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
Mission Statement

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

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

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

<table>
<thead>
<tr>
<th>District</th>
<th>Number of Sites</th>
</tr>
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<tbody>
<tr>
<td>D1</td>
<td>116</td>
</tr>
<tr>
<td>D2</td>
<td>52</td>
</tr>
<tr>
<td>D3</td>
<td>67</td>
</tr>
<tr>
<td>D4</td>
<td>43</td>
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<tr>
<td>D5</td>
<td>42</td>
</tr>
<tr>
<td>D6</td>
<td>18</td>
</tr>
<tr>
<td>D7</td>
<td>24</td>
</tr>
</tbody>
</table>

**Total:** 362

![Map of Florida showing TTMS locations](image-url)
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

<table>
<thead>
<tr>
<th>Mode</th>
<th>QUANTITY</th>
<th>Reporting Period</th>
<th>Quality</th>
<th>Reporting Period</th>
<th>Accessibility</th>
<th>Reporting Period</th>
<th>Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truck</td>
<td>Combination Truck Miles Traveled</td>
<td>X</td>
<td>Travel Time Reliability</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Truck Miles Traveled</td>
<td>X</td>
<td>Travel Time Reliability</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Combination Truck Tonnage</td>
<td></td>
<td>Combination Truck Hours of Delay</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Combination Truck Ton Miles Traveled</td>
<td>X</td>
<td>Combination Truck Average Travel Speed</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Value of Freight</td>
<td></td>
<td>Combination Truck Cost of Delay (new for 2016)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aviation</td>
<td>Tonnage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Combination Truck Backhaul Tonnage</td>
</tr>
<tr>
<td></td>
<td>Value of Freight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rail</td>
<td>Tonnage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Active Rail Access</td>
</tr>
<tr>
<td></td>
<td>Value of Freight</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Seaports</td>
<td>Tonnage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Active Rail Access</td>
</tr>
<tr>
<td></td>
<td>Twenty-foot Equivalent Units</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Value of Freight</td>
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<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
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

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

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

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
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
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

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

<table>
<thead>
<tr>
<th>Location</th>
<th>Street Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SE 14th Avenue</td>
</tr>
<tr>
<td>2</td>
<td>Eller Drive Security Gate</td>
</tr>
<tr>
<td>3</td>
<td>Eller Drive</td>
</tr>
<tr>
<td>4</td>
<td>Eisenhower Boulevard</td>
</tr>
<tr>
<td>5</td>
<td>Eisenhower Blvd. Security Gate</td>
</tr>
<tr>
<td>6</td>
<td>Spangler Blvd Security Gate</td>
</tr>
<tr>
<td>7</td>
<td>Eller Drive / East of SE 19th Avenue Intersection</td>
</tr>
<tr>
<td>8</td>
<td>19th Avenue / North of Eller Drive</td>
</tr>
<tr>
<td>9</td>
<td>McIntosh Road Security Gate</td>
</tr>
</tbody>
</table>
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
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.
Goal:
Develop an objective and a data-driven multimodal freight project prioritization framework that leverages the Department’s available datasets and processes.