

**Abstract** Connecting Florida's freight mobility goals with outcomes involves identifying measurable objectives. Florida DOT is developing measures to provide indicators of success. Today there is a chronic lack of freight mobility data and fundamental knowledge of how the system works in Florida. The existing information is dispersed across reports in multiple offices. This project developed a methodology bringing multiple data sources together to calculate key performance measures. Data sources used in the process include the Freight Analysis Framework (FAF), weigh in motion (WIM) data, traffic monitoring station counts, and centerline mileage.

## Development of Network Measures

Project prioritization and programming decisions are based on auto-focused planning and operational analyses. Given the economic importance of freight movement by truck, a need exists to measure truck performance separate from vehicle performance. Currently there are insufficient tools for evaluating trucking industry needs when performing conventional planning studies. Transportation decisions should account for impacts on freight flows especially truck activity. This project identifies measures and metrics to describe the condition and performance of freight networks serving Florida.

### Freight Mobility Performance Measures Matrix 2015

	Mode	Quantity	Quality	Accessibility	Utilization
Freight	Truck	Combination Truck Miles Traveled <input type="checkbox"/>	Travel Time Reliability <input type="checkbox"/>		Percent Miles Severely Congested <input type="checkbox"/>
		Truck Miles Traveled <input type="checkbox"/>	Travel Time Variability <input type="checkbox"/>		Vehicles Per Lane Mile <input type="checkbox"/>
		Combination Truck Tonnage <input type="checkbox"/>	Combination Truck Hours Of Delay <input type="checkbox"/>	Highway Adequacy (LOS) <input type="checkbox"/>	
		Combination Truck Ton Miles Traveled <input type="checkbox"/>	Combination Truck Average Travel Speed <input type="checkbox"/>	Active Rail Access <input type="checkbox"/>	
		Value of Tonnage <input type="checkbox"/>		Highway Adequacy (LOS) <input type="checkbox"/>	Active Rail Access <input type="checkbox"/>
	Aviation	Tonnage <input type="checkbox"/>		Highway Adequacy (LOS) <input type="checkbox"/>	
	Rail	Tonnage <input type="checkbox"/>		Highway Adequacy (LOS) <input type="checkbox"/>	Active Rail Access <input type="checkbox"/>
	Seaports	Tonnage <input type="checkbox"/> Twenty-Foot Equivalent Units <input type="checkbox"/>		Highway Adequacy (LOS) <input type="checkbox"/>	Active Rail Access <input type="checkbox"/>

Reporting Periods:  = Peak Hour  = Peak Period  = Daily  = Yearly

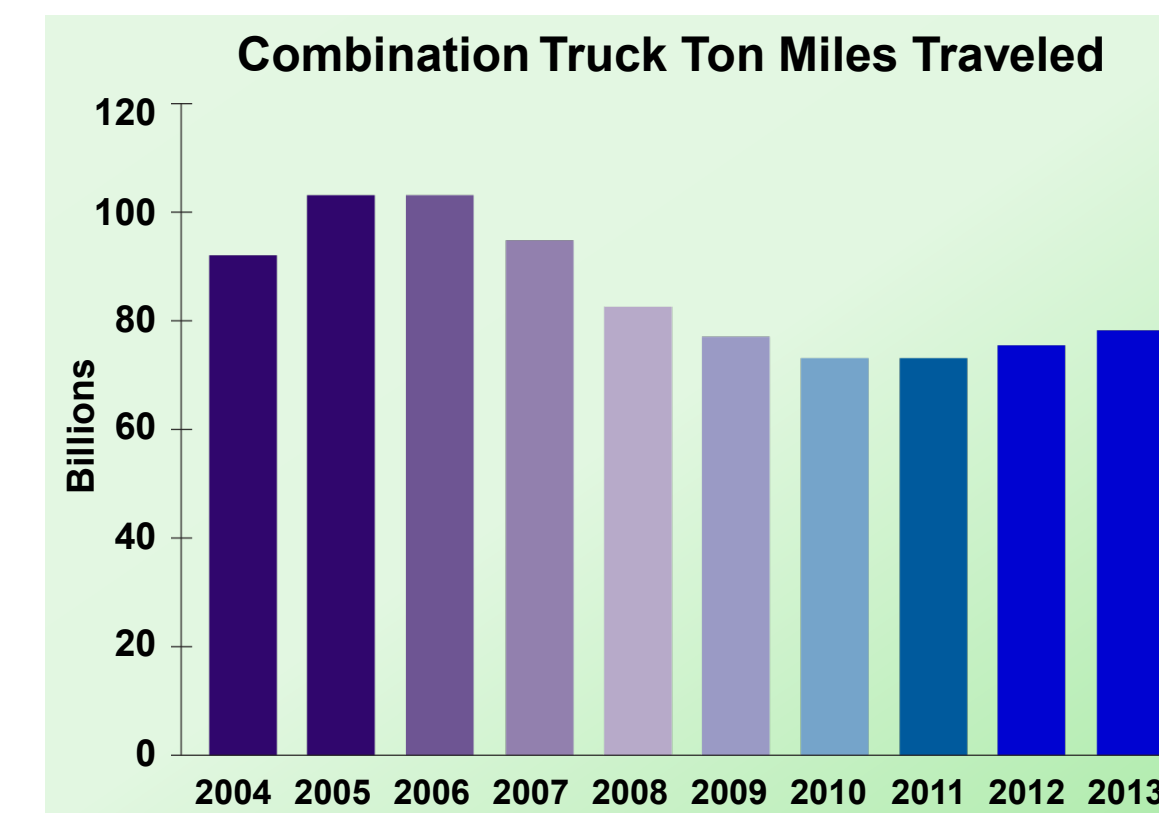
## Computing Freight Highway Measures

Multiple measures are needed to address the many dimensions of mobility along a corridor and within a network. No single metric can tell a complete story. Several performance measures were identified to tell a more comprehensive story. When reviewed in combination, these measures will communicate Florida's freight mobility in a meaningful and easily understood way.

### Combination Truck Ton Miles Traveled

#### Methodology

Combination Truck Ton Miles Traveled is calculated using the annual average combination truck load determined by weigh in motion data and the combination truck miles traveled. Combination truck miles traveled is the product of centerline miles and combination truck volume.

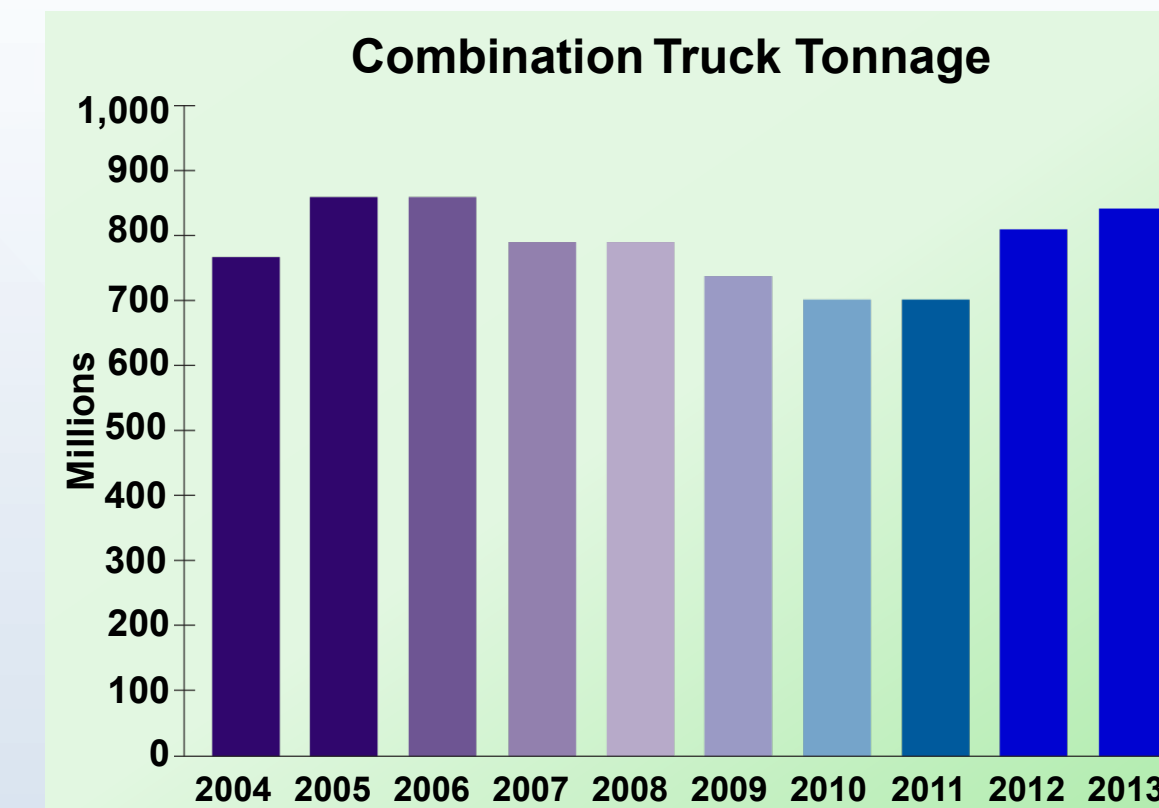


Sources: FDOT Weigh-in-Motion data for average combination truck load; FDOT Roadway Characteristics Inventory for mileage; FDOT Traffic Characteristics Inventory for the percentage of combination trucks in the traffic stream.

### Combination Truck Tonnage

#### Methodology

Combination Truck Tonnage is determined using the tonnage value for the year and interpolated using average load factor and combination truck miles traveled ratios.

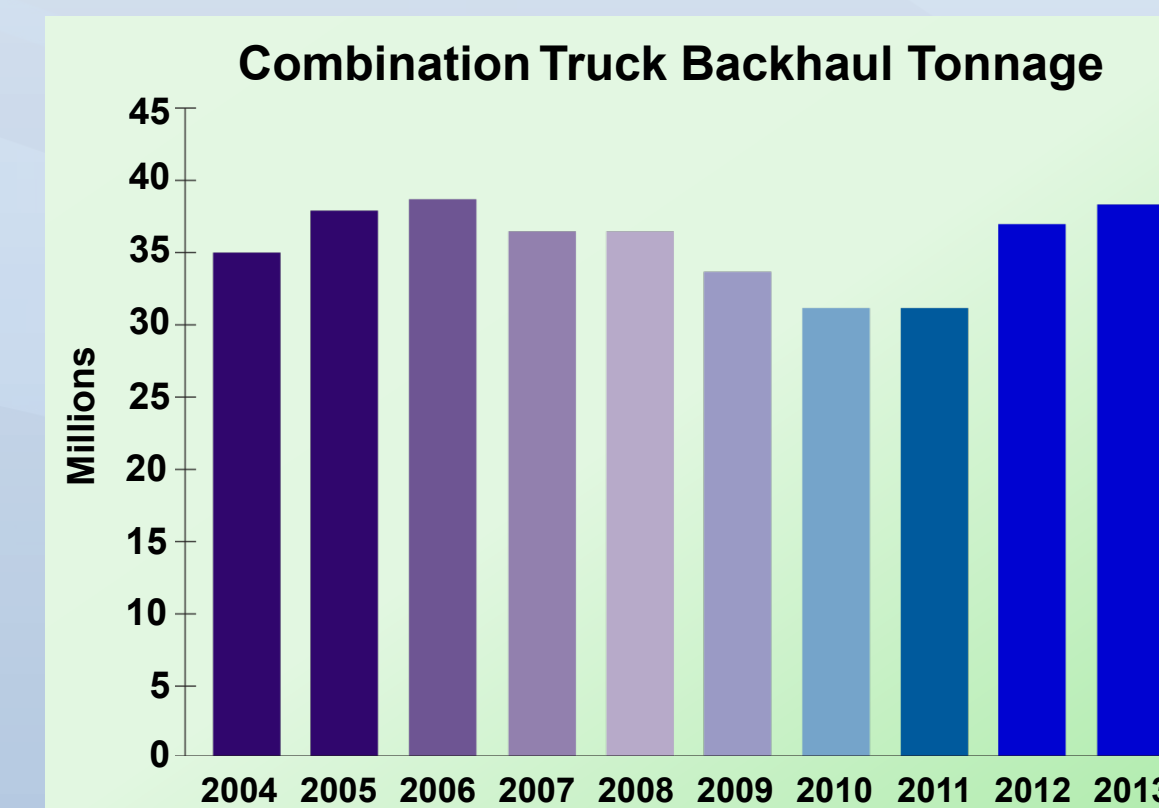


Sources: FDOT Weigh-in-Motion data for average load factor; Freight Analysis Framework data for annual tonnage value and historic trend

### Combination Truck Backhaul Tonnage

#### Methodology

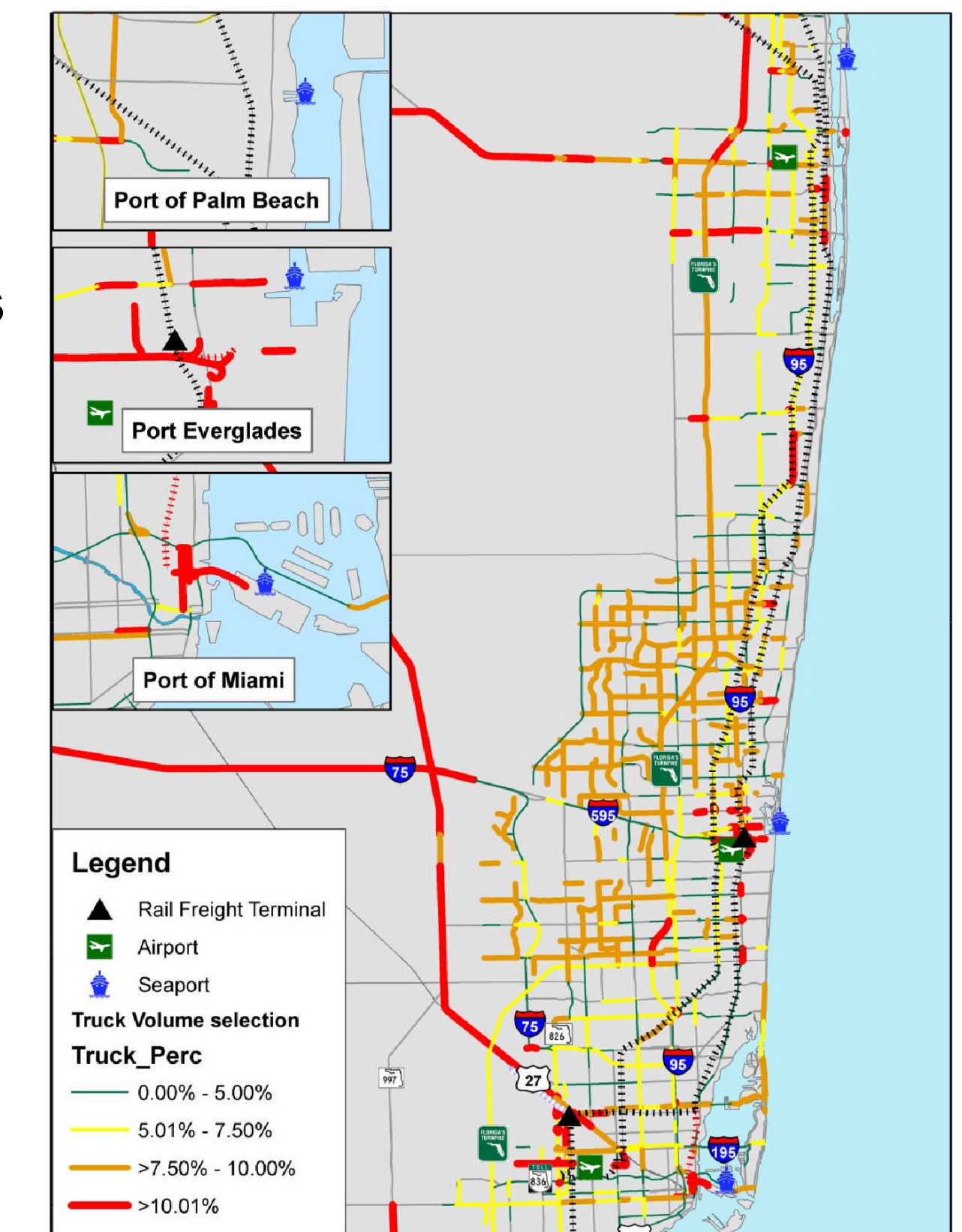
Combination Truck Backhaul Tonnage is represented by the difference between incoming and outgoing loads and interpolated using average load factor and combination truck miles traveled ratios.



Sources: FDOT Weigh-in-Motion data for average load and the proportion of empty to full trucks; Freight Analysis Framework data for factoring annual backhaul tonnage

## Development of Supply Chain Measures

To meet the needs of carriers, shippers, customers, and infrastructure owners, performance measures must go beyond links and nodes to reflect the entire supply chain. This calls for a paradigm shift producing new data and new measures. In general, many stakeholders do not completely understand end-to-end freight movements in the United States. This project will provide information to stakeholders on freight movements in a region. The project team will identify measures and metrics to describe the condition and performance of freight trips serving the supply chains of Florida businesses and communities. In doing so, the project will focus on representative supply chains for key Florida businesses and industries.



### Truck Service Measure

Florida DOT has a comprehensive planning approach that accounts for level of service in project development. Level of service accounts for impacts on automobile traffic, there currently are no provisions for evaluating impacts on truck traffic separate from autos. This project will develop a truck service measure for use in planning. The new method will reflect the relative importance of different metrics, e.g., average travel time and reliability to economic activity in the region. Adopting a methodology to assess how well the State Highway System accommodates trucks will improve FDOT's ability to plan, design, manage, and operate streets and highways to serve trucks.