Freight & Modal Data Program

MPOAC Freight Committee Quarterly Meeting

January 26, 2017

Sunrise, Florida

Overview

- Mission & Goals
- Freight Data Programs
- Recent and Upcoming Activities

Mission & Goals

FDOT's Mission

The Department will provide a safe transportation system that:

- ensures the mobility of people and goods
- enhances economic prosperity
- preserves the quality of our environment and communities

Transportation Data & Analytics Office

Mission Statement

Provide leadership for informed transportation decisions through data collection, analysis, integration and dissemination.

Transportation Data and Analytics Office (Previously Transportation Statistics)

Office Manager
Ed Hutchinson

605 Suwannee Street
Tallahassee, FL 32399

Tel: 850-414-4848
Fax: 850-414-4878
E-Mail Us

Additional Contacts
Staff Directory

Transportation Data & Analytics Office

Office Manager
Ed Hutchinson

Systems Traffic Modeling
Thomas Hill

Systems Support (GIS)
Paul O'Rourke

Transportation Data Inventory
Joel Worrell

Performance Measures, Analysis & Reporting
Doug McLeod

Transportation Monitoring Program
Steven Bentz

Freight Data Coordinator
Jerry Scott

Freight & Modal Data Program

Mission:
Identify, coordinate and establish efficiencies of Department's freight and modal data and technology for programs, studies, plans, models and databases.

Vision:
Promoting Florida's freight business intelligence and economic competitiveness through collaborative development of multimodal freight data resources, used to sustain Florida's strategic freight investments.

Under the Transportation Data Inventory Section

Program Goals

- Provide consistent and effective data access, collection, and reporting of freight & modal data.
- Integrate freight & modal data resources in FDOT Operations and Planning offices.
- Coordinate data investments and improvements.
- Provide training and awareness of data, datasets, tools and models.

Freight & Modal Data Program

FDOT Data Programs are enhanced new initiatives to support freight and passengers.

- Identify
- Distribution/ Reporting
- Outreach/ Education/ Training
- Analysis
- Management
- Quality Control
- Collection
- Application Development
- Forecasting

customer service

Data Programs

Legacy TDA Office Data Programs

Roadway Characteristics Inventory (RCI)

- Office inventories and maintains features of roadways which are but not limited to traffic, pavement, trails, HPMS and signals
- Dataset is available in form of shape files as well as tabular datasets

Traffic Characteristics Inventory (TCI)

- Office collects traffic characteristics data for the Florida road network
  - Including Volume & Class
- Maintains 330 + permanent counters, 18,000+ temporary counters and 33 WIMs.

Freight Data Programs

Transportation Monitoring Program

- TTMS & WIM Stations

Mobility Performance Measures Program

- Freight Travel Time Reliability

System Traffic Modeling Program

- FreightSIM

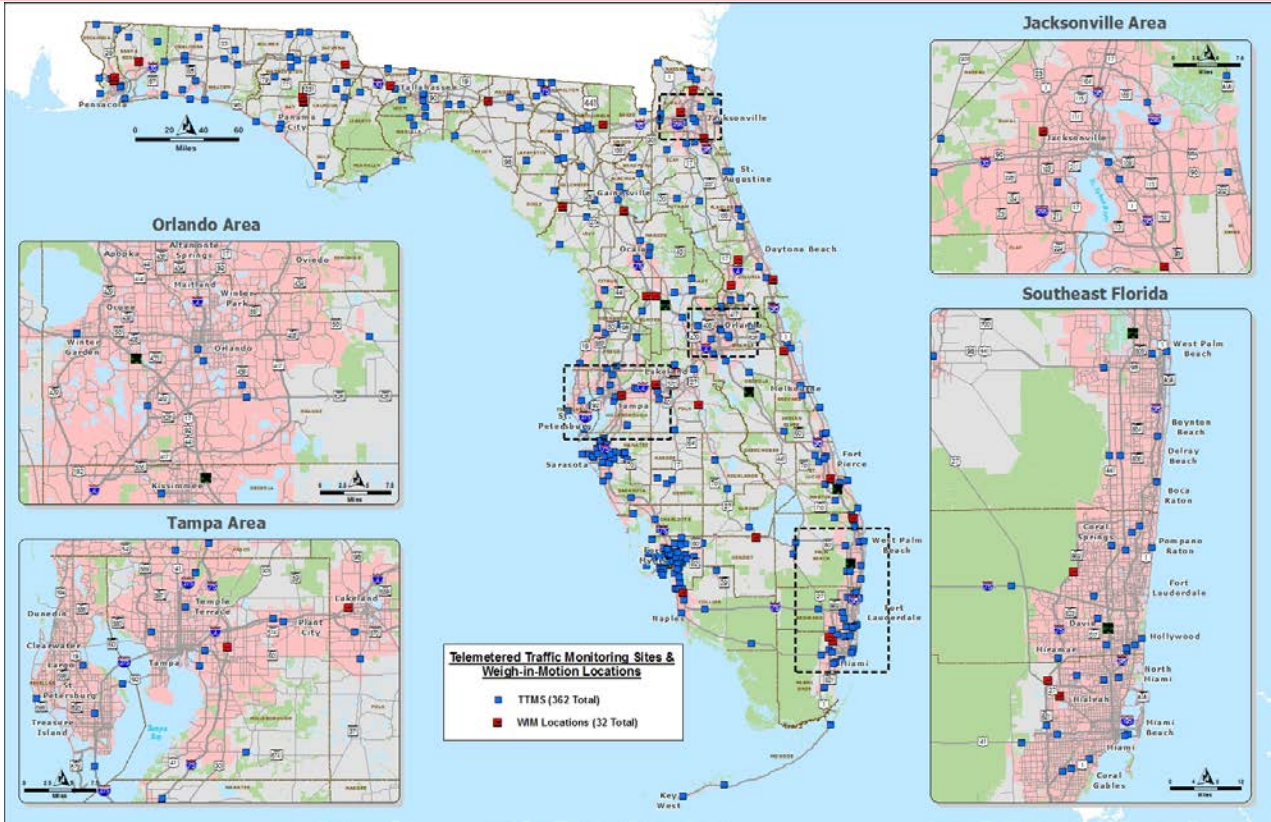
Transportation Monitoring Program

Current Telemetered Traffic Monitoring Sites (TTMS) Locations

Number of sites per District

D1 – 116
D2 – 52
D3 – 67
D4 – 43
D5 – 42
D6 – 18
D7 – 24

Total: 362



Weigh-in-Motion Data

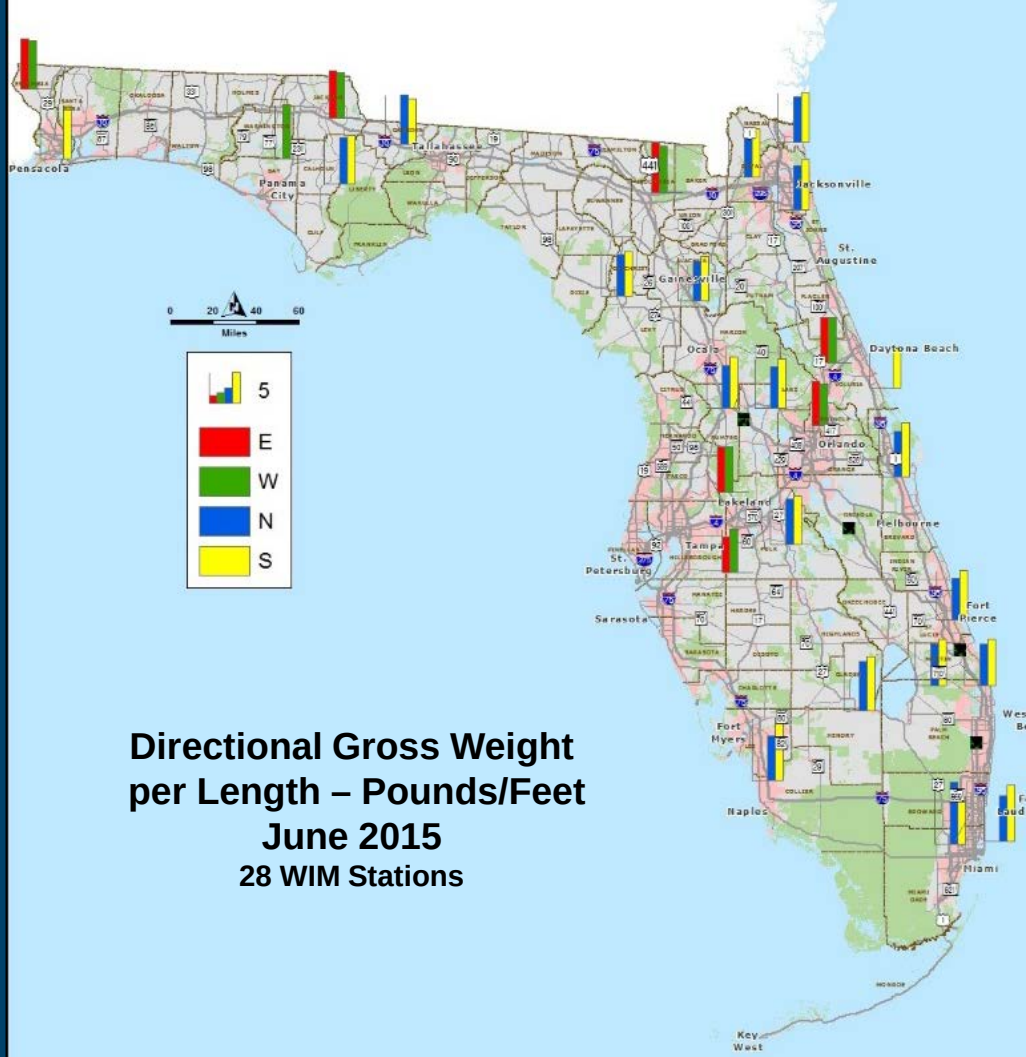
1.17 Million
Average Number of Records per Day

33
WIM Locations

4-13
FHWA Vehicle Classification

62%
of Vehicles are Class 9

65 MPH
Average Vehicle Speed



Directional Gross Weight per Length – Pounds/Feet
June 2015
28 WIM Stations

Next Generation WIM Stations

Enhanced Freight Data Collection

- New technologies for improved truck/classification/commodity counts:
  - Advanced Signature Loops
  - Bluetooth Readers
  - Video Capture
- Strategically located along major truck routes, using existing WIM stations
- I-75 White Springs station to serve as proof-of-concept

Mobility Performance Measures Program

Florida's Multimodal Mobility Performance Measures Matrix

Mode		QUANTITY	Reporting Period				QUALITY	Reporting Period				ACCESSIBILITY	Reporting Period				UTILIZATION	Reporting Period			
			Peak Hour	Peak Period	Daily	Yearly		Peak Hour	Peak Period	Daily	Yearly		Peak Hour	Peak Period	Daily	Yearly		Peak Hour	Peak Period	Daily	Yearly
FREIGHT	Truck	Combination Truck Miles Traveled			X		Travel Time Reliability	X	X	X							Combination Truck Backhaul Tonnage				X
		Truck Miles Traveled			X		Travel Time Variability	X	X	X											
		Combination Truck Tonnage				X	Combination Truck Hours of Delay			X											
		Combination Truck Ton Miles Traveled				X	Combination Truck Average Travel Speed	X	X												
		Value of Freight				X	Combination Truck Cost of Delay *(new for 2016)*				X										
	Aviation	Tonnage				X															
		Value of Freight				X															
	Rail	Tonnage				X						Active Rail Access				X					
		Value of Freight				X															
	Seaports	Tonnage				X						Active Rail Access				X					
		Twenty-foot Equivalent Units				X															
		Value of Freight				X															

Freight Travel Time Reliability

Methodology

For the seven largest MPOs, freight travel time reliability is defined as the percentage of freeway trips by combination trucks traveling at least 45 mph.

For all others, travel time reliability is defined as the percentage of freeway trips by combination trucks traveling at greater than or equal to 5 mph below the posted speed limit.

This measure represents the additional time that a shipper should budget to ensure on-time arrival 95% of the time.

Calculation

$$7\ largest\ MPOs = \frac{\sum(CTMT | Combo\ Truck\ Travel\ Speed \geq 45\ mph)}{\sum(CTMT)} \times 100$$

$$All\ others = \frac{\sum(CTMT \,|\, Combo\ Truck\ Travel\ Speed \geq (Speed\ Limit - 5\ mph))}{\sum(CTMT)} \times 100$$

Reporting Periods

7 Largest MPOs:

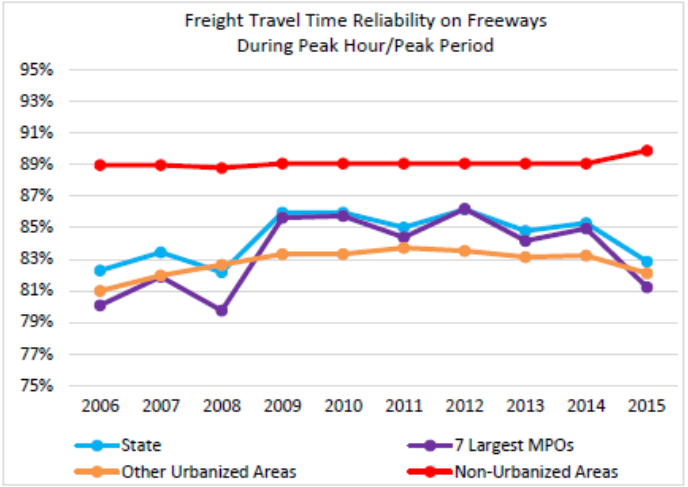
☐ Peak hour ☑ Peak period ☑ Daily ☐ Yearly

All Others:

☑ Peak hour ☐ Peak period ☑ Daily ☐ Yearly

Sources

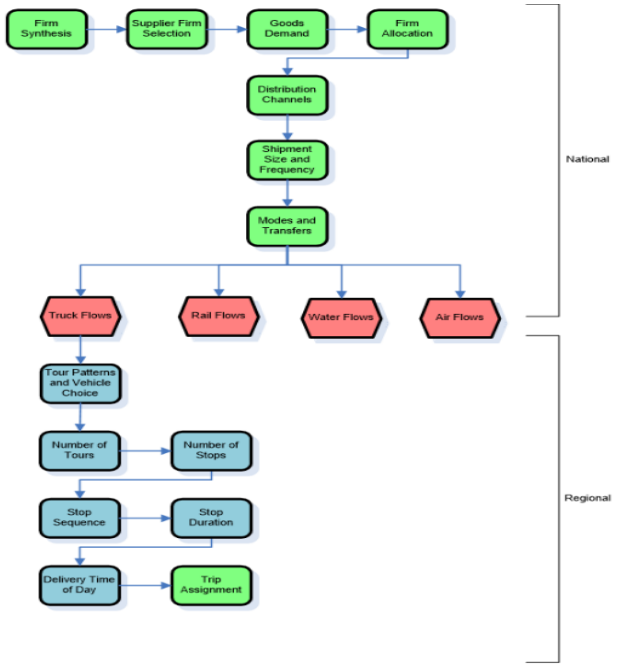
- FDOT Traffic Characteristics Inventory
- HERE Data



Systems Traffic Modeling Program

Florida Statewide Model

- One of the first statewide commodities based models in the U.S.
- The Florida Freight Supply-chain Intermodal Model (FreightSIM) is intended to:
  - Support freight plan development
  - Evaluate potential large scale infrastructure investments
  - Provide inputs to more detailed project level evaluations.
  - Provide inputs to regional transportation planning

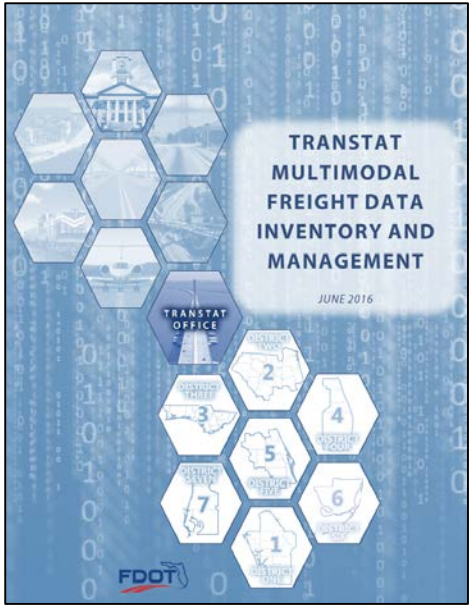


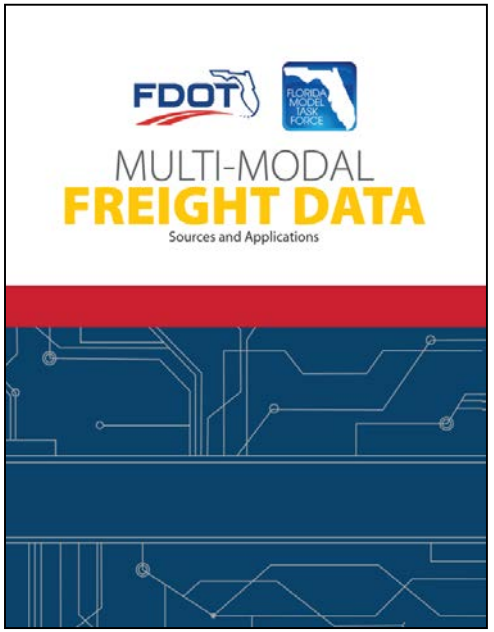
Recent and Upcoming Activities

Freight & Modal Data Inventory

- Comprehensive inventory and evaluation of freight data sources to better understand what sources are available
- 89 data sources were reviewed and inventoried
- Available on FDOT website

http://www.fdot.gov/planning/statistics/





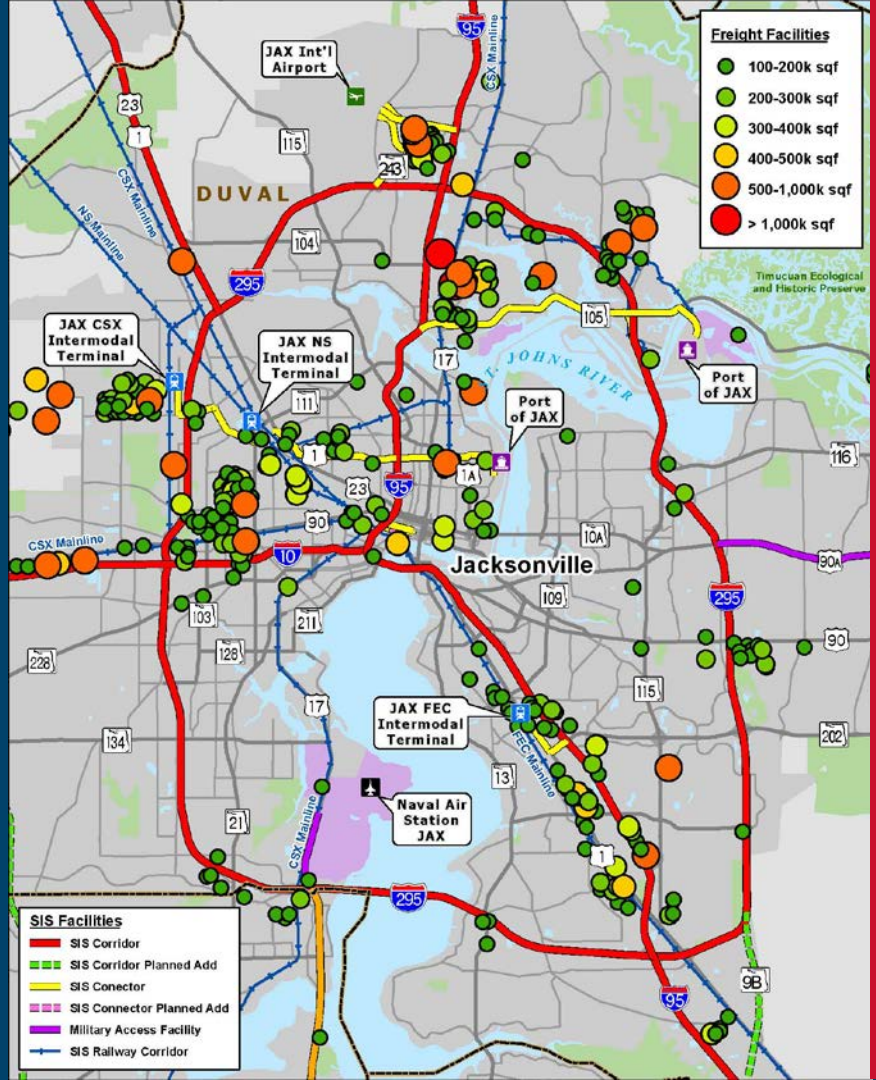
Freight Facilities Dataset Project

Developed by FDOT using existing Dept. of Revenue Data

Covers all 67 Counties

Updated Annually

www.fdot.gov/planning/statistics/freight



Over **2,000** Freight Facilities over 100,000 Sq. Ft. Inventoried

Comprising of over **531.4 Million** Sq. Ft. throughout the State

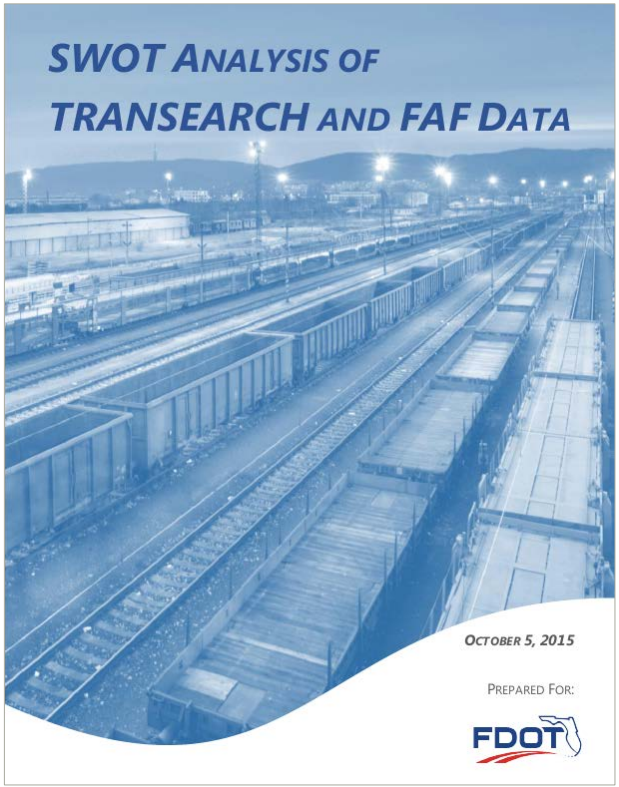
Florida is home to the second Largest Foreign Trade Zone network in the Nation[1]

Commodity Flow Data Analysis

SWOT Analysis of 2011 TRANSEARCH & FAF 3.4 Data

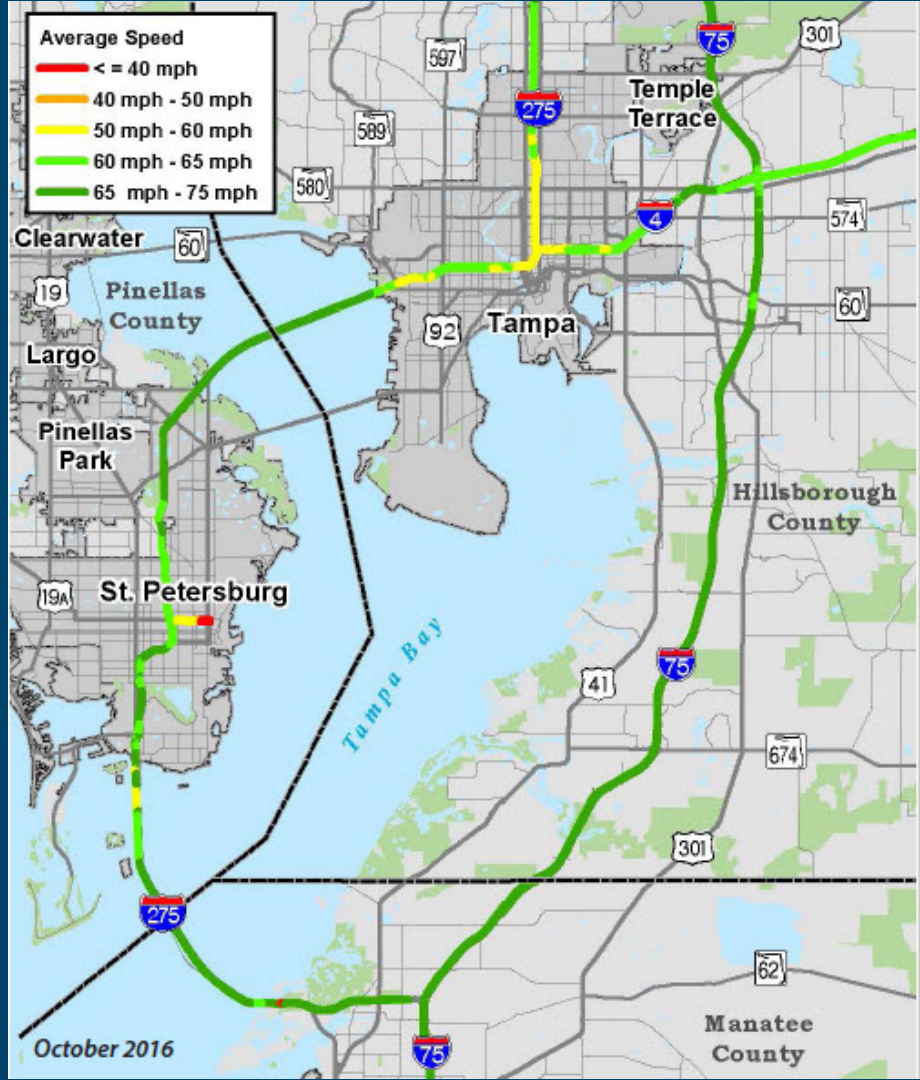
- Strengths, Weaknesses, Opportunities and Threat Analysis
- Identified data source components
- Identified Florida analysis applications

http://www.fdot.gov/planning/statistics/freight/SWOT.pdf



National Performance Management Research Data Set (NPMRDS)

- Developed by USDOT / FHWA
- Provided in 5 minute increments for the whole year
- It is collected using real time probe data from
  - mobile devices
  - portable navigation devices
  - commercial fleets
  - sensors
  - connected autos



Port Everglades Data

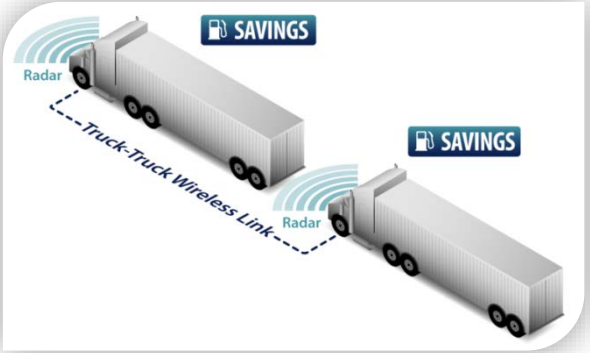
FDOT and Broward County Interlocal Agreement

- Nine traffic sensors planned for Port Everglades
- Data will collect traffic flows and patterns
- Potential transportation improvements to be determined

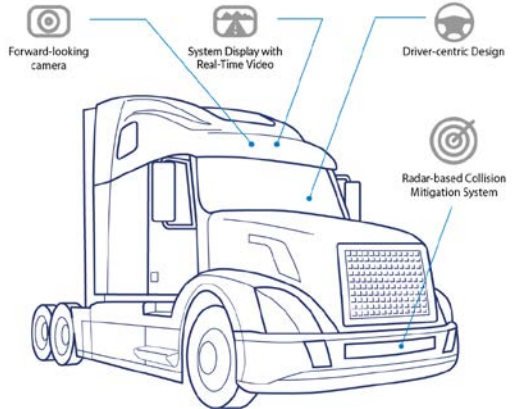
Location	Street Location
1	SE 14th Avenue
2	Eller Drive Security Gate
3	Eller Drive
4	Eisenhower Boulevard
5	Eisenhower Blvd. Security Gate
6	Spangler Blvd Security Gate
7	Eller Drive / East of SE 19th Avenue Intersection
8	19th Avenue / North of Eller Drive
9	McIntosh Road Security Gate

Driver Assistance Truck Platooning (DATP)

Florida Statute 316.0895



“The [DOT], in consultation with [DHSMV], shall ***study the use and safe operation*** of [DATP], as defined in F.S. 316.003, for the ***purpose of developing a pilot project to test vehicles that are equipped to operate*** using [DATP] technology.”



FDOT sanctioned University of Florida to conduct this study, set to begin Spring 2017

SunTrax – Partnership Between FDOT FTE & Florida Polytechnic University

Construction of the new, state-of-the-art transportation technology testing facility, SunTrax includes a 2.25 mile oval track on a 400-acre site in Polk County, centrally located between Tampa and Orlando.

Data-Driven Multimodal Freight Project Prioritization Framework

- Evaluation of Existing Tools/Processes
- Examination of the National Highway Freight Program
- Literature Review
- Survey of State DOTs and MPOs
- Development of Prioritization Framework

Goal:
Develop an objective and a data-driven multimodal freight project prioritization framework that leverages the Department's available datasets and processes.

Joel Worrell

Transportation Data Inventory Manager

Transportation Data & Analytics Office

Florida Department of Transportation

(850) 414-4715

Joel.Worrell@dot.state.fl.us