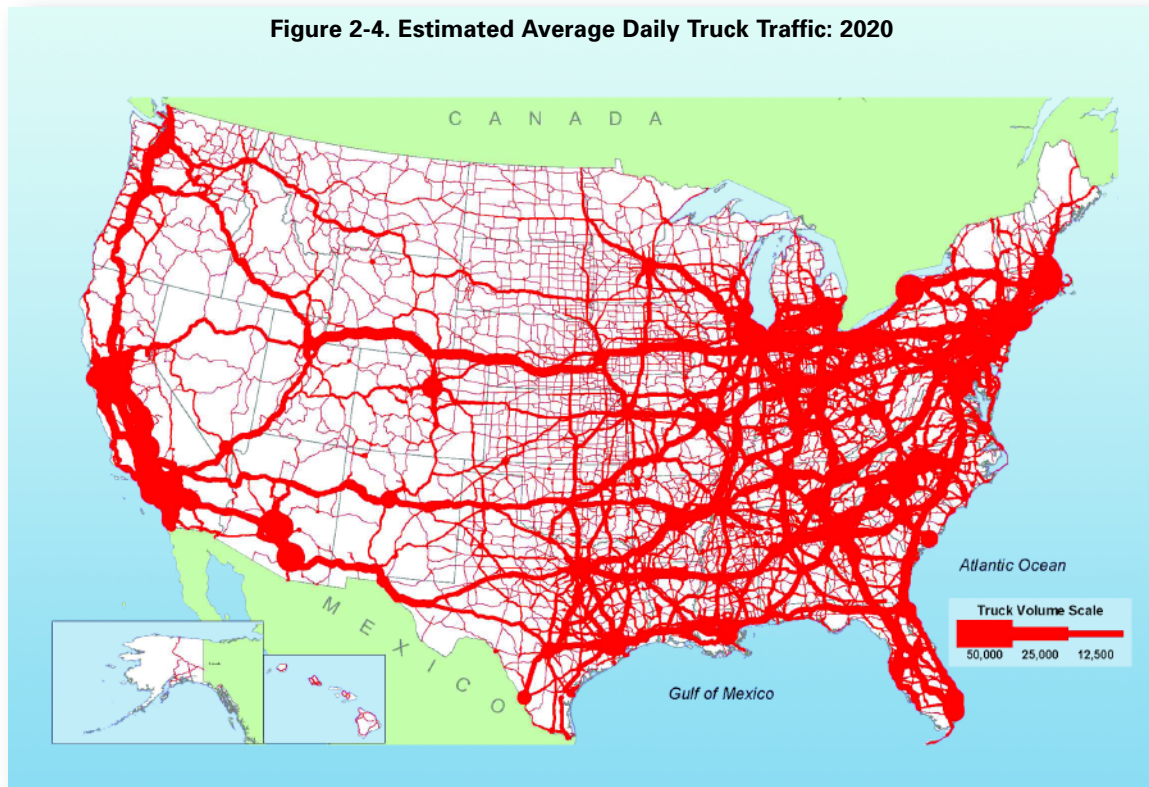
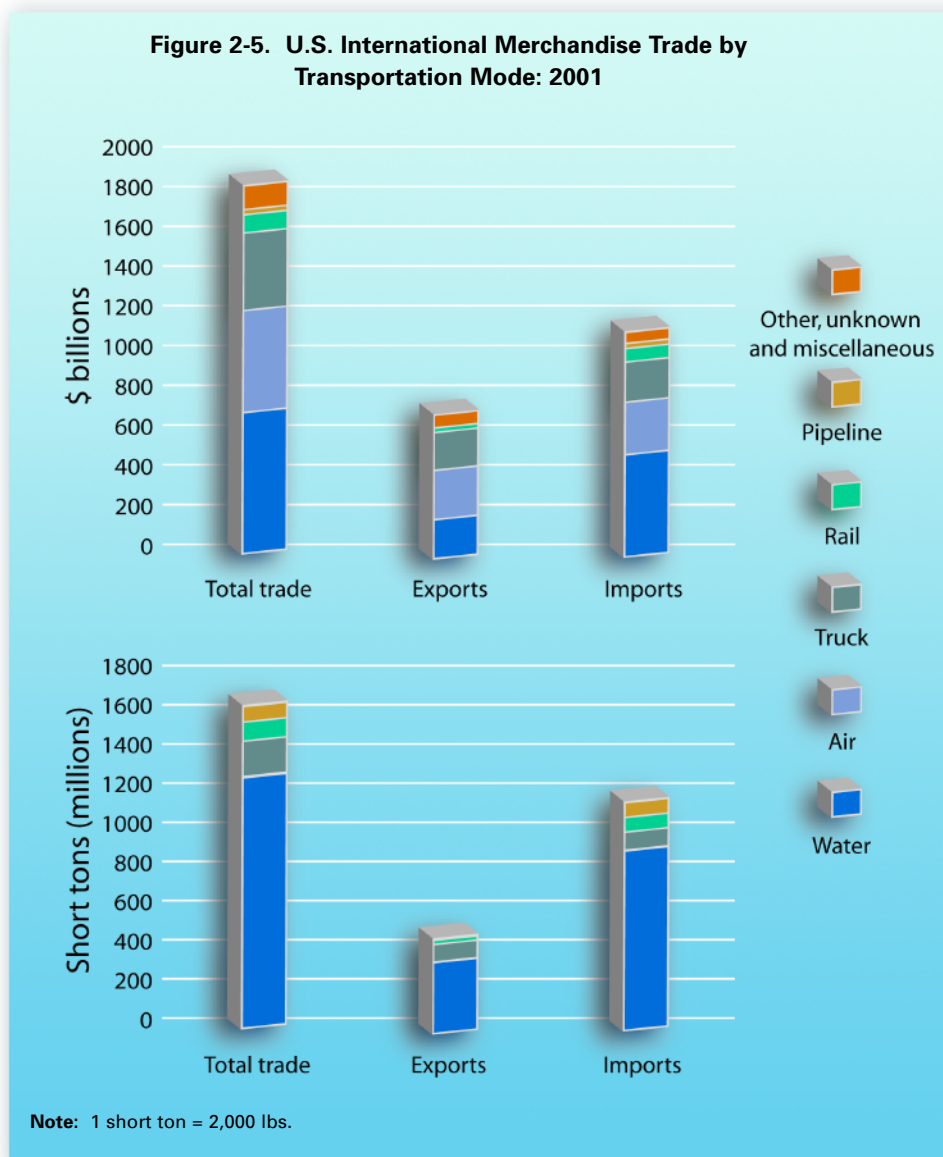


FIGURE 2-3. ESTIMATED AVERAGE DAILY TRUCK TRAFFIC: 1998

Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework.

FIGURE 2-4. ESTIMATED AVERAGE DAILY TRUCK TRAFFIC: 2020

Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework.



Some of the most severe congestion problems are found near ports, airports, and border crossings stemming from the rapid growth of international trade. Over the past two decades U.S. foreign trade in goods by value has quadrupled. Nearly 80 percent of freight tons in U.S. foreign trade are transported by ship. Although the vast majority of freight tonnage in U.S. foreign trade moves by water, air and truck transportation are nearly as important when freight value is

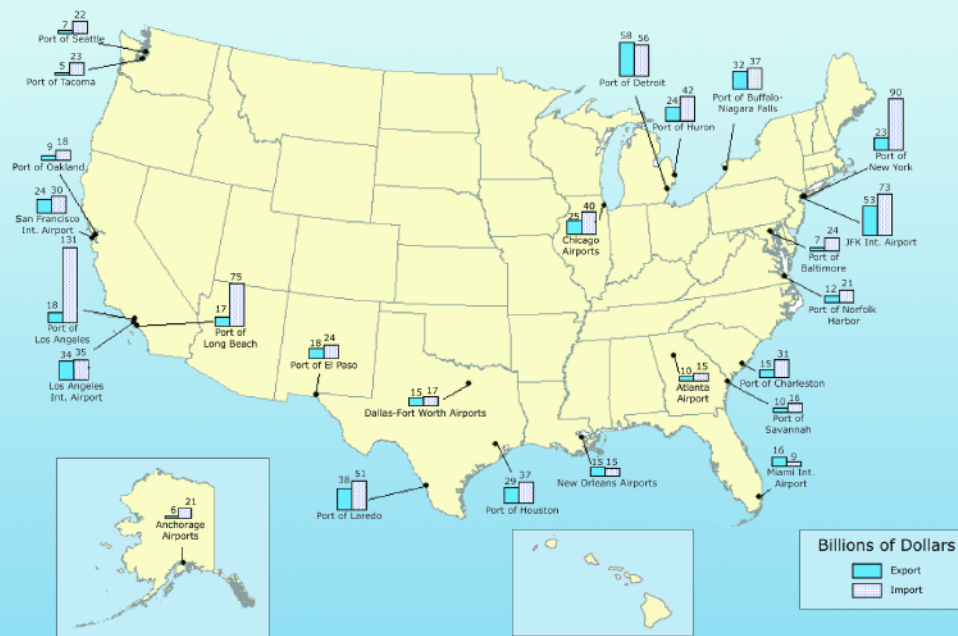
considered. By value, the water share drops to 40 percent, with 28 percent moving by air and 21 percent moving by truck.

The top 25 foreign trade gateways measured by value of shipments are comprised of 9 airports, 11 water ports, and 5 border crossings. At these 25 gateways, imports comprise 65 percent of the total. Ports with very large shares of imports relative to exports are mostly water ports (such as the ports of Los Angeles, CA, Long Beach, CA, and Tacoma, WA). Anchorage International Airport also has a very high proportion of imports relative to exports.

FIGURE 2-5. U.S. INTERNATIONAL MERCHANDISE TRADE BY MODE OF TRANSPORTATION: 2001

Source: U.S. Department of Transportation, Bureau of Transportation Statistics, *U.S. International Trade and Freight Transportation Trends* (Washington, DC: 2003), table 7, available at www.bts.gov as of July 12, 2004.

Figure 2-6. Top 25 U.S. Foreign Trade Freight Gateways by Value: 2004 (\$ billions)



Note: 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 include major airport(s) in the geographic area in addition to small regional airports.

Measured in tons, the Port of South Louisiana handles the most freight of any water port in the United States. Water ports dominated by domestic trade include St. Louis, MO-IL; Pittsburgh, PA; Huntington, WV-KY-OH; and Valdez, AK. Water ports dominated by foreign trade include Portland, ME; Los Angeles, CA; Freeport, TX; and Beaumont, TX. The top 25 water ports handle about two-thirds of all foreign and domestic goods moved by water.

FIGURE 2-6. TOP 25 U.S. FOREIGN TRADE FREIGHT GATEWAYS BY VALUE: 2004 (\$ BILLIONS)

Source: U.S. Department of Transportation, Bureau of Transportation Statistics, *National Transportation Statistics 2005*, (Washington, DC: 2005), available at <http://www.sts.gov> as of October 21, 2005.

**Figure 2-7. Top 25 Water Ports by Weight: 2003
(Million Short Tons)**

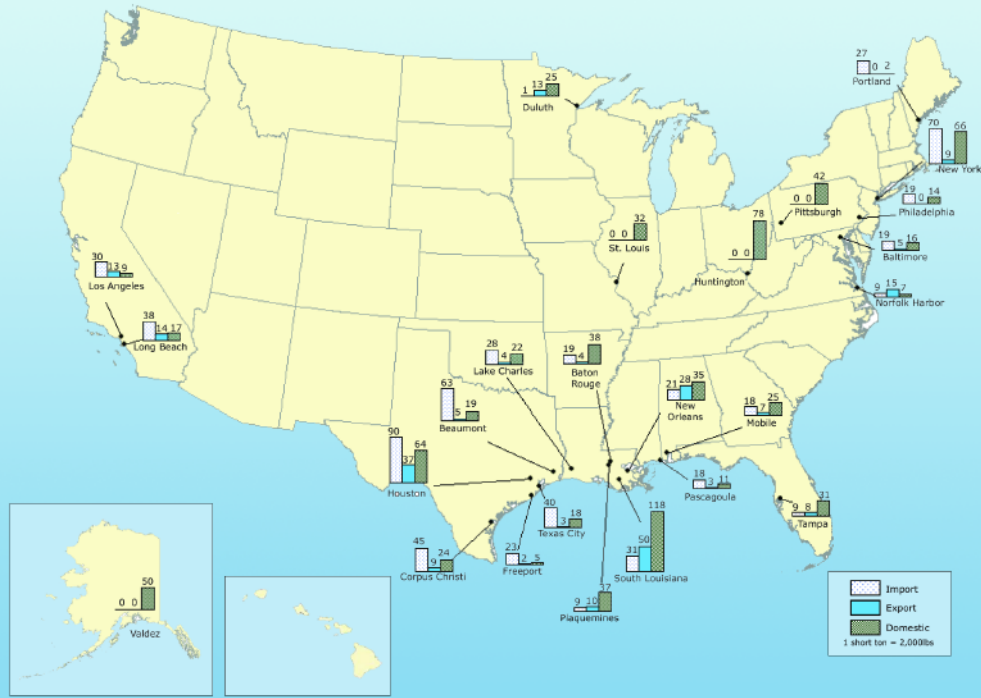


Figure 2-8. Top 25 U.S. Container Ports by Containerized Cargo: 2004



FIGURE 2-7. TOP 25 WATER PORTS BY WEIGHT: 2003

Source: U.S. Army Corps of Engineers, *Waterborne Commerce of the United States, Calendar Year 2003, Part 5, National Summaries* (New Orleans, LA: 2005), available at <http://www.iwr.usace.army.mil/nac> as of October 21, 2005.

FIGURE 2-8. TOP 25 U.S. CONTAINER PORTS BY CONTAINERIZED CARGO: 2004

Source: U.S. Department of Transportation, Maritime Administration, *Top 30 U.S. Container Ports by Direction, CY2004*, based on data provided by Port Import/Export Reporting Service, 2005.



Containerized cargo has grown rapidly over the past few years and is concentrated at a few large water ports. The Port of Los Angeles handles about one-fifth of all the container traffic at water ports in the United States. Together with the Port of Long Beach, this share increases to more than one-third. Container trade at the Ports of Los Angeles and Long Beach nearly doubled between 1994 and 2004, about the same as containerized cargo overall.

Trade with Canada and Mexico has skyrocketed since the signing of the North American Free Trade Agreement (NAFTA) in 1994. Trucks carry almost two-thirds of the value of goods traded with these countries. The value of goods carried by truck increased by about 40 percent between 1997 and 2004. By weight, the water and truck modes carry the largest share of goods traded.

Table 2-3. U.S. Merchandise Trade with Canada and Mexico by Transportation Mode

Mode	1997		2000		2001 ¹		2004	
	Value (\$ billions)	Weight (millions of short tons)	Value (\$ billions)	Weight (millions of short tons)	Value (\$ billions)	Weight (millions of short tons)	Value (\$ billions)	Weight (millions of short tons)
Truck	323	NA	429	NA	395	180	453	NA
Rail	70	NA	94	NA	93	97	108	NA
Air	28	<1	45	<1	37	<1	32	<1
Water	22	190	33	213	29	214	46	244
Pipeline	14	NA	24	NA	26	79	39	NA
Other	19	NA	29	NA	31	1	34	NA
Total	475	527	653	578	612	572	712	NA

Key: NA = not available.

¹2001 data are from the U.S. Department of Transportation, Bureau of Transportation Statistics, *International Trade and Freight Transportation Trends* (Washington, DC: 2003), tables 22 and C-11, available at www.bts.gov as of July 12, 2004.

²Other includes "flyaway aircraft" (i.e., aircraft moving from the manufacturer to a customer and not carrying any freight), vessels moving under their own power, pedestrians carrying freight, and miscellaneous.

Notes: Individual modal totals may not sum to exact totals due to rounding. 1 short ton = 2,000 lbs. For value, "Other" is the difference between the total and the sum of the individual modes.

TABLE 2-3. U.S. MERCHANDISE TRADE WITH CANADA AND MEXICO BY TRANSPORTATION MODE

Source: U.S. Department of Transportation, Bureau of Transportation Statistics; U.S. Department of Commerce, Census Bureau; Statistics Canada; Transport Canada; Instituto Mexicano del Transporte; Instituto Nacional de Estadística, Geografía e Informática; Secretaría de Comunicaciones y Transportes; North American Trade Statistics Database, tables 6-1c and 6-2c, available at <http://nats.sct.gob.mx> as of November 2, 2005.

Table 2-4. U.S. Land Exports to and Imports from Canada and Mexico by Transportation Mode (\$ millions)

	1996	2000	2003	2004
Exports to Canada, total	139,109.7	154,847.4	154,870.8	170,295.4
Truck	102,743.0	129,825.3	124,235.0	135,897.5
Rail	15,678.7	12,946.5	14,776.5	16,596.6
Pipeline	162.2	161.6	759.6	1,584.2
Other ¹	20,467.5	11,913.4	15,099.2	17,776.7
Mail	58.3	0.6	0.4	23.1
Exports to Mexico, total	51,753.4	97,158.9	85,614.8	97,303.7
Truck	44,091.8	82,389.2	70,550.8	79,349.2
Rail	5,119.2	10,495.8	11,264.9	13,632.9
Pipeline	2.3	301.8	155.3	87.2
Other ¹	2,540.1	3,972.0	3,643.3	4,216.4
Mail	–	–	0.4	18.1
Imports from Canada, total	156,206.6	210,270.5	207,448.4	236,734.9
Truck	98,400.8	127,816.3	116,714.1	132,762.1
Rail	39,811.0	49,699.2	49,980.9	57,947.2
Pipeline	12,796.2	23,117.1	31,451.3	36,828.3
Other ¹	4,968.4	9,571.0	9,236.6	8,994.4
Mail	6.9	4.1	0.3	0.2
FTZ ²	223.4	62.8	65.3	202.6
Imports from Mexico, total	63,312.2	113,436.5	114,842.8	127,646.3
Truck	48,350.0	88,668.7	92,535.0	104,943.8
Rail	12,297.7	21,056.1	19,701.7	20,183.4
Pipeline	8.1	11.5	0.2	0.3
Other ¹	639.2	1,573.9	1,600.1	1,838.7
Mail	1.5	0.6	0.0	0.0
FTZ ²	2,015.6	2,125.7	1,005.4	679.8

Key: – = value too small to report.

¹"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.

²Foreign Trade Zones (FTZs) were added as a mode of transport for land import shipments beginning in April 1995. Although FTZs are 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.

Note: Numbers may not add to totals due to rounding.

Trade with Canada by land modes is significantly higher than trade with Mexico. However, trade across the Mexican border has grown much more quickly than trade on the Canadian border over the past few years. Imports and exports to Mexico measured by value grew by 102 percent and 88 percent respectively between 1996 and 2004. Imports and exports to Canada, by contrast, grew by 52 percent and 22 percent respectively.

TABLE 2-4. U.S. LAND EXPORTS TO AND IMPORTS FROM CANADA AND MEXICO BY TRANSPORTATION MODE (\$ MILLIONS)

Source: U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data, available at www.bts.gov/transborder as of July 13, 2005.

Most trucks enter the United States through only four states: Texas, Michigan, New York, and California. Three border crossings — Detroit, MI, Buffalo-Niagara, NY, and Port Huron, MI — account for most trucks entering the United States from Canada. Three border crossings — Laredo, TX; Otay Mesa/San Ysidro, CA; and El Paso, TX — account for nearly two-thirds of trucks coming into the United States from Mexico.

Table 2-5. Incoming Truck Container Crossings by State, U.S.- Canadian Border

State	1998	2000	2004
Alaska	11,139	9,710	9,771
Idaho	44,683	53,102	48,266
Maine	391,480	394,067	509,951
Michigan	2,255,485	2,471,416	2,661,624
Minnesota	107,667	131,004	102,963
Montana	168,805	198,745	165,167
New York	NA	1,910,176	1,978,035
North Dakota	NA	340,301	351,968
Vermont	NA	226,109	281,538
Washington	715,663	497,405	666,046
Total U.S. - Canada border	NA	6,232,035	6,775,329

Key: NA = Not available.

Note: Full or empty truck containers entering the United States. The data include containers moving as in-bond shipments.

Table 2-6. Incoming Truck Container Crossings by State, U.S.-Mexican Border

State	1998	2000	2004
Arizona	318,185	322,160	319,872
California	860,684	947,311	1,135,850
New Mexico	31,699	35,507	32,348
Texas	2,502,358	2,895,703	3,024,830
Total U.S. - Mexico border	3,712,926	4,200,681	4,512,900

Note: Full or empty truck containers entering the United States. The data include containers moving as in-bond shipments.

TABLE 2-5. INCOMING TRUCK CONTAINER CROSSINGS BY STATE, U.S.-CANADIAN BORDER

Source: U.S. Department of Transportation, Bureau of Transportation Statistics, special tabulation 2005, based on data from U.S. Customs Service, Mission Support Services, Office of Field Operations, Operations Management Database.

TABLE 2-6. INCOMING TRUCK CONTAINER CROSSINGS BY STATE, U.S.-MEXICAN BORDER

Source: U.S. Department of Transportation, Bureau of Transportation Statistics, special tabulation 2005, based on data from U.S. Customs Service, Mission Support Services, Office of Field Operations, Operations Management Database.





**Table 2-7. Incoming Rail Container Crossings
by State, U.S.- Canadian Border**

State	1998	2000	2004
Alaska	N	N	N
Idaho	37,579	50,240	78,133
Maine	46,882	60,358	44,299
Michigan	587,317	679,747	751,600
Minnesota	215,899	250,943	333,657
Montana	23,729	25,255	39,996
New York	140,422	257,155	276,112
North Dakota	NA	154,698	225,284
Vermont	43,551	51,069	56,764
Washington	82,828	65,372	145,064
Total U.S. - Canada border	1,178,207	1,594,837	1,950,909

Key: N = not applicable; NA = not available.

Note: Full or empty rail containers entering the United States. The data include containers moving as in-bond shipments.

**Table 2-8. Incoming Rail Container Crossings
by State, U.S.- Mexican Border**

State	1998	2000	2004
Arizona	35,812	50,602	46,899
California	7,755	9,115	15,091
New Mexico	N	N	N
Texas	344,339	512,108	613,315
Total U.S. - Mexico border	387,906	571,825	675,305

Key: N = not applicable.

Note: Full or empty rail containers entering the United States. The data include containers moving as in-bond shipments.

Most freight trains enter the United States through five states: Michigan, Texas, Minnesota, New York, and North Dakota. Three border crossings — Port Huron, MI, Detroit, MI, and International Falls, MN — account for half of all containers coming in to the United States from Canada by rail. On the Mexican border, Laredo, TX by itself accounts for half of all containers coming into the United States by rail.

TABLE 2-7. INCOMING RAIL CONTAINER CROSSINGS BY STATE, U.S.-CANADIAN BORDER

Source: U.S. Department of Transportation, Bureau of Transportation Statistics, special tabulation 2005, based on data from U.S. Customs Service, Mission Support Services, Office of Field Operations, Operations Management Database.

TABLE 2-8. INCOMING RAIL CONTAINER CROSSINGS BY STATE, U.S.-MEXICAN BORDER

Source: U.S. Department of Transportation, Bureau of Transportation Statistics, special tabulation 2005, based on data from U.S. Customs Service, Mission Support Services, Office of Field Operations, Operations Management Database.

Table 2-9. Top 25 Airports by Landed Weight of All-Cargo Operations¹

Airport	2003 Rank	Landed weight (thousands of short tons)			
		2000	2001	2002	2003
Anchorage, AK (Ted Stevens Anchorage International) ²	1	8,084	7,777	8,994	9,007
Memphis, TN (Memphis International)	2	6,318	6,865	8,826	8,760
Louisville, KY (Louisville International-Standiford Field)	3	3,987	4,026	4,202	4,172
Miami, FL (Miami International)	4	2,929	3,055	3,174	3,239
Los Angeles, CA (Los Angeles International)	5	2,892	2,929	3,038	3,120
New York, NY (John F. Kennedy International)	6	2,793	2,543	2,912	2,937
Chicago, IL (O'Hare International)	7	2,062	2,012	2,217	2,351
Indianapolis, IN (Indianapolis International)	8	2,884	3,154	2,338	2,277
Newark, NJ (Newark Liberty International)	9	1,961	1,795	1,758	1,835
Oakland, CA (Metropolitan Oakland International)	10	1,811	1,639	1,746	1,695
Fort Worth, TX (Dallas/Fort Worth International)	11	1,691	1,546	1,481	1,481
Philadelphia, PA (Philadelphia International)	12	1,454	1,452	1,466	1,365
Ontario, CA (Ontario International)	13	1,220	1,291	1,444	1,338
San Francisco, CA (San Francisco International)	14	1,267	1,012	1,035	1,200
Atlanta, GA (William B. Hartsfield International)	15	1,090	1,043	1,166	1,194
Covington/Cincinnati, OH (Cincinnati/Northern Kentucky International)	16	912	980	1,043	1,098
Honolulu, HI (Honolulu International)	17	692	789	970	1,017
Seattle, WA (Seattle-Tacoma International)	18	1,060	958	881	796
Dayton, OH (James M. Cox Dayton International)	19	2,233	1,444	897	784
Phoenix, AZ (Sky Harbor International)	20	920	838	867	779
Portland, OR (Portland International)	21	882	807	816	749
Denver, CO (Denver International)	22	900	803	783	747
Minneapolis, MN (Minneapolis-St Paul International/Wold Chamberlain)	23	622	586	621	687
Houston, TX (George Bush Intercontinental)	24	480	463	482	666
San Juan, PR (Luis Munoz Marin International)	25	485	417	537	652
Top 25 airports		(R) 51,627	(R) 50,224	(R) 53,693	53,947
United States, all airports³		(R) 74,754	(R) 71,426	(R) 73,290	73,072
Top 25 as % of U.S. total		69.1%	70.3%	73.3%	73.8%

Key: R = revised.

¹All-Cargo operations are operations dedicated to the exclusive transportation of cargo. This does not include aircraft carrying passengers that may also be carrying cargo. Aircraft landed weight is the certificated maximum gross landed weight of the aircraft as specified by the aircraft manufacturers.

²Anchorage includes a large proportion of all-cargo operations in-transit.

³Limited to airports with an aggregate landed weight in excess of 100 million pounds (50,000 short tons) annually.

Note: 1 short ton = 2,000 lbs.

The Federal Aviation Administration (FAA) reports that Anchorage International and Memphis International are this country's two most important airports that handle all-cargo aircraft. All-cargo aircraft are those dedicated to the exclusive transportation of cargo. They do not include aircraft carrying passengers as well as cargo. Of the top 25 airports that handle all-cargo operations, Memphis is also one of the fastest growing, up 39 percent since 2000, along with Honolulu (47 percent), Houston (39 percent), and San Juan (34 percent).

TABLE 2-9. TOP 25 AIRPORTS BY LANDED WEIGHT OF ALL-CARGO OPERATIONS

Source: U.S. Department of Transportation, Federal Aviation Administration, ACAIS Database Report F5, CY 2003 and CY 2001, available at <http://www2.faa.gov/arp/planning/stats> as of June 27, 2005

Trucks move more than one-half of all hazardous materials shipped from a location in the United States. However, truck ton-miles of hazardous shipments account for a much smaller share, about one-third of all ton-miles, because such shipments travel relatively short distances. By contrast, rail accounts for only 5 percent of shipments by weight but 22 percent by ton-miles.

Table 2-10. U.S. Hazardous Materials Shipments by Transportation Mode: 2002

Transportation mode	Value		Tons		Ton-miles		Average miles per shipment
	\$ Billion	Percent	Millions	Percent	Billions	Percent	
All modes, total	660.2	100.0	2,191.5	100.0	326.7	100.0	136
Single modes, total	644.5	97.6	2,158.5	98.5	311.9	95.5	105
Truck ¹	419.6	63.6	1,159.5	52.9	110.2	33.7	86
For-hire	189.8	28.8	449.5	20.5	65.1	19.9	285
Private ²	226.7	34.3	702.2	32.0	44.1	13.5	38
Rail	31.3	4.7	109.4	5.0	72.1	22.1	695
Water	46.9	7.1	228.2	10.4	70.6	21.6	S
Air	1.6	0.2	0.1	0.003	0.1	0.03	2,080
Pipeline ³	145.0	22.0	661.4	30.2	S	S	S
Multiple modes, total	9.6	1.5	18.7	0.9	12.5	3.8	849
Parcel, U.S. Postal Service or Courier	4.3	0.6	0.2	0.01	0.1	0.04	837
Other	5.4	0.8	18.5	0.8	12.4	3.8	1,371
Unknown and other modes, total	6.1	0.9	14.2	0.6	2.3	0.7	57

Key: S = data are not published because of high sampling variability or other reasons; Z = zero or less than 1 unit of measure.

¹Truck as a single mode includes shipments that went by private truck only, for-hire truck only, or a combination of both.

²Private truck refers to a truck operated by a temporary or permanent employee of an establishment or the buyer/receiver of the shipment.

³Excludes most shipments of crude oil.

Table 2-11. U.S. Hazardous Materials Shipments by Hazard Class: 2002

Hazard class	Description	Value		Tons		Ton-miles	
		\$ Billions	Percent	Millions	Percent	Billions	Percent
Class 1	Explosives	7.9	1.2	5.0	0.2	1.6	0.5
Class 2	Gases	73.9	11.2	213.4	9.7	37.3	11.4
Class 3	Flammable liquids	490.2	74.3	1,789.0	81.6	218.6	66.9
Class 4	Flammable solids	6.6	1.0	11.3	0.5	4.4	1.3
Class 5	Oxidizers and organic peroxides	5.5	0.8	12.7	0.6	4.2	1.3
Class 6	Toxic (poison)	8.3	1.3	8.5	0.4	4.3	1.3
Class 7	Radioactive materials	5.9	0.9	0.1	0.003	0.04	0.01
Class 8	Corrosive materials	38.3	5.8	90.7	4.1	36.3	11.1
Class 9	Miscellaneous dangerous goods	23.6	3.6	61.0	2.8	20.2	6.2
Total		660.2	100.0	2,191.5	100.0	326.7	100.0

TABLE 2-10. U.S. HAZARDOUS MATERIALS SHIPMENTS BY TRANSPORTATION MODE: 2002

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

TABLE 2-11. U.S. HAZARDOUS MATERIALS SHIPMENTS BY HAZARD CLASS: 2002

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



Flammable liquids, especially gasoline, are the predominant hazardous material transported in the United States. In terms of ton-miles, flammable liquids account for about 67 percent of total ton-miles of hazardous materials shipments. The next largest class of hazardous materials in terms of ton-miles is gases at about 11 percent.

Despite the enormous amount of freight being moved by truck in the United States, the United States moves a much smaller share of its goods domestically by truck and a much greater share of goods by rail than countries in western Europe and Japan.

Table 2-12. Percent Share of Total Domestic Freight Activity by Transportation Mode: 1996

Mode	Canada	France	Germany	Italy	Japan	United Kingdom	United States
Air	0.14	0.08	0.01	0.11	0.09	0.01	0.29
Water	9.2	5.2	17.6	13.0	58.0	23.6	20.5
Oil pipeline	23.9	9.0	4.1	4.7	NA	5.5	16.6
Rail	50.5	20.7	19.6	8.7	3.1	6.3	36.3
Road	16.3	65.0	58.6	73.5	38.1	64.7	26.4

Key: NA = not available.

TABLE 2-12. PERCENT SHARE OF TOTAL DOMESTIC FREIGHT ACTIVITY BY MODE: 1996

Source: U.S. Department of Transportation, Bureau of Transportation Statistics, *G-7 Countries: Transportation Highlights*, BTS99-01 (Washington, DC: 1999), available at www.bts.gov as of August 26, 2004.