Freight Analysis Framework

The U.S. Department of Transportation (USDOT) recognizes that the smooth flow of freight in the United States and across its borders is important to our nation's economy. In recent years, increases in the volume of freight have strained the transportation network in some locations and exacerbated conflicts between the traveling public and freight carriers. Growing international trade has also changed the geography of freight movements within the United States, placing greater pressure on gateways, ports, and border crossings—nodes in the system that are potential bottlenecks for the movement of freight.

Understanding future freight activity is important for matching infrastructure supply to demand and for assessing investment and operational strategies. To help decisionmakers identify areas in need of capacity improvements, USDOT created the Freight Analysis Framework (FAF), a comprehensive database and policy analysis tool, to examine geographic relationships between freight movement and infrastructure capacity. FAF was developed from several private and government databases, including the Bureau of Transportation's Commodity Flow Survey.

FAF provides detailed information on freight flows for the truck, rail, water, and air modes and for various commodities. It also forecasts freight activities for 2010 and 2020.

FAF Findings

- The U.S. transportation system carried over 15 billion tons of freight valued at over $9 trillion in 1998. Domestic freight movements accounted for nearly $8 trillion of the total value of shipments. By 2020, the U.S. transportation system is expected to handle cargo valued at nearly $30 trillion. (Maps showing major freight flows for various modes are shown on the reverse.)

- The nation's highway system, and our enormous truck fleet, moved 71 percent of the total tonnage and 80 percent of the total value of U.S. shipments in 1998. Although trucks made the vast majority of local deliveries, they also carried large volumes of freight between regional and national markets. Water and rail also moved significant shares of total tonnage, but they accounted for much smaller shares when measured on a value basis. As expected, air freight moved less than 1 percent of total tonnage but carried 12 percent of the total value of shipments in 1998.

- Domestic freight volumes will grow by more than 65 percent, increasing from 13.5 billion tons in 1998 to 22.5 billion tons in 2020. The forecast shows that the air and truck modes will experience

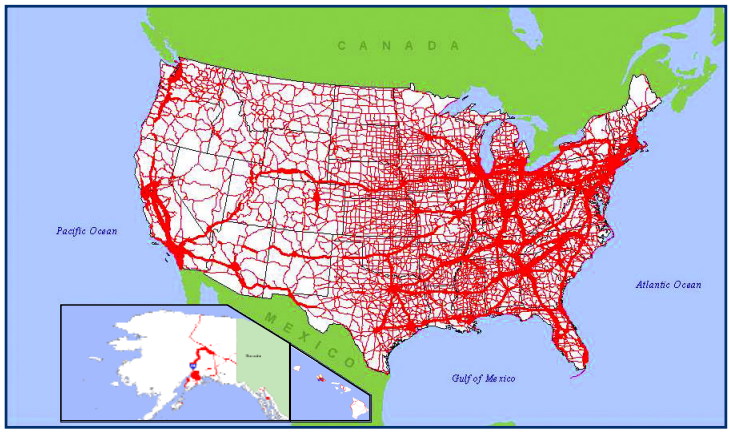
Table 1. U.S. Freight Shipments by Tons and Value

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						
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
Total, Domestic	**13,484**	**18,820**	**22,537**	**7,876**	**15,152**	**24,075**
International						
Air	9	16	24	530	1,182	2,259
Highway	419	733	1,069	772	1,724	3,131
Rail	864	1,090	1,259	116	248	432
Water	358	518	699	17	34	57
Other[a]	136	199	260	NA	NA	NA
Total, International	**1,787**	**2,556**	**3,311**	**1,436**	**3,187**	**2,879**

Key: NA = Not Available. Note: Modal numbers may not add to totals due to rounding.

[a]The "Other" category includes international shipments that moved via pipeline or by an unspecified mode.

Figure 1. Freight Flows by Truck: 1998 (daily truck volumes)



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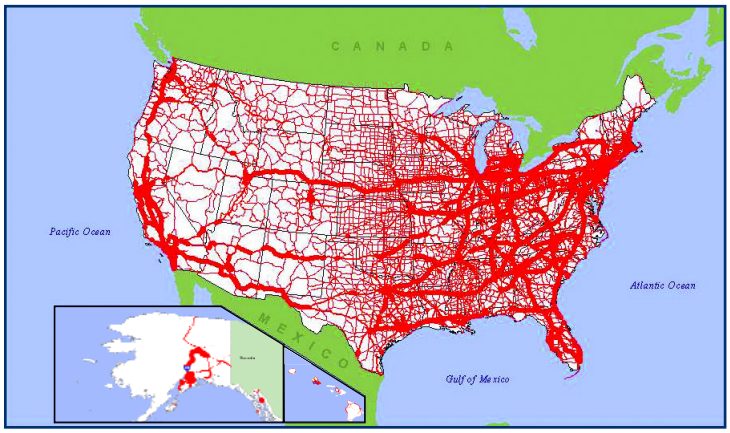
Note: Alaska and Hawaii are at a different scale than the continental United States.

Figure 2. Freight Flows by Truck: 2020 (daily truck volumes)



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Note: Alaska and Hawaii are at a different scale than the continental United States.

Figure 3. Freight Flows by Rail: 1998 (tons)

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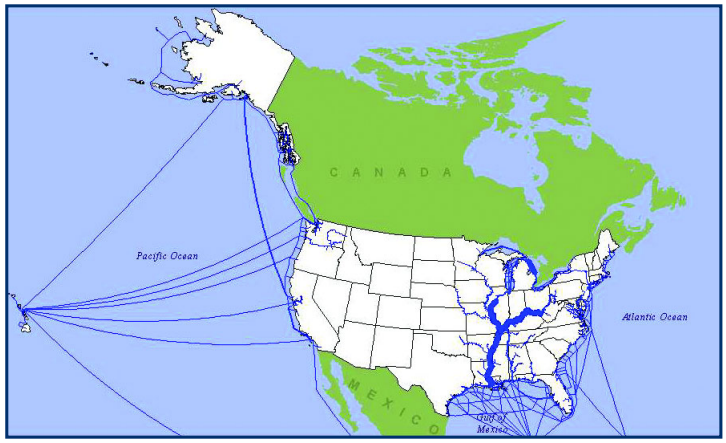
Figure 4. Freight Flows by Water: 1998 (tons)



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the fastest growth. Domestic air cargo tonnage is projected to nearly triple over this period, although its share of total tonnage is expected to remain small. Trucks are expected to move over 75 percent more tons in 2020, capturing a somewhat larger share of total tonnage. While volumes moved by the rail and domestic water modes are also projected to increase over the forecast period, they will not grow as dramatically primarily because of anticipated slower growth in demand for many of the key commodities carried by these modes.

- International trade accounted for 12 percent of total U.S. freight tonnage in 1998 and is forecast to grow faster than domestic trade. International trade is projected to increased by 2.8 percent annually between 1998 and 2020, nearly doubling in volume. This growth in international trade is likely to present challenges to U.S. ports and border gateways.

FAF Products

A series of FAF products are available on the Office of Freight Management and Operations website noted below. FAF outputs include freight flow maps for states, modes, and gateways; detailed databases on traffic flows and commodity movements; information on the methodologies used to develop FAF; and forecast assumptions.

For More Information, Please Contact

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