



U.S. Department of Transportation
Office of the Assistant Secretary for Research and Technology

Bureau of Transportation Statistics

Freight Analysis Framework (FAF)

An Overview

2015 U.S. DOT Datapalooza

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An Understanding of Freight Transportation

- **How much & what** freight moves from place to place?
 - Weight
 - Value
 - Type of commodity
- **Where & how** is freight moving?
 - Origin & destination
 - Route used
 - Mode of transport
- **When** is freight being carried?
 - Season
 - Time of day



The Big Picture

- A database of regional O-D freight flows by tons and value for all modes, annual provisional updates, and long-range forecasts
- An assignment of the average number of freight-hauling trucks to individual highway segments on the national network

Distance Band (miles)	Value		Weight		Ton-Miles	
	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent
Below 100	40	40	51	51	7	7
100 - 249	16	56	19	71	10	17
250 - 499	13	69	11	82	13	29
500 - 749	7	76	5	87	9	39
750 - 999	6	82	4	90	10	49
1,000 - 1,499	7	89	6	96	22	71
1,500 - 2,000	4	93	2	98	14	85
Over 2,000	7	100	2	100	15	100



FAF Data Products

Origin-Destination Database

- Tons & value
- Origin/destination
- All modes
- Commodity detail
- Access with data software or create subsets using the online data extraction tool

Network Database

- Payloads (trucks) on highway segments
- No origin/destination
- Truck only
- No commodity detail
- Access with GIS software

Origin-Destination Database Details

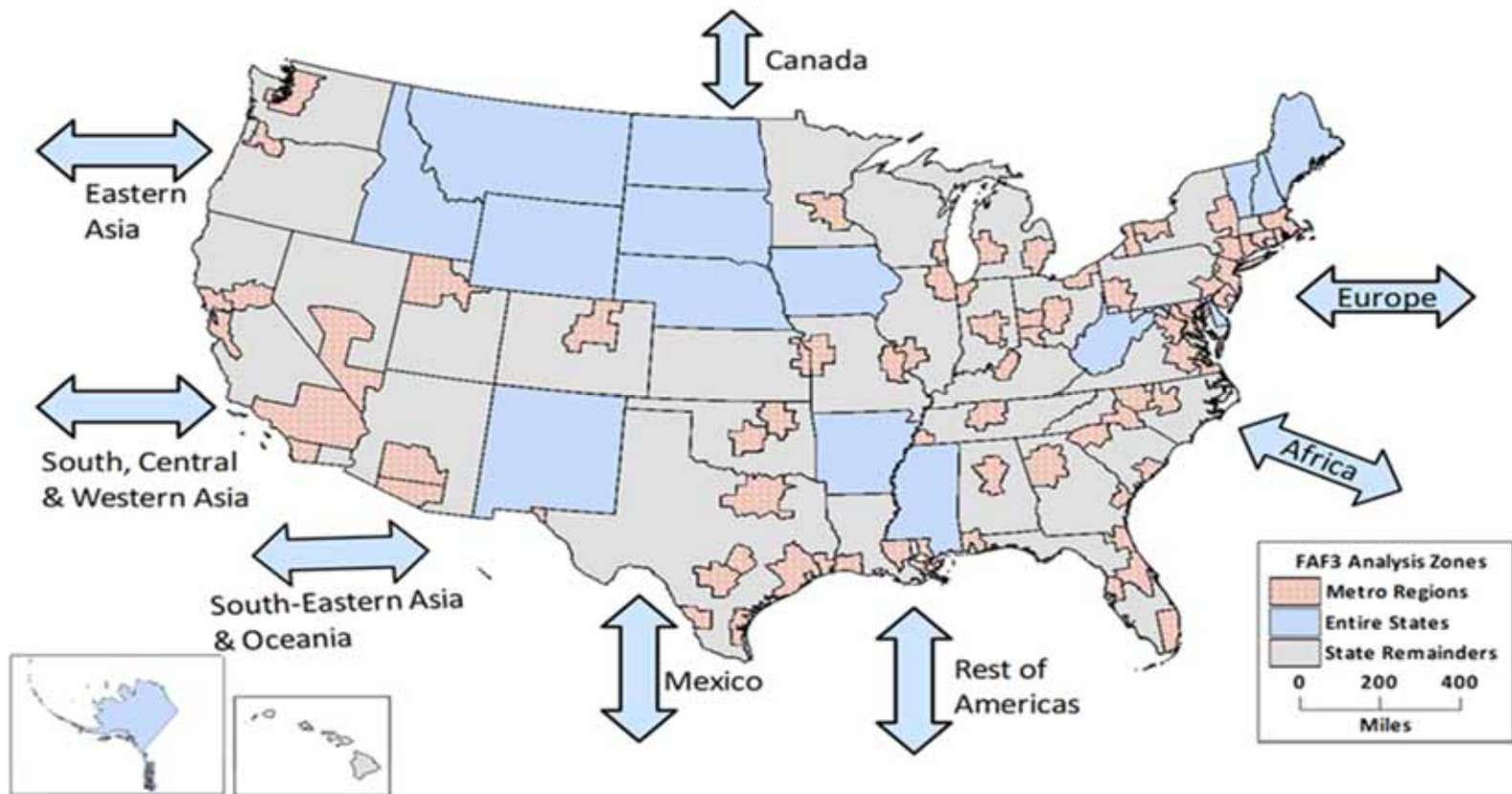
- *Value & weight* for all domestic, export, & import shipments
- *8 Domestic modes* (truck, rail, water, air, multiple modes & mail, pipeline, other & unknown, and no domestic mode)
- *7 Foreign modes*
- *123 Domestic regions*
- *8 International regions* (Canada, Mexico, & 6 groupings of countries based on UN definitions)
- *43 Commodity classes* (2-digit SCTG codes)

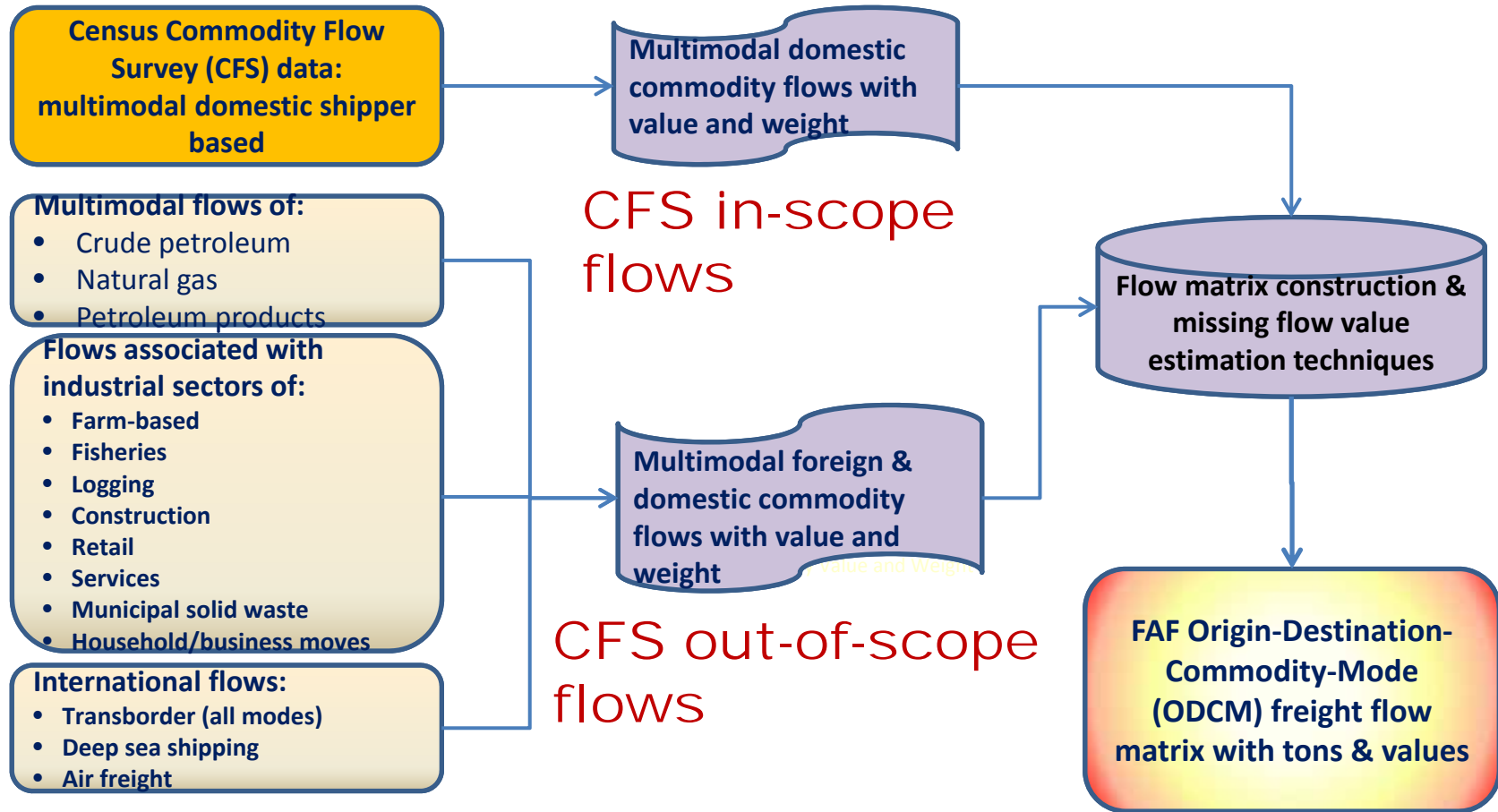


Major FAF O-D Data Sources

- Commodity Flow Survey (BTS/Census)
- TransBorder Freight Data (BTS)
- U.S. Merchandise Trade Statistics (Census)
- Waterborne Commerce Statistics (USACE)
- T-100 Air Traffic Data (BTS)
- Census of Agriculture (USDA)
- Crude Oil and Natural Gas Annual Data (EIA)
- Industry Input-Output Accounts (BEA)
- County Business Patterns Data (Census)

FAF Regions





Regional O-D Database Additions

- Long Range Forecasts
 - Regional growth models and multi-regional input-output models used to generate estimates of future economic activity
 - Convert growth in economic transactions into growth in region-to-region commodity flows
- Provisional Annual Estimates
 - Calculate growth in tons and value since base year to estimate more recent regional O-D flows.
 - Based on current modal and international trade data published on monthly to annual basis



Network Database Details

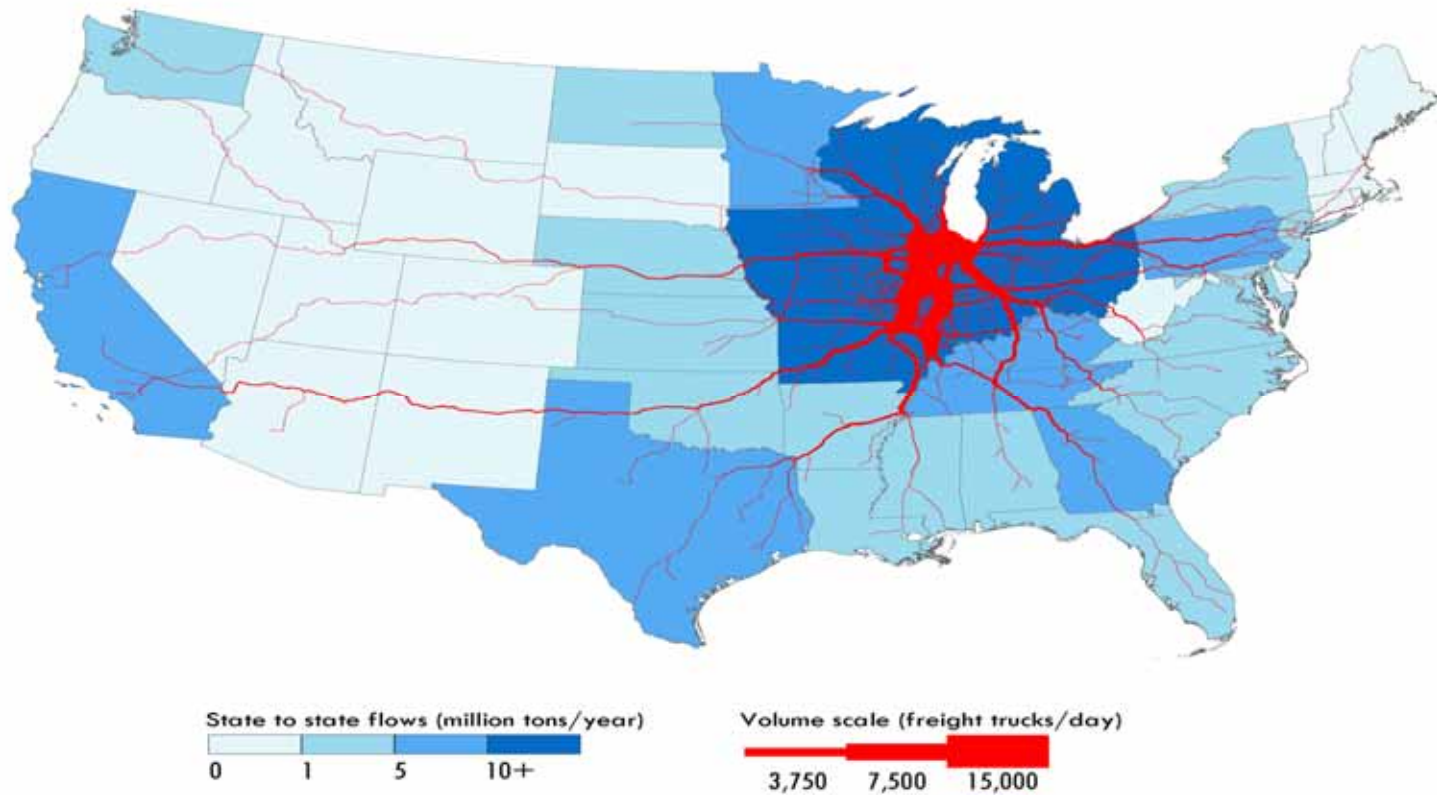
- FAF trucks (freight hauling trucks), other trucks, passenger vehicles, and selected capacity measures for individual highway segments
- Nearly 450,000 miles of the nation's highways comprised of Interstate highways, all National Highway System (NHS) routes, Urban Principal Arterials, and Rural Arterials



Trucks on the Network



Major Truck Freight Flows by State



Freight Flows by Highway, Railroad and Waterway



Accessing FAF Data

- U.S. DOT Freight Page:
 - <http://freight.dot.gov/>
- FHWA Website:
 - http://www.ops.fhwa.dot.gov/freight/freight_analysis/faf/index.htm
- BTS Website
 - www.bts.gov – Fall 2015



FAF Data Tabulation Tool

- A web based data summary tool that enables FAF users to easily select and extract the specific data elements they require from the regional database
- Features:
 - all levels of detail
 - tabular output and sorting capability
 - download results in .csv format





Freight Analysis Framework

The Freight Analysis Framework (FAF) integrates data from a variety of sources to create a comprehensive picture of freight movement among states and major metropolitan areas by all modes of transportation. With data from the 2007 Commodity Flow Survey and additional sources, FAF version 3 (FAF³) provides estimates for tonnage, value, and domestic ton-miles by region of origin and destination, commodity type, and mode for 2007, the most recent year, and forecasts through 2040. Also included are state-to-state flows for these years plus 1997 and 2002, summary statistics, and flows by truck assigned to the highway network for 2007 and 2040.

• Freight Analysis Framework Version 3

- [Overview](#)
- [Version Descriptions](#)
- [Summary Statistics](#)
- [Data Tabulation Tool](#)
- [FAF³ Maps](#)
- [Network Database and Flow Assignment](#)
- [Documentation](#)

• Related Links

- [Freight Analysis Framework home](#)
- [FHWA Office of Freight Management and Operations home](#)
- [Freight at U.S. DOT](#)
- [CTA/ORNL](#)

FAF³ Origin-Destination Data

- [FAF Data Tabulation Tool](#) - Create and download customized FAF³ summary tables.
- Regional Database of tonnage, value, and domestic ton-miles by FAF region of origin and destination, commodity type, and mode for 2007 through 2040
 - FAF³ Regional Database for 2007 with forecasts through 2040, and 2012 and Provisional Data in zipped Microsoft Access format [[FAF3.5_access03.zip](#) 227MB]
 - FAF³ Regional Database for 2007 with forecasts through 2040 in zipped CSV format [[FAF3.5.zip](#) 141MB]
 - FAF³ Provisional Annual Data for 2012 in zipped CSV format [[FAF3.5_provisional_2012.zip](#) 23MB]
- State Database of tonnage, value, and domestic ton-miles by state of origin and destination, commodity type, and mode for 1997 through 2040. Note: 1997 and 2002 have been reprocessed using FAF³ methodology with original source data.
 - FAF³ State Database for 2007 with forecasts through 2040, 2012 Provisional Data, and Reprocessed State Annual Data for 1997 and 2002 in zipped Microsoft Access format [[FAF3.5_access03_State.zip](#) 116MB]
 - FAF³ State Database for 2007 with forecasts through 2040 in zipped CSV format [[FAF3.5_State.zip](#) 51MB]
 - FAF³ State Provisional Annual Data for 2012 in zipped CSV format [[FAF3.5_provisional_2012_State.zip](#) 9MB]
 - FAF³ Reprocessed State Annual Data for 1997 in zipped CSV format [[FAF3.3_1997_State.zip](#) 10MB]
 - FAF³ Reprocessed State Annual Data for 2002 in zipped CSV format [[FAF3.3_2002_State.zip](#) 7MB]

FAF³ Summary Statistics and Products

- [State Summary Tables by Mode and Commodity](#)
- [FAF and Related Freight Maps](#)

FAF³ Network Data

- [FAF³ Network Database and Flow Assignment for 2007 and 2040](#)

FAF³ Documentation

- [FAF³ Users Guide](#)
- [FAF³ Documentation](#)
- [Version Descriptions](#)



Freight Analysis Framework Data Tabulation Tool

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Total Flows

Domestic Flows

Import Flows

Export Flows

This option is provided for users interested in tabulating FAF³ data to examine total flows moved between domestic origins and destinations and includes both domestic and foreign shipments. For import shipments, the origin of the flow is the zone (state or region) of entry, and for export shipments the destination of the flow is the zone (state or region) of exit. Mode of transportation for this tabulation is the mode used from zone of entry to the domestic destination, domestic origin to domestic destination, and domestic origin to zone of exit.

Note: The units of measure for 1997, 2002, 2007, and 2015-2040 data are **thousands of tons** for weight, **millions of 2007 dollars** for value, and millions for ton-miles. Provisional Annual Data for the most recent year are presented in both millions of 2007 dollars and millions of current dollars (Current MS).

Year	Origin	Destination
1997	Origin FAF zone-specific info	Destination FAF zone-specific info
2002	New Orleans LA CSA	Select all FAF zones
2007	Remainder of Louisiana	Birmingham AL CSA
2012	Maine	Mobile AL CSA
2015	Baltimore MD MSA	Remainder of Alabama
2020	Washington DC-VA-MD-WV MSA (MD Part)	Alaska
2025	Remainder of Maryland	Phoenix AZ MSA

Measure	Commodity	Domestic Mode
Select All	Combine total (no specific info)	Combine total (no specific info)
Tons	Select all	Select all
Ton-Mile	01 Live animals/fish	1 Truck
Values	02 Cereal grains	2 Rail
	03 Other ag prods.	3 Water
	04 Animal feed	4 Air (include truck-air)
	05 Meat/seafood	5 Multiple modes & mail



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Year	Origin	Destination
1997	Origin FAF zone-specific info	Destination FAF zone-specific info
2002	Baton Rouge LA CSA	Select all FAF zones
2007	Lake Charles LA CSA	Birmingham AL CSA
2012	New Orleans LA CSA	Mobile AL CSA
2015	Remainder of Louisiana	Remainder of Alabama
2020	Maine	Alaska
2025	Baltimore MD MSA	Phoenix AZ MSA

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[Submit](#)

[>>Download Results as a CSV file](#)

Download the table

Or

View and sort on-screen

DMS_ORIG	DMS_DEST	DMS_MODE	Total Ktons in 2012	Total Ktons in 2040
Baltimore MD MSA	Birmingham AL CSA	Truck	77.14	124.04
Baltimore MD MSA	Mobile AL CSA	Truck	5.89	16.60
Baltimore MD MSA	Remainder of Alabama	Truck	43.55	46.31
Baltimore MD MSA	Alaska	Truck	0.12	0.28
Baltimore MD MSA	Phoenix AZ MSA	Truck	24.94	26.18
Baltimore MD MSA	Tucson AZ MSA	Truck	0.05	0.04
Baltimore MD MSA	Remainder of Arizona	Truck	0.16	0.28
Baltimore MD MSA	Arkansas	Truck	17.87	16.43
Baltimore MD MSA	Los Angeles CA CSA	Truck	189.89	419.91
Baltimore MD MSA	Los Angeles CA CSA	Rail	30.36	102.83
Baltimore MD MSA	Sacramento CA-NV CSA (CA Part)	Truck	7.84	22.40
Baltimore MD MSA	San Diego CA MSA	Truck	4.70	8.47
Baltimore MD MSA	San Francisco CA CSA	Truck	274.66	426.93
Baltimore MD MSA	Remainder of California	Truck	11.27	18.26
Baltimore MD MSA	Denver CO CSA	Truck	55.59	79.14
Baltimore MD MSA	Remainder of Colorado	Truck	7.36	12.40
Baltimore MD MSA	Hartford CT CSA	Truck	119.20	73.67
Baltimore MD MSA	New York NY-NJ-CT-PA CSA (CT Part)	Truck	1,403.46	2,270.54

Moving Forward

- **BTS**
 - 2012 benchmark O-D data by commodity and mode
 - Annual provisional updates

- **FHWA**
 - Long range forecasts of O-D
 - Network assignment of truck flows



Upcoming Releases

- 2013 annual provisional estimates – June 2015 (based on FAF3)
- FAF4 O-D data benchmarked to 2012 CFS – September 2015
- Long-range forecasts through 2045 – December 2015
- Network assignment, and highway flow maps – early 2016

Thank You

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For additional information on BTS programs and products
visit: www.bts.gov

For additional information on USDOT freight data programs
and products visit: www.freight.dot.gov

Without Data
It's Just An Opinion.