National Freight Flows & Northeast Region Freight Flows Overview

Northeast Clean Freight Corridors Workgroup

Thursday, April 28, 2016

U.S.Department of Transportation
Federal Highway Administration

Office of Freight Management and Operations
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U.S. Freight Data – Weight of Shipments by Transportation Mode

Weight of Shipments (in Tons) by Transportation Mode: 2013 and 2040

	2013				2040			
	Total	Domestic	Exports[1]	Imports[1]	Total	Domestic	Exports[1]	Imports[1]
Truck	13,955	13,732	120	103	18,786	18,083	368	335
Rail	1,858	1,681	82	94	2,770	2,182	388	201
Water	808	410	89	309	1,070	559	164	347
Air, air & truck	15	3	5	7	53	6	20	27
Multiple modes & mail	1,554	459	559	536	3,575	645	1,546	1,383
Pipeline	1,539	1,391	11	137	1,740	1,257	17	467
Other & unknown	333	274	47	13	526	362	130	34
Total	**20,063**	**17,950**	**914**	**1,199**	**28,520**	**23,095**	**2,632**	**2,794**

[1]Data do not include imports and exports that pass through the United States from a foreign origin to a foreign destination by any mode.

NOTES: Numbers may not add to totals due to rounding. The 2013 data are provisional estimates that are based on selected modal and economic trend data. All truck, rail, water, and pipeline movements that involve more than one mode, including exports and imports that change mode at international gateways, are included in multiple modes & mail to avoid double counting. As a consequence, rail and water totals in this table are less than other published sources.

SOURCE: U.S. Department of Transportation, Bureau of Transportation Statistics and Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework, version 3.5, 2015.

U.S. Freight Data – Value of Shipments by Transportation Mode

Value of Shipments (in Billions of 2007 Dollars) by Transportation Mode: 2013 and 2040

	2013				2040			
	Total	Domestic	Exports[1]	Imports[1]	Total	Domestic	Exports[1]	Imports[1]
Truck	11,444	10,841	312	291	21,465	19,315	985	1,166
Rail	577	424	54	99	898	555	148	195
Water	284	131	20	133	337	138	46	153
Air, air & truck	1,167	134	425	609	5,043	834	1,997	2,212
Multiple modes & mail	3,065	1,695	500	870	9,925	5,203	1,911	2,811
Pipeline	1,083	1,003	15	65	776	605	17	154
Other & unknown	363	270	53	40	821	482	199	139
Total	**17,983**	**14,496**	**1,380**	**2,107**	**39,265**	**27,131**	**5,303**	**6,831**

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Freight Transportation Considerations

Higher . . . . . Service Cost Continuum. . . . . .Lower

Air	Truck	Rail	Water	Pipeline

$10,000 - $1/lb.	10¢-3¢/lb.	1¢-1/2¢/lb.
Fastest, most visible	Moderate speed and visibility	Slower, less visible
Lowest weight, highest value/weight ratio, most time-sensitive cargo	Range of weight and value	Highest weight, lowest value/weight ratio, least time-sensitive cargo
Generally higher emissions per ton	Generally moderate emissions per ton	Generally lower emissions per ton

U.S. Freight Flows by Highway, Railroad, and Waterway: 2010

Sources: Highways: U.S. Department of Transportation, Federal Highway Administration, *Freight Analysis Framework*, Version 3.4, 2013; **Rail:** Based on Surface Trvansportation Board, Annual Carload Waybill Sample and rail freight flow assignments done by Oak Ridge National Laboratory; **Inland Waterways:** U.S. Army Corps of Engineers, Institute or Water Resources, Annual Vessel Operating Activity and Lock Performance Monitoring System data, 2013.

Tonnage of Trailer and Container Rail Intermodal Moves: 2011

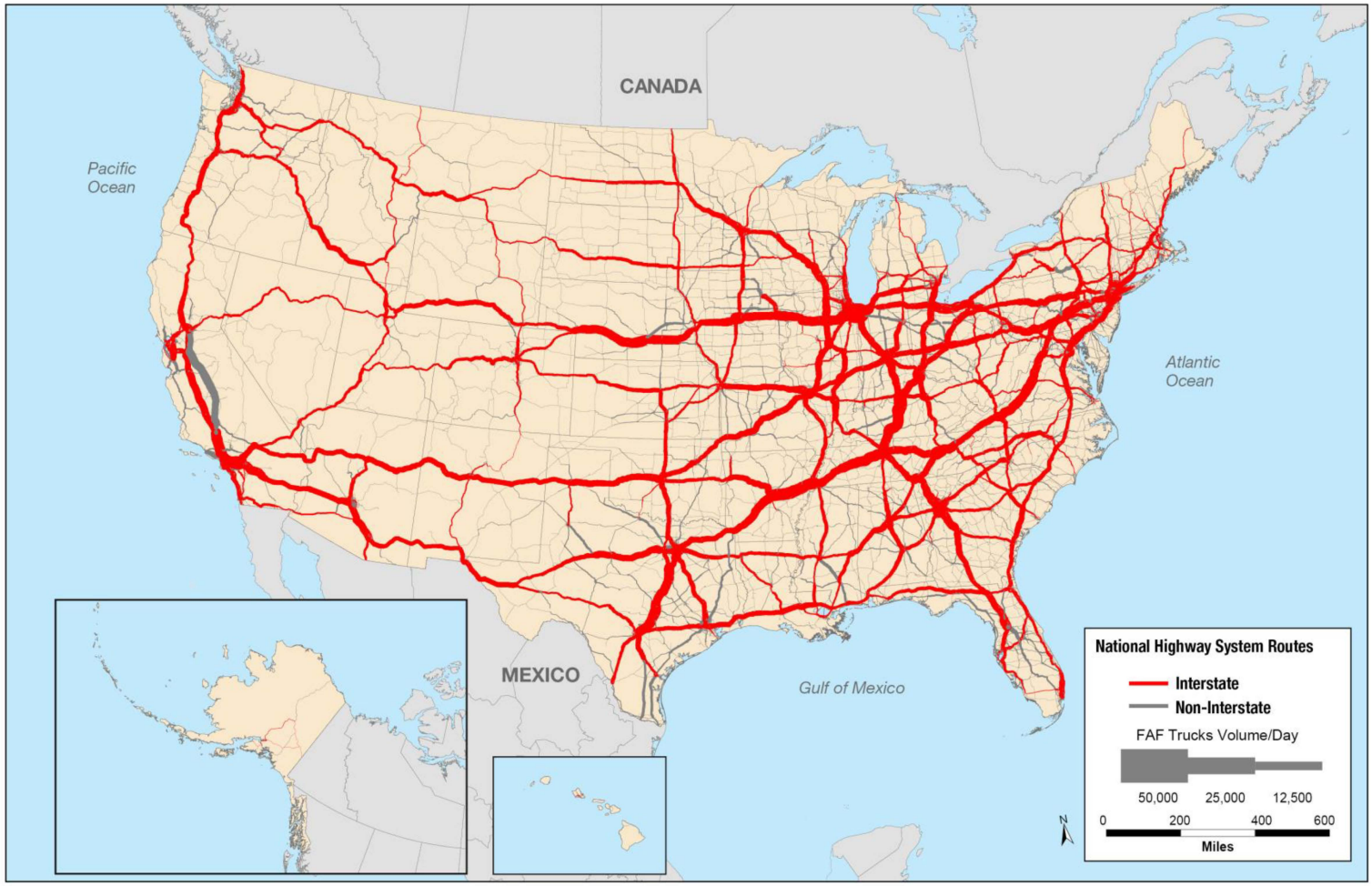
Source: Source: U.S. Department of Transportation, Federal Railroad Administration, special tabulation, September 2013.

Top 25 Water Ports by Containerized Cargo: 2011

Notes: The data 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.

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 September 13, 2013.

Average Daily Long-Haul Traffic on the NHS: 2011



Notes: Long-haul freight trucks typically serve locations at least 50 miles apart, excluding trucks that are used in movements by multiple modes and mail. NHS mileage as of 2011, prior to MAP-21 system expansion.
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, *Freight Analysis Framework*, version 3.4, 2013.

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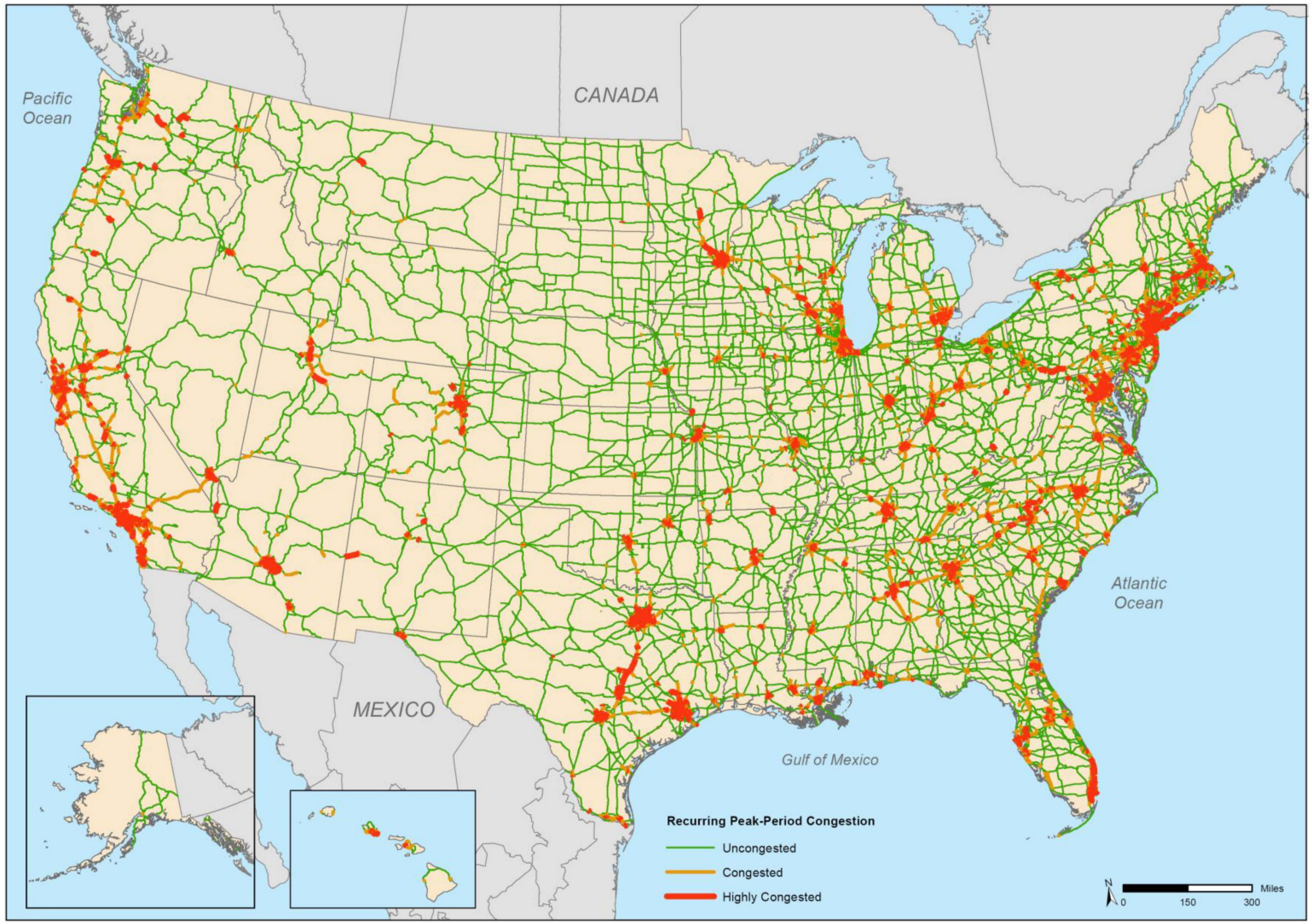
Peak-Period Congestion on the National Highway System: 2011



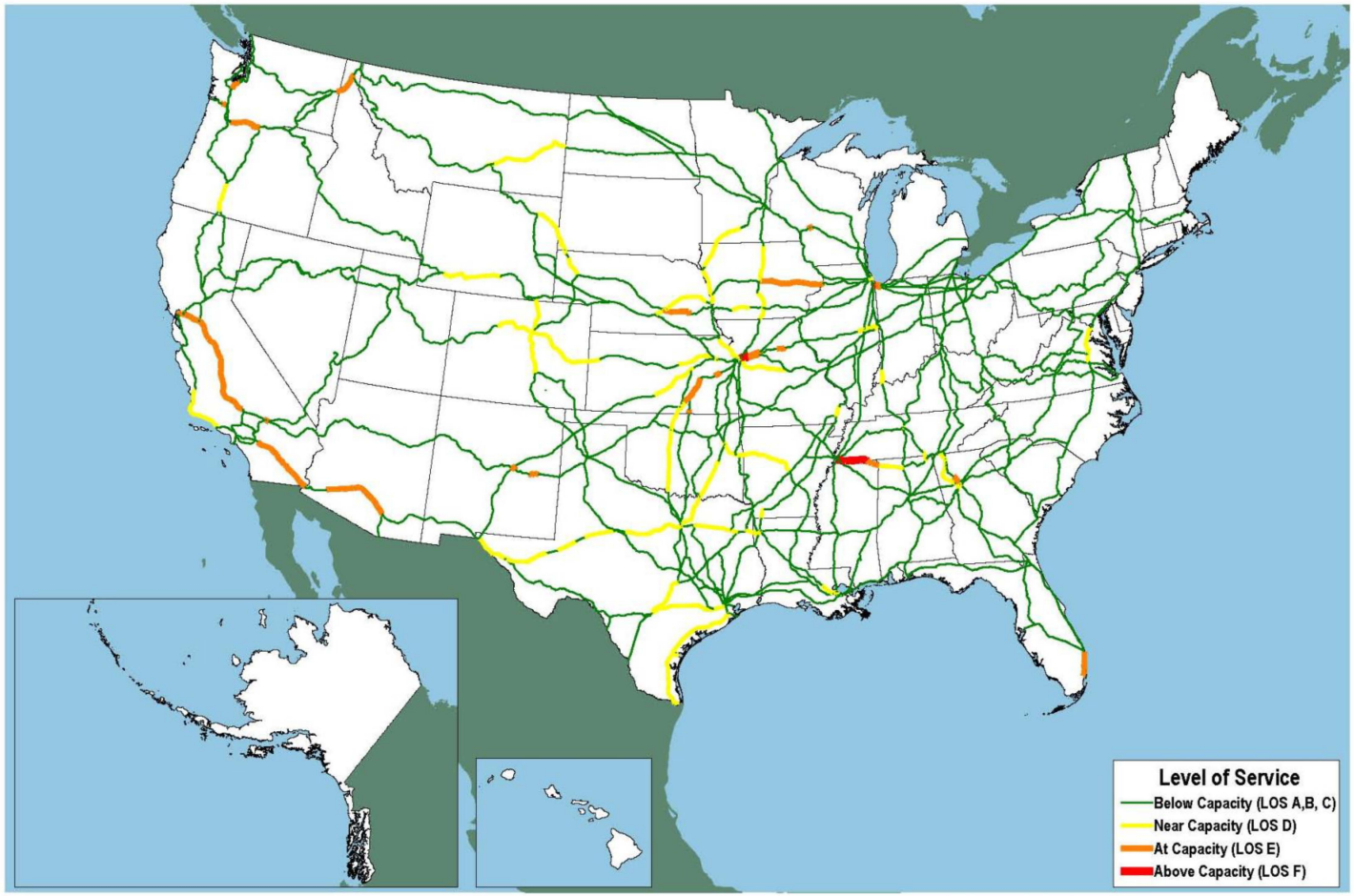
Notes: Highly congested segments are stop-and-go conditions with volume/service flow ratios greater than 0.95. Congested segment have reduced traffic speeds with volume/service flow ratios between 0.75 and 0.95. The volume/service flow ratio is estimated using the procedures outlined in the Highway Performance Monitoring System Field Manual, Appendix N. NHS mileage as of 2011, prior to MAP-21 system expansion.
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, *Freight Analysis Framework*, version 3.4, 2013.

Peak-Period Congestion on the National Highway System: 2040

Notes: AADTT is average annual daily truck traffic and includes all freight-hauling and other trucks with six or more tires. AADT is average annual daily traffic and includes all motor vehicles. NHS mileage as of 2011, prior to MAP-21 system expansion.
Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, *Freight Analysis Framework*, version 3.4, 2013.

Train Volumes Compared to Rail Network Capacity: 2007

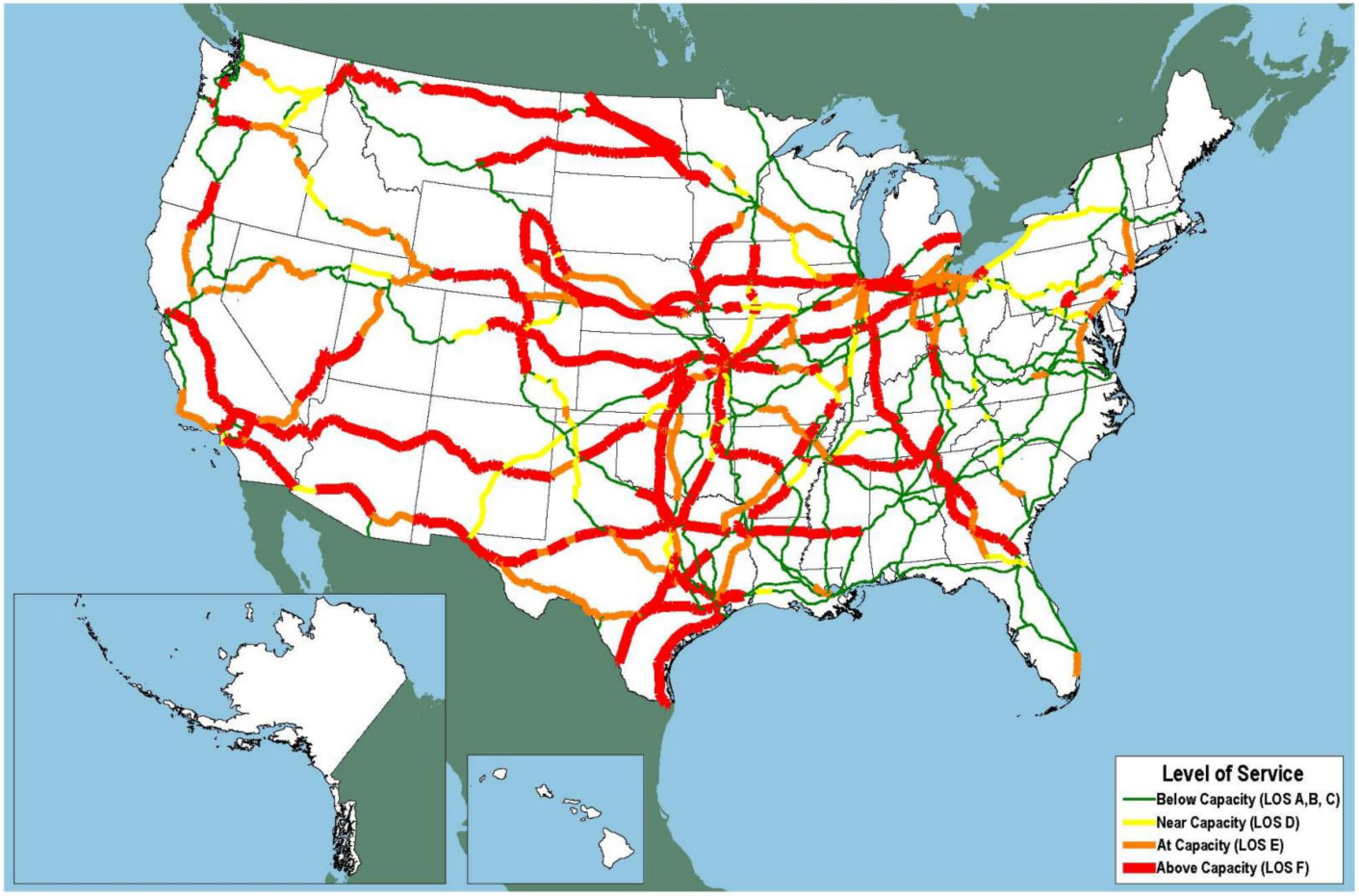
Current Train Volumes Compared to Current Capacity



Note: Level of Service (LOS) A through F approximates the conditions described in Transportation Research Board, *Highway Capacity Manual 2000* period
Source: Association of American Railroa *National Rail Infrastructure Capacity and Investment Study,* dy prepared by Cambridge Systematics, Inc. (Washington, DC: September 2007), figure 4.4, page 4-10.

Train Volumes Compared to Rail Network Capacity: 2035

Train Volumes in 2035 Compared to Current Capacity



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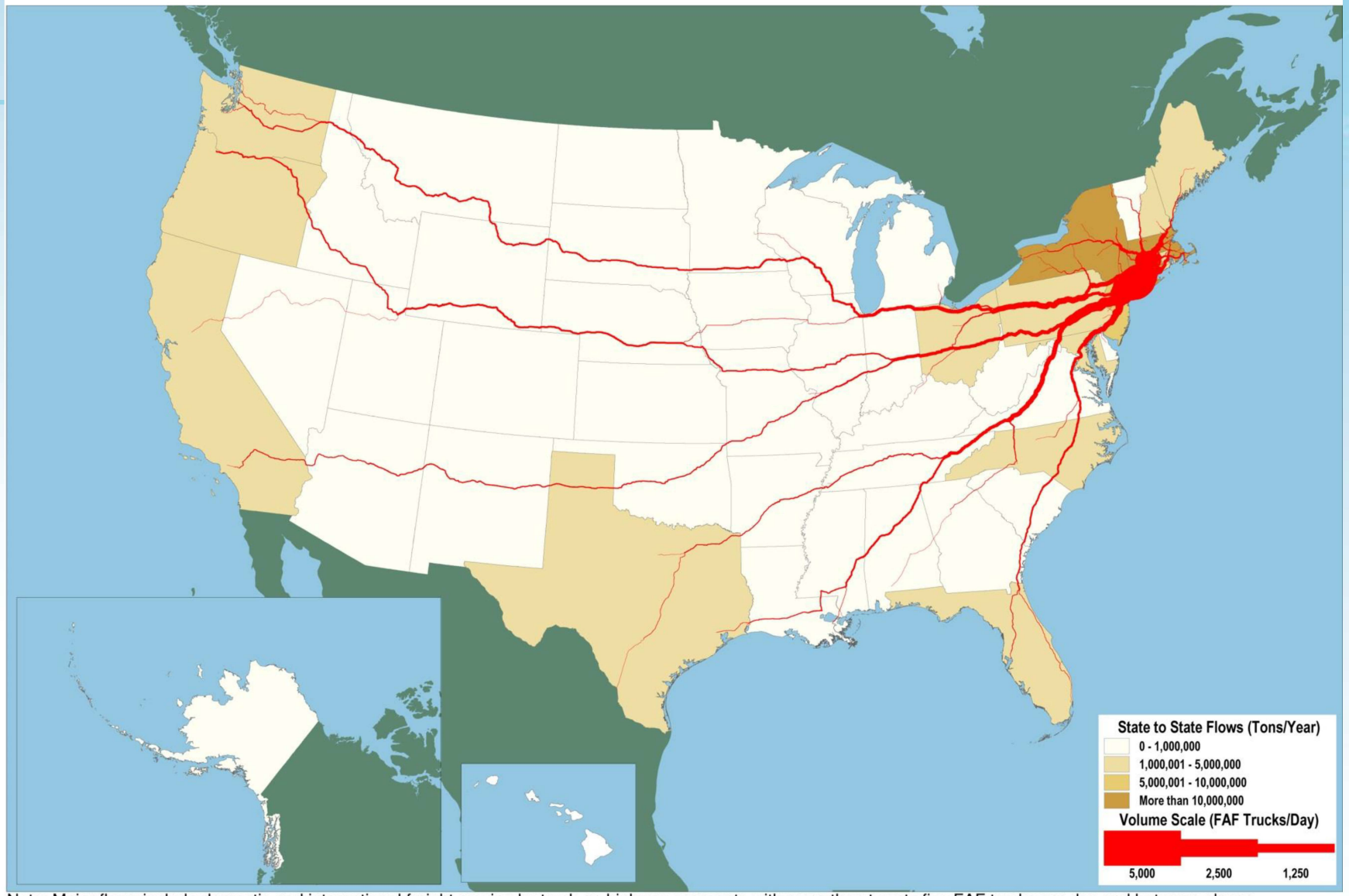
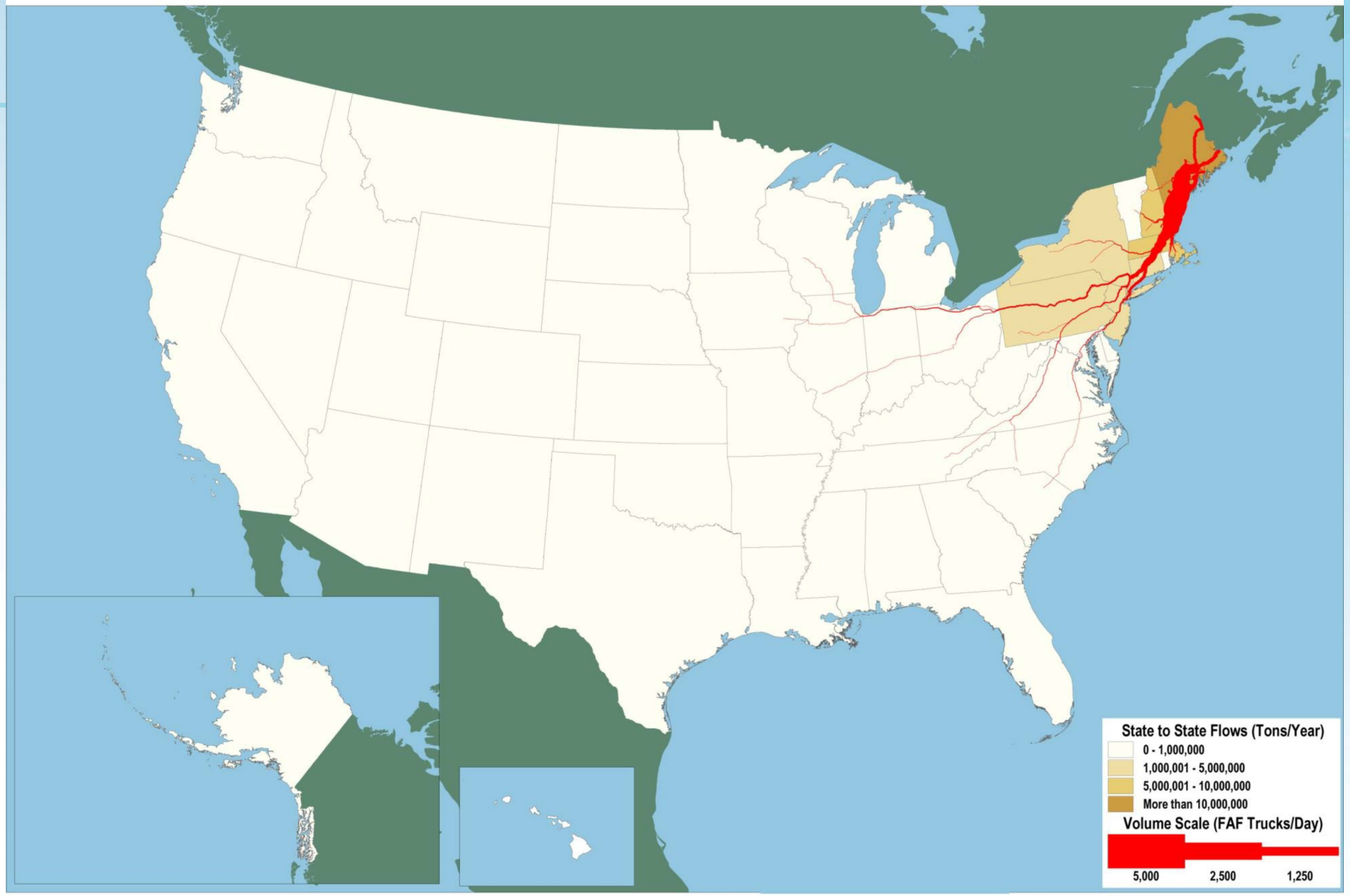
Major Flows by Truck To, From and Within Connecticut: 2010



Note: Major flows include domestic and international freight moving by truck on highway segments with more than twenty five FAF trucks per day and between places typically more than fifty miles apart.

Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework, version 3.4, 2012.

Major Flows by Truck To, From and Within Maine: 2010



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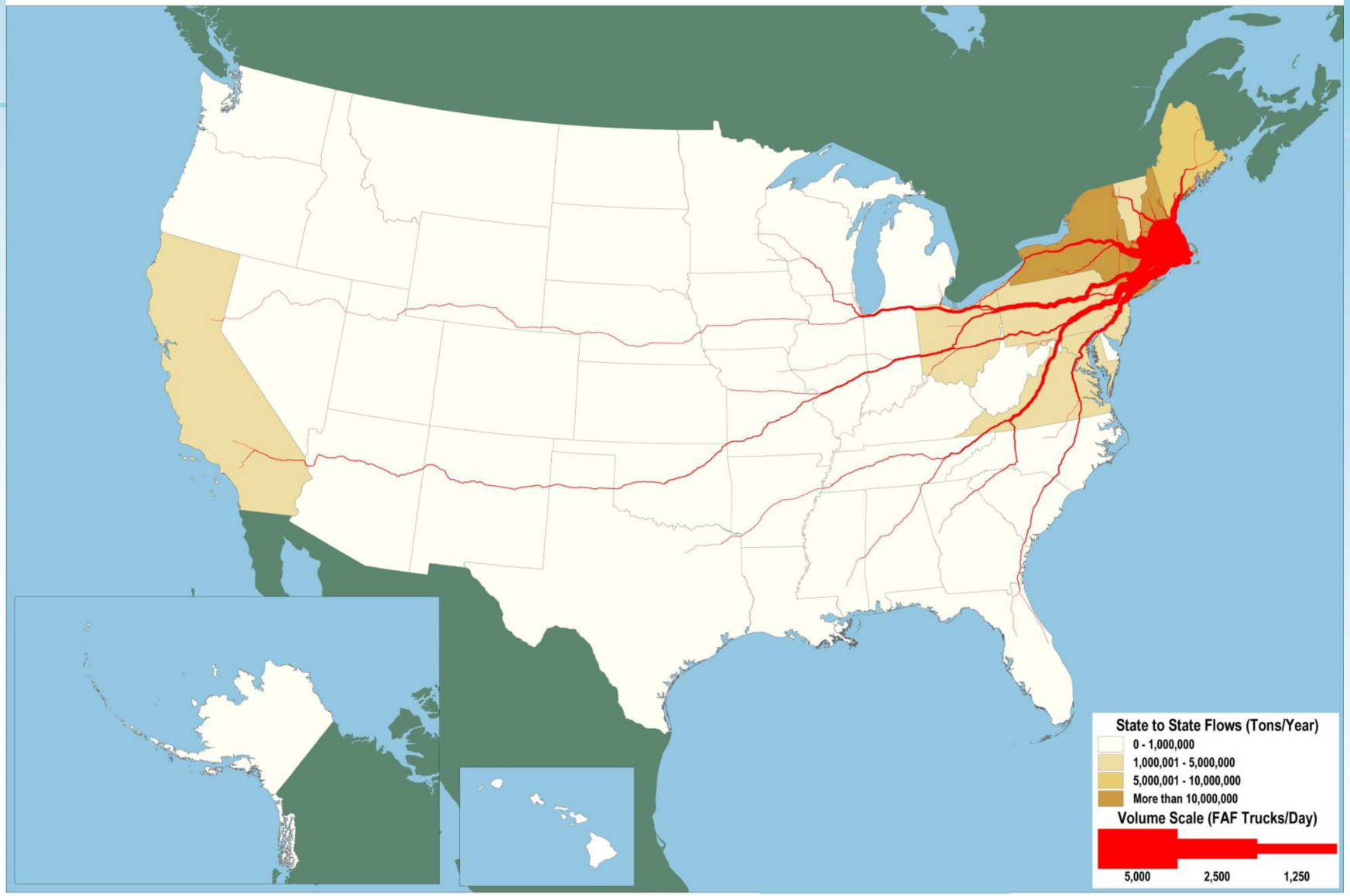
Major Flows by Truck To, From and Within Massachusetts: 2010



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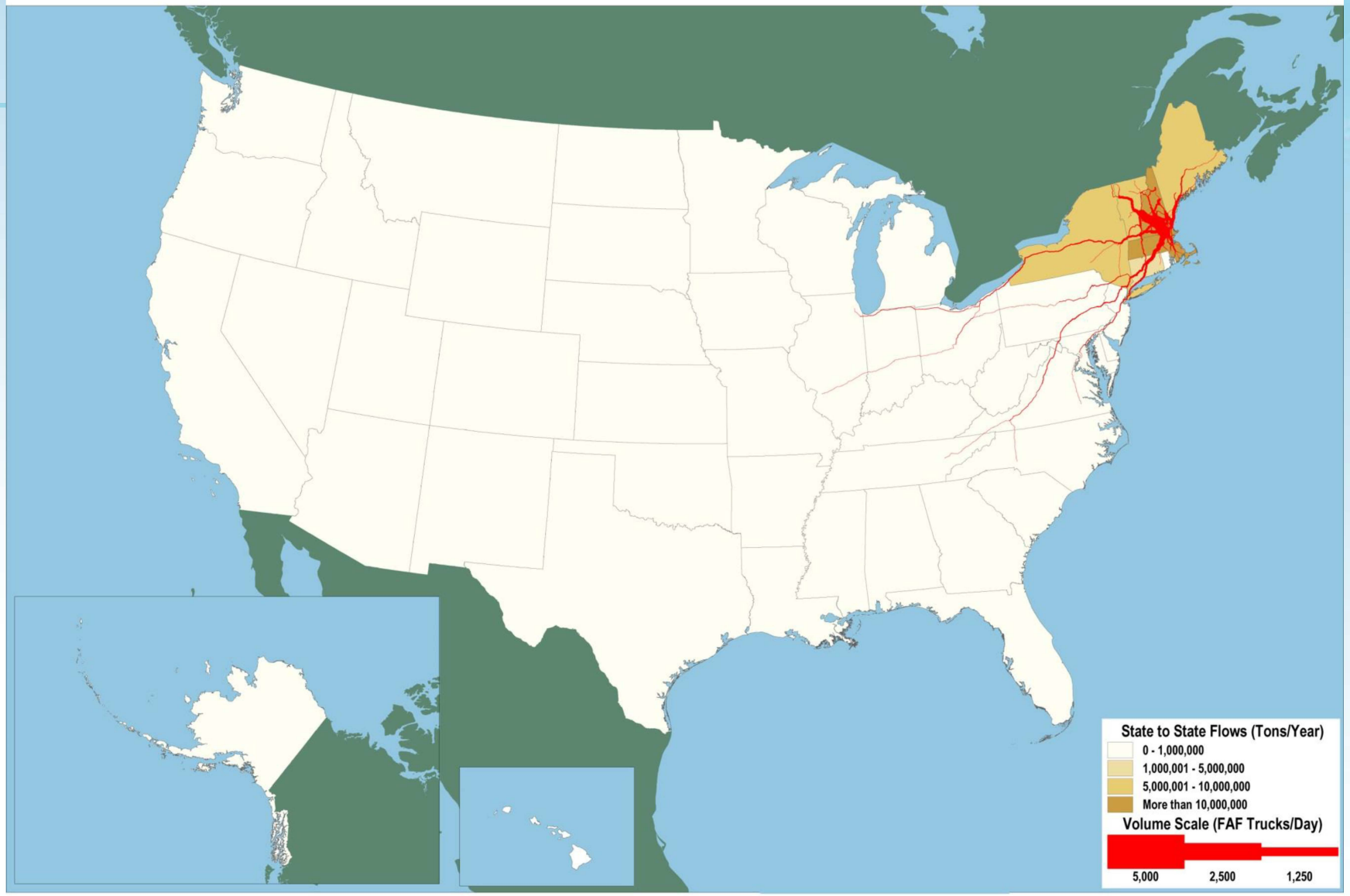
Major Flows by Truck To, From and Within New Hampshire: 2010



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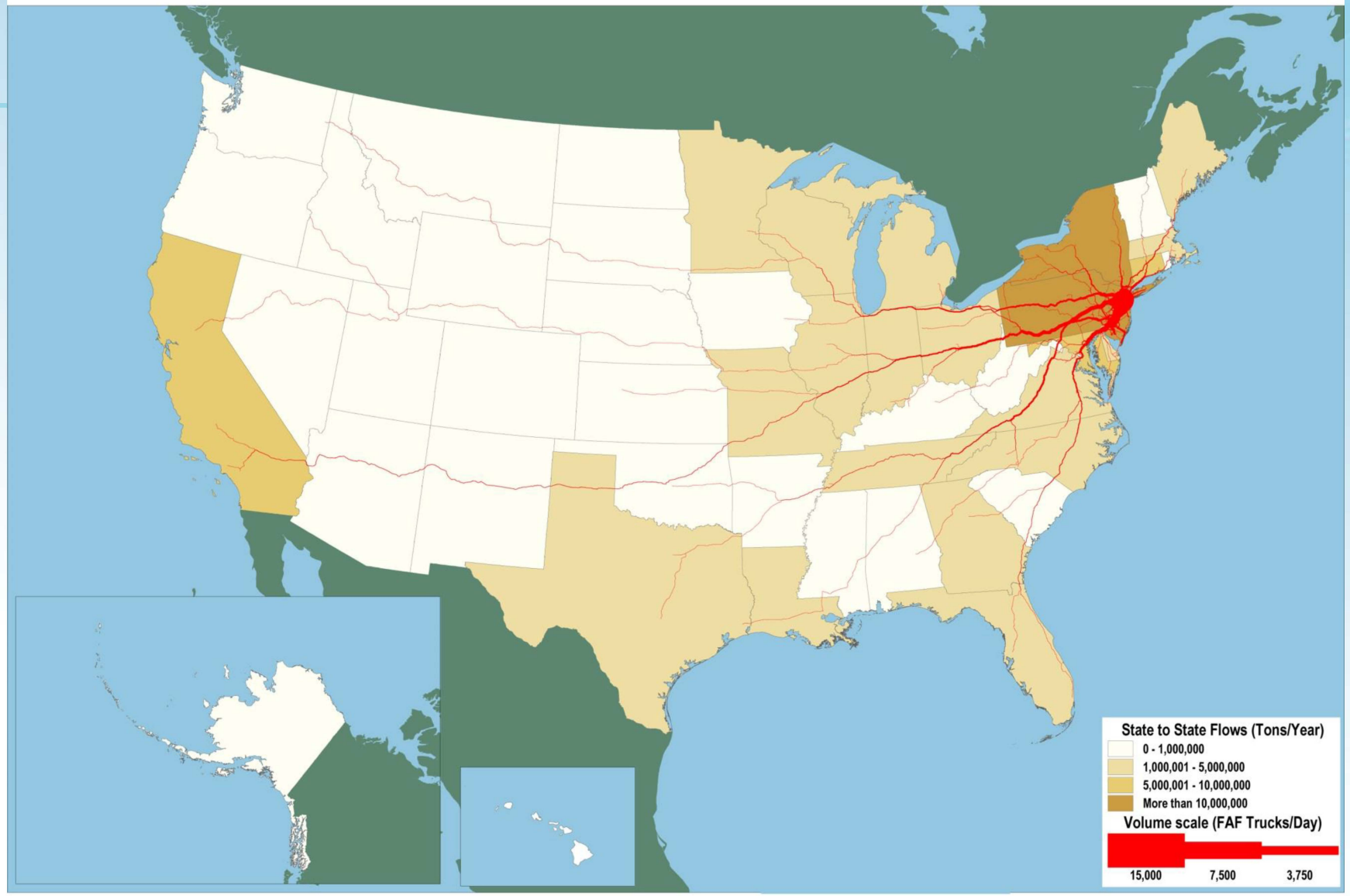
Major Flows by Truck To, From and Within New Jersey: 2010



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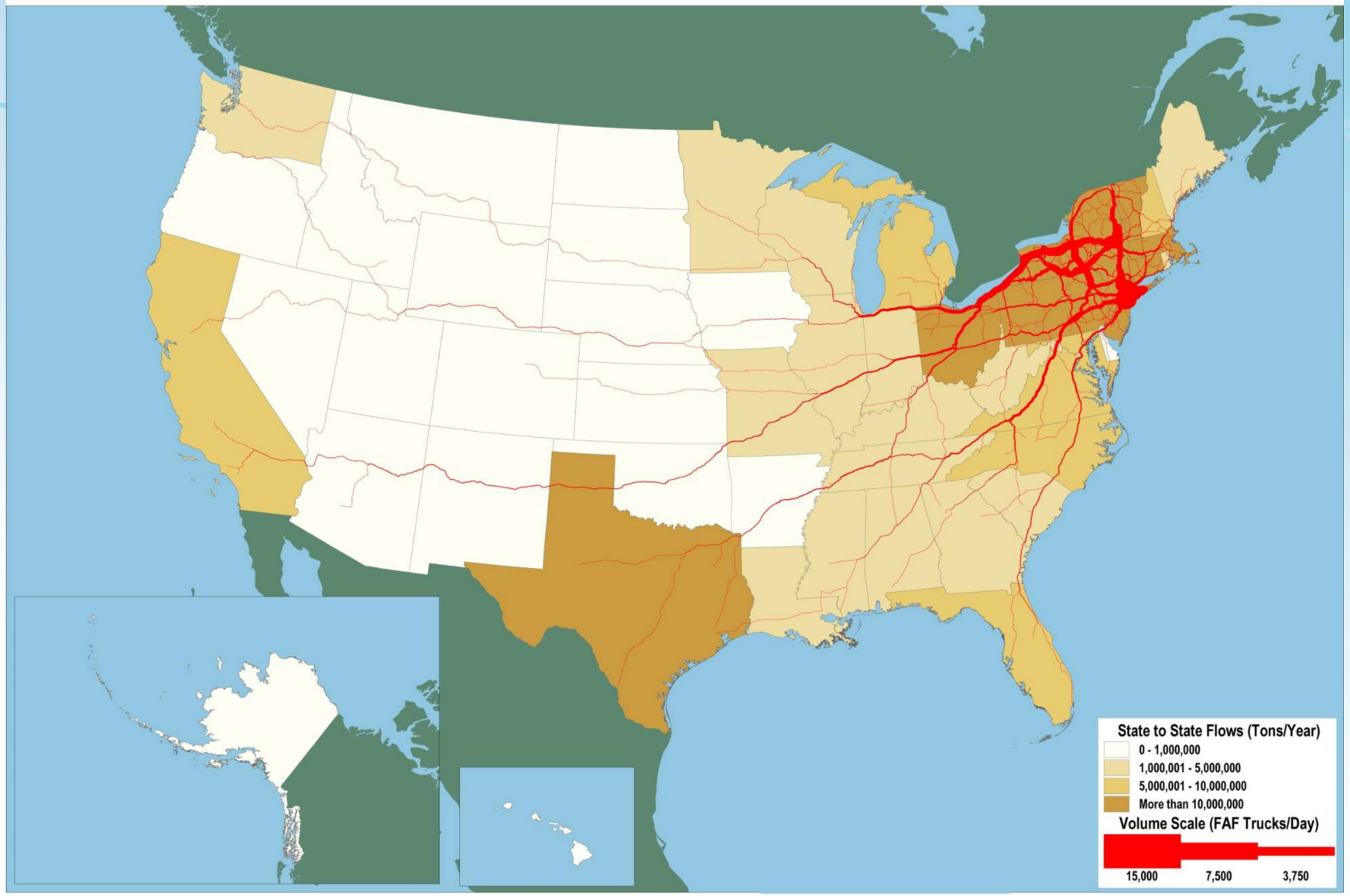
Major Flows by Truck To, From and Within New York: 2010



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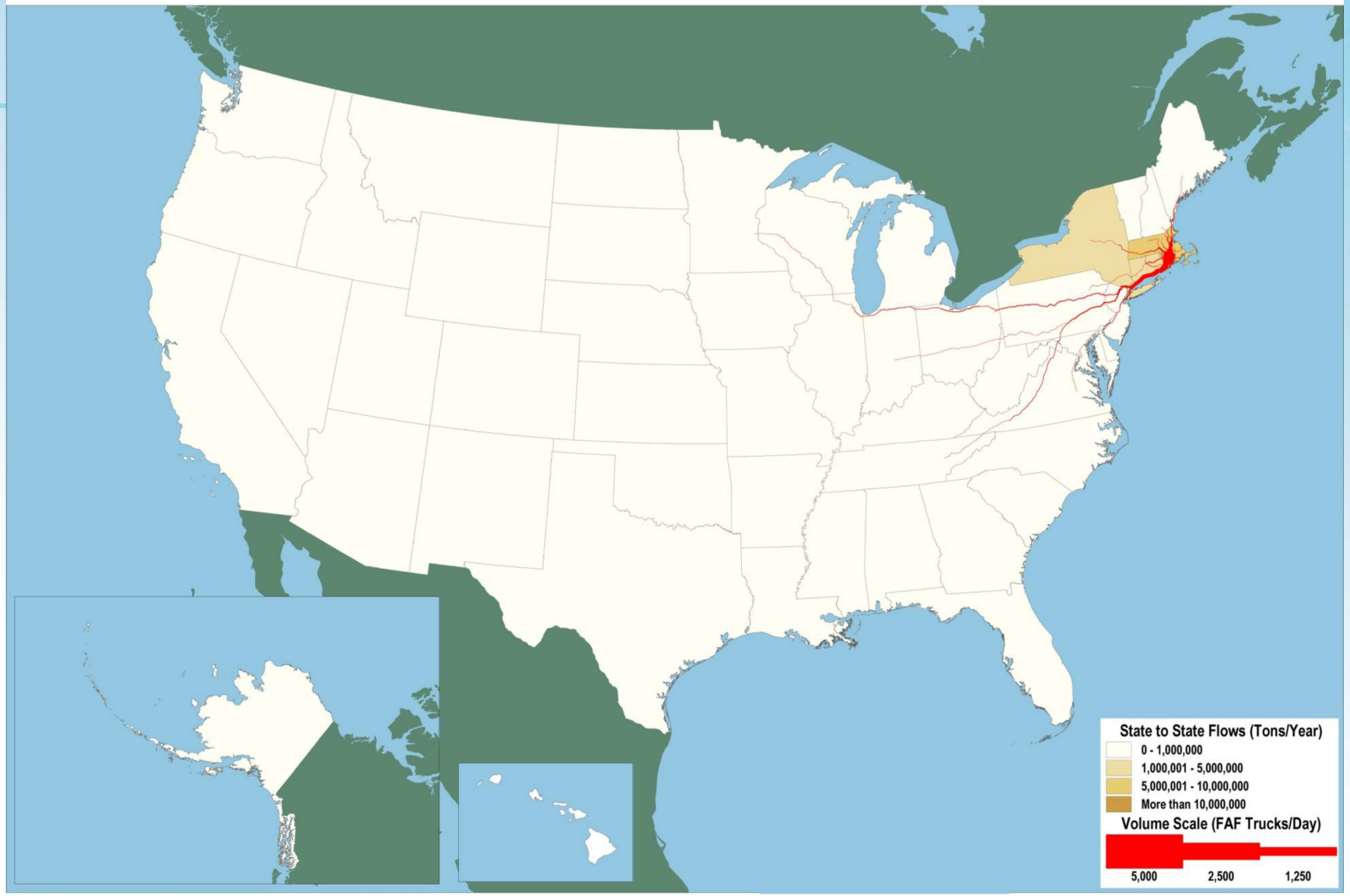
Major Flows by Truck To, From and Within Rhode Island: 2010



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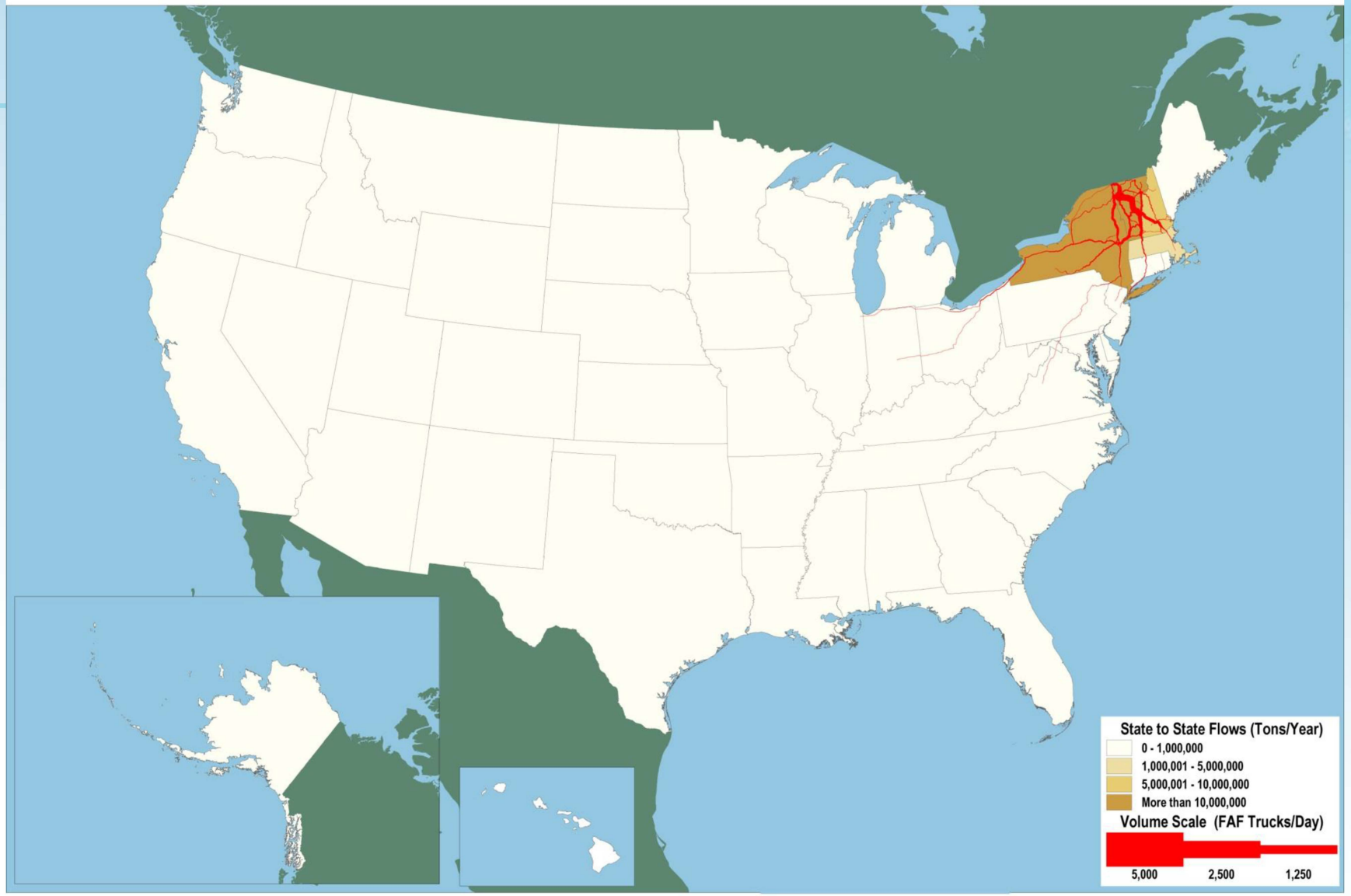
Major Flows by Truck To, From and Within Vermont: 2010



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Understanding and Using the Freight Analysis Framework

- FAF4 maps availability
- Who needs to understand the FAF?
- Examining FAF trends over time
- How to use the FAF to understand and address freight congestion
- Understanding FAF's limitations

Thank You

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