

## Freight Transportation Profile—Pennsylvania Freight Analysis Framework

Understanding future freight activity is important for matching infrastructure supply to demand and for assessing potential investment and operational strategies. To help decisionmakers identify areas in need of capacity improvements, the U.S. Department of Transportation developed the Freight Analysis Framework (FAF), a comprehensive national data and analysis tool, including county-to-county freight flows for the truck, rail, water, and air modes. FAF also forecasts freight activity in 2010 and 2020 for each of these modes. Information about the methodology used in developing FAF is available on the Office of Freight Management and Operations' website [www.ops.fhwa.dot.gov/freight](http://www.ops.fhwa.dot.gov/freight).

The U.S. freight transportation network moves a staggering volume of goods each year. Over 15 billion tons of goods, worth over \$9 trillion, were moved in 1998. The movement of bulk goods, such as grains, coal, and ores, still comprises a large share of the tonnage moved on the U.S. freight network. However, lighter and more valuable goods, such as computers and office equipment, now make up an increasing proportion of what is moved. FAF estimates that trucks carried about 71 percent of the total tonnage and 80 percent of the total value of U.S. shipments in 1998. By 2020, the U.S. transportation system is expected to handle about 23 billion tons of cargo valued at nearly \$30 trillion.

### Pennsylvania

Table 1 presents information on freight shipments that have either an origin or a destination in Pennsylvania. As shown in the table, trucks moved a large percentage of the tonnage and value of shipments, followed by rail. Figures 1 and 2 show these freight flows on the highway and rail modes.

Truck traffic is expected to grow throughout the state over the next 20 years. Much of the growth will occur in urban areas and on the Interstate highway system (Figures 3 and 4). Truck traffic moving to and from Pennsylvania accounted for 16 percent of the average annual daily truck traffic (AADTT) on the FAF road network. Nearly 21 percent of truck traffic involved in-state shipments, and 27 percent involved trucks traveling across the state to other markets. Approximately 36 percent of the AADTT were not identified with a route-specific origin or destination.

Table 2 shows the top five commodity groups shipped to, from, and within Pennsylvania by all modes. The top commodities by weight are non-metallic minerals and coal. By value, the top commodities are transportation equipment and secondary traffic, which is defined as freight flows to and from distribution centers or through intermodal facilities. No commodities are assigned to this intermediate step in the transportation process.

**Table 1. Freight Shipments To, From, and Within Pennsylvania: 1998, 2010, and 2020**

PENNSYLVANIA	Tons (millions)			Value (billions \$)		
	1998	2010	2020	1998	2010	2020
<b>State Total</b>	919	1,217	1,387	466	869	1,366
<b>By Mode</b>						
Air	1	2	2	55	128	221
Highway	634	834	954	362	663	1,036
Other <sup>a</sup>	89	121	134	11	17	22
Rail	121	164	191	32	51	74
Water	75	96	105	6	10	14
<b>By Destination/Market</b>						
Domestic	786	1,024	1,157	401	739	1,145
International	134	193	230	65	130	221

Note: Modal numbers may not add to totals due to rounding.

<sup>a</sup> The "Other" category includes international shipments that moved via pipeline or by an unspecified mode.

**Figure 1. Freight Flows To, From, and Within Pennsylvania by Truck: 1998 (tons)**



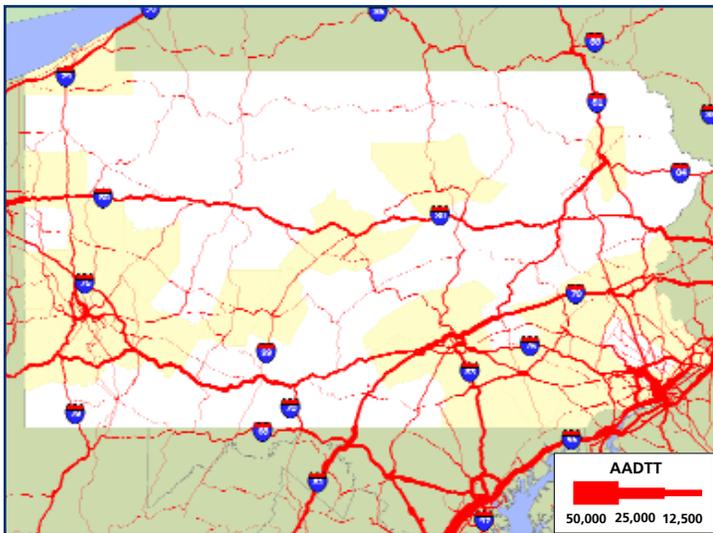
Federal Highway Administration

**Figure 2. Freight Flows To, From, and Within Pennsylvania by Rail: 1998 (tons)**



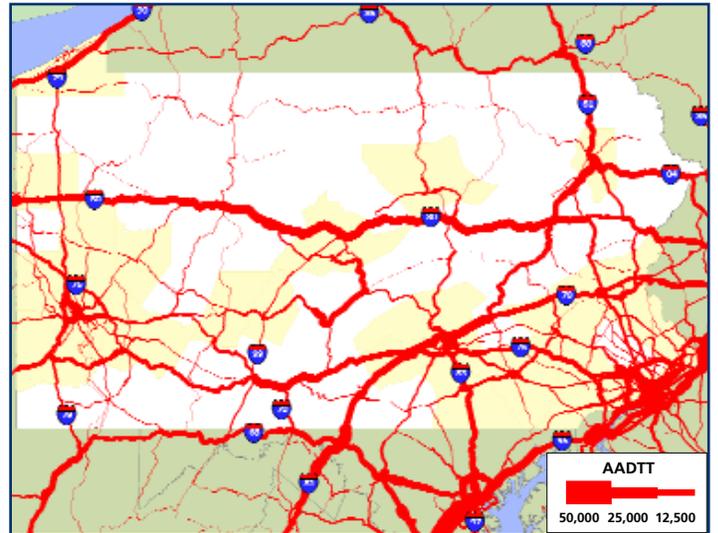
Federal Railroad Administration

**Figure 3. Estimated Average Annual Daily Truck Traffic: 1998**



Federal Highway Administration

**Figure 4. Estimated Average Annual Daily Truck Traffic: 2020**



Federal Highway Administration

**Table 2. Top Five Commodities Shipped To, From, and Within Pennsylvania by All Modes: 1998 and 2020**

Commodity	Tons (millions)		Commodity	Value (billions \$)	
	1998	2020		1998	2020
Nonmetallic Minerals	252	275	Transportation Equipment	60	122
Coal	111	172	Secondary Traffic	44	170
Crude Petroleum/Natural Gas	87	128	Food/Kindred Products	42	151
Petroleum/Coal Products	71	85	Chemicals/Allied Products	41	121
Clay/Concrete/Glass/Stone	60	107	Primary Metal Products	39	78

**For More Information, Please Contact**

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A series of FAF products are available on the 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.

The U.S. Department of Transportation, Bureau of Transportation Statistics (BTS) is also developing a series of state transportation profiles. For more information and to obtain a copy of the BTS reports, please call 202-366-DATA.



U.S. Department of Transportation

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