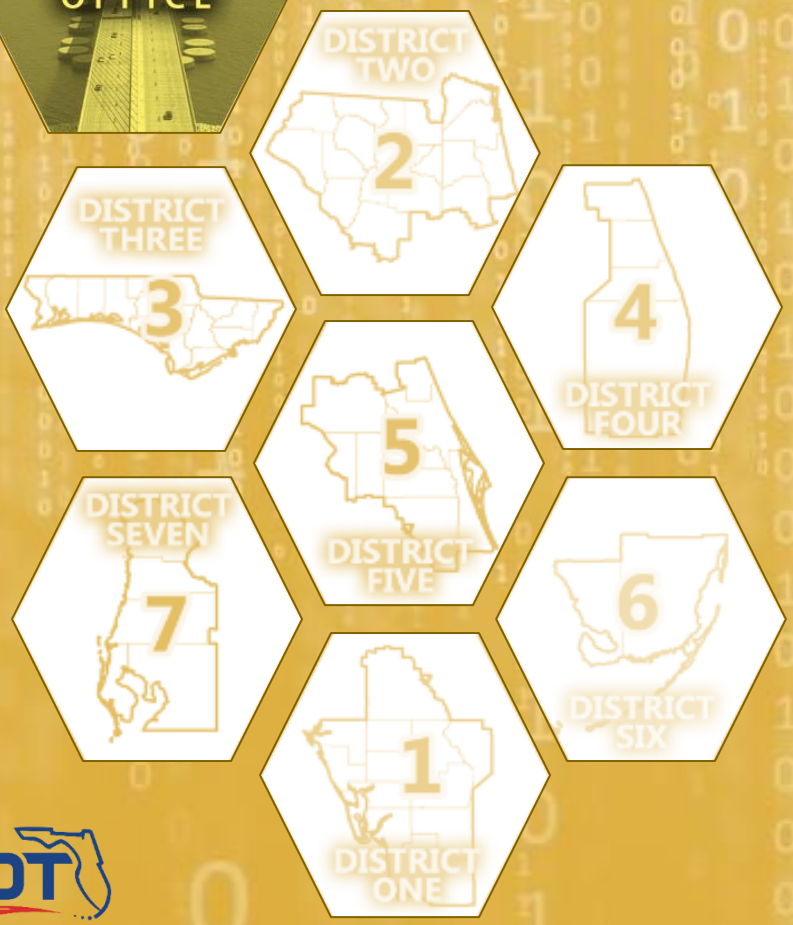
MULTIMODAL FREIGHT DATA SOURCE PROFILES

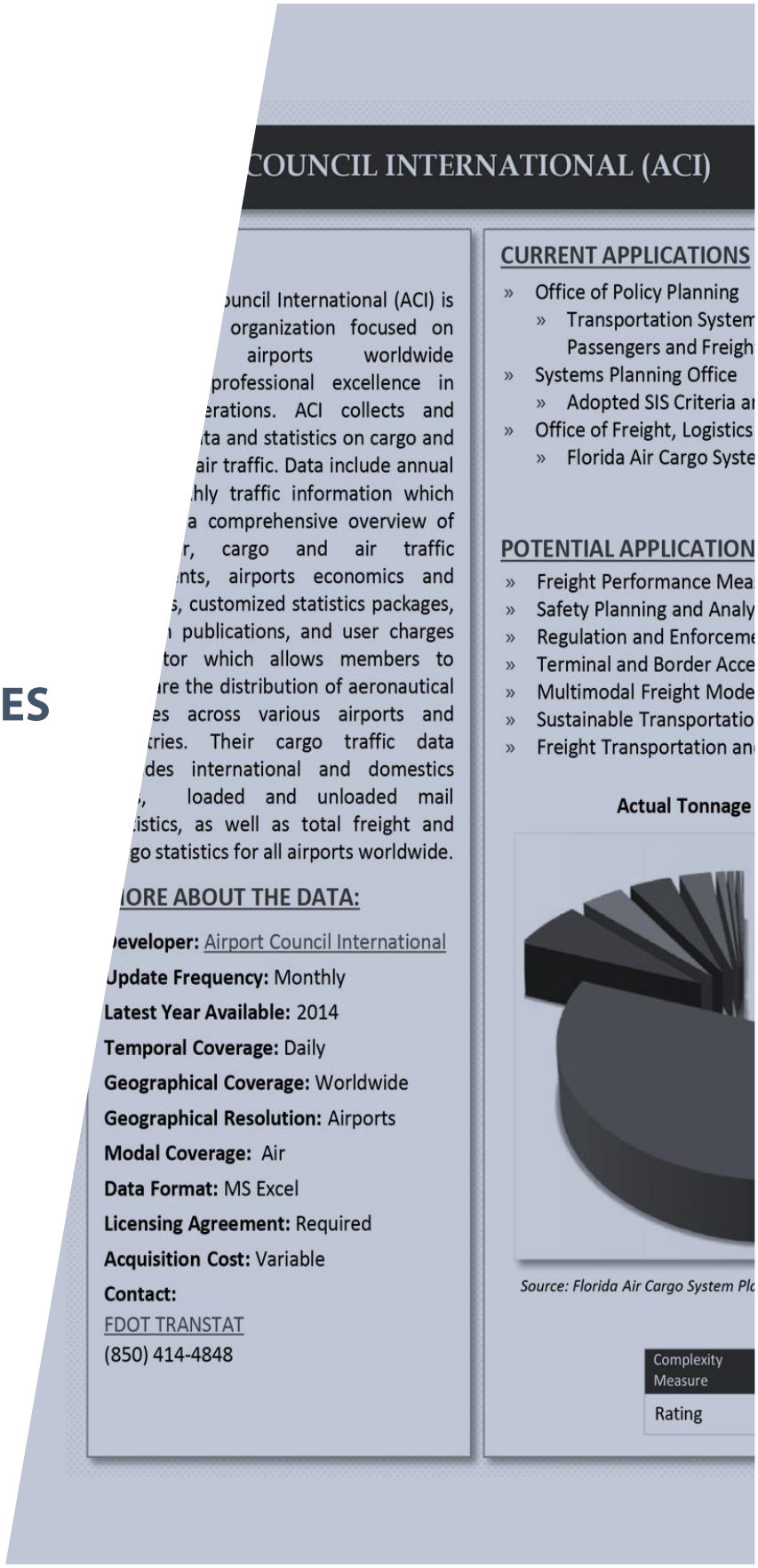
JUNE 2016



FDOT

SECTION 2

MULTIMODAL FREIGHT DATA SOURCE PROFILES



COUNCIL INTERNATIONAL (ACI)

ouncil International (ACI) is organization focused on airports worldwide professional excellence in erations. ACI collects and ta and statistics on cargo and air traffic. Data include annual hly traffic information which a comprehensive overview of r, cargo and air traffic nts, airports economics and s, customized statistics packages, publications, and user charges tor which allows members to re the distribution of aeronautical es across various airports and ries. Their cargo traffic data des international and domestics , loaded and unloaded mail istics, as well as total freight and go statistics for all airports worldwide.

ORE ABOUT THE DATA:

eveloper: Airport Council International

Update Frequency: Monthly

Latest Year Available: 2014

Temporal Coverage: Daily

Geographical Coverage: Worldwide

Geographical Resolution: Airports

Modal Coverage: Air

Data Format: MS Excel

Licensing Agreement: Required

Acquisition Cost: Variable

Contact:

FDOT TRANSTAT

(850) 414-4848

CURRENT APPLICATIONS

- Office of Policy Planning
  - Transportation System Passengers and Freigh
- Systems Planning Office
  - Adopted SIS Criteria a
- Office of Freight, Logistics
  - Florida Air Cargo Syste

POTENTIAL APPLICATION

- Freight Performance Mea
- Safety Planning and Analy
- Regulation and Enforceme
- Terminal and Border Acce
- Multimodal Freight Mode
- Sustainable Transportatio
- Freight Transportation an

Actual Tonnage

Source: Florida Air Cargo System Pl

Complexity Measure
Rating

2.0 MULTIMODAL FREIGHT DATA SOURCE PROFILES

The Data Source Profiles build upon the analysis completed within the Data Inventory Matrix and provide further detail on select data sources. The Data Source Profiles analysis includes development of 43 individual profiles of data sources selected from the Data Inventory Matrix (presented as an attachment on the following pages). The profiles provide summaries for multimodal freight data sources and generally highlight the following information about each data source:

- Developer
- Update Frequency and Availability
- Geographic and Modal Coverage
- Data Format
- Licensing Agreement Requirements
- Acquisition Cost

The data source profiles also include overview of current applications of each data source for analyses; including: studies, plan updates, models, trends, and performance measures. Potential applications of each data source within FDOT, if applicable for the data source, are also identified. Additionally, a complexity measure was developed to assess the different data sources. The methodology for this effort was adopted from *National Cooperative Freight Research Program Report 22 – Freight Data Cost Elements*. The complexity measure was broken down into ten different categories:

- Spatial Coverage/Resolution: Rating increases or decreases based on level of spatial coverage; high/detail in spatial coverage is rated excellent.
- Commodity Coverage: Rating increases or decreases based on number of commodities covered; majority commodities included is rated excellent.
- Industry Coverage: Rating increases or decreases based on diversity of industries covered; higher diversity of industries covered is rated excellent.
- Temporal Coverage/Resolution: Rating increases or decreases based on temporal disaggregation; higher frequency temporal data is rated excellent.
- Data Collection Frequency/Update rate: Rating based on update frequency of dataset; higher frequency in dataset updates is rated excellent.
- Modal Coverage: Rating based on modal coverage of dataset; multimodal coverage and higher number of modes covered is rated excellent.
- Data Accuracy: Rating increases or decreases based on number of estimations; lower estimations and assumptions used are rated excellent.
- Cost: Rating based on the cost of dataset; free datasets are rated excellent.
- Data Access: Rating based on access of dataset; datasets easier to obtain with low or no restrictions to access are rated excellent.
- Data Usability: Rating based on usability of dataset; datasets easier to use and analyze without complex querying are rated excellent.

The possible ratings for each measure are shown in the example table:

- Excellent: ●
- Medium: ◐
- Low: ○
- Not Applicable: –

SUMMARY

The Airport Council International (ACI) is a non-profit organization focused on supporting airports worldwide promoting professional excellence in airport operations. ACI collects and provides data and statistics on cargo and passenger air traffic. Data include annual and monthly traffic information which provides a comprehensive overview of passenger, cargo and air traffic movements, airports economics and statistics, customized statistics packages, aviation publications, and user charges calculator which allows members to compare the distribution of aeronautical charges across various airports and countries. Their cargo traffic data includes international and domestics tons, loaded and unloaded mail statistics, as well as total freight and cargo statistics for all airports worldwide.

MORE ABOUT THE DATA:

Developer: Airport Council International

Update Frequency: Monthly

Latest Year Available: 2014

Temporal Coverage: Daily

Geographical Coverage: Worldwide

Geographical Resolution: Airports

Modal Coverage: Air

Data Format: MS Excel

Licensing Agreement: Required

Acquisition Cost: Variable

Contact:
FDOT TRANSTAT
(850) 414-4848

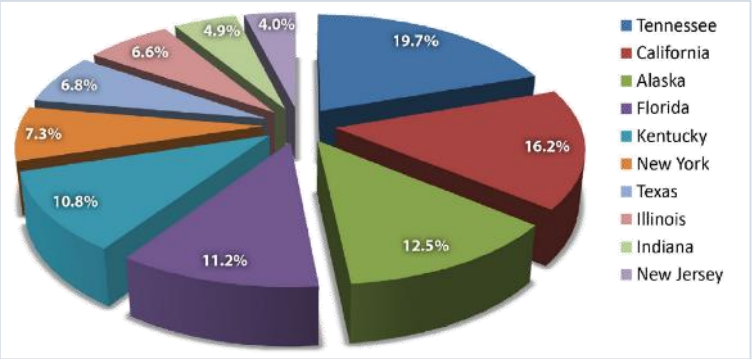
CURRENT APPLICATIONS

- Office of Policy Planning
  - Transportation System: Air Facilities – Passengers and Freight, 2013
- Systems Planning Office
  - Adopted SIS Criteria and Thresholds, 2010
- Office of Freight, Logistics & Passenger Operations
  - Florida Air Cargo System Plan Update, 2013

POTENTIAL APPLICATIONS

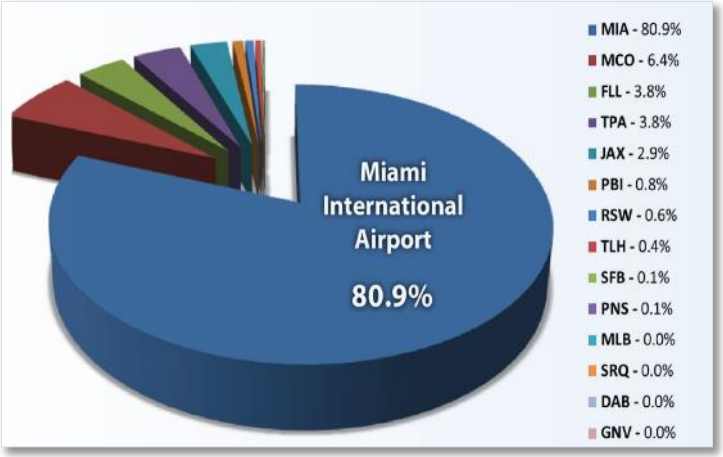
- Freight Performance Measures
- Safety Planning and Analysis
- Regulation and Enforcement
- Terminal and Border Access Planning
- Multimodal Freight Modeling
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning

Top 10 Air Cargo Market Share, 2011



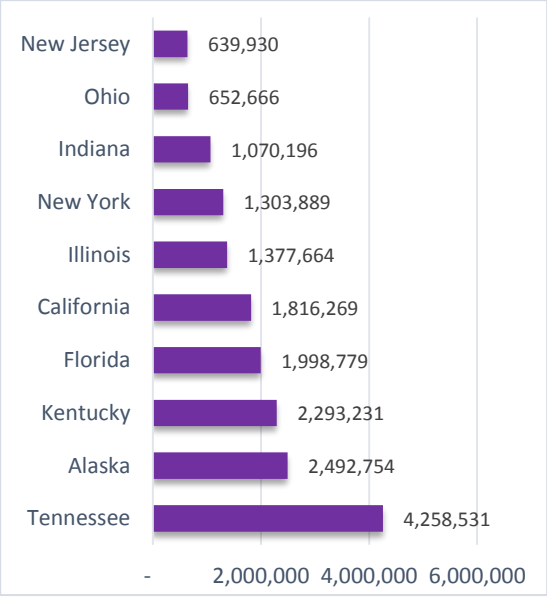
Source: Florida Air Cargo System Plan Update, 2012.

Actual Tonnage by Airport within Florida, 2011



Source: Florida Air Cargo System Plan Update, 2012.

Top 10 Air Cargo States by Total Annual Tonnage, 2014



Source: RS&H, Inc.

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	●	○	○	◐	●	●	●	◐	●

SUMMARY

ATRI provides GPS-based spatial and temporal information for a large sample of trucks with onboard, wireless communication systems in the U.S. Data includes geospatial (coordinates) and temporal (time/date stamp) information for the corresponding trucks. Other information such as spot speed and heading are also provided in the data. The data does not provide information on commodity type, TL/LTL, # of axles, travel purpose or other details of individual trucks. Currently, more than 100 million GPS data points are collected per day by ATRI. The data has been collected since 2002. FDOT retains a sample of processed ATRI data for 2010 which was used by the Systems Planning Office for a freight planning research study (Final Report **BDK84-977-20**).

MORE ABOUT THE DATA:

Developer: American Transportation Research Institute

Update Frequency: Monthly

Latest Year Available: 2016

Temporal Coverage: Real-time data

Geographical Coverage: North America

Geographical Resolution: XY coordinates

Modal Coverage: Truck (classes 8-13 in FHWA Scheme F classifications)

Data Format: CSV

Licensing Agreement: Required

Acquisition Cost: Variable depending on the sample size

Contact:

FDOT TRANSTAT
Modeling Section
(850) 414-4848

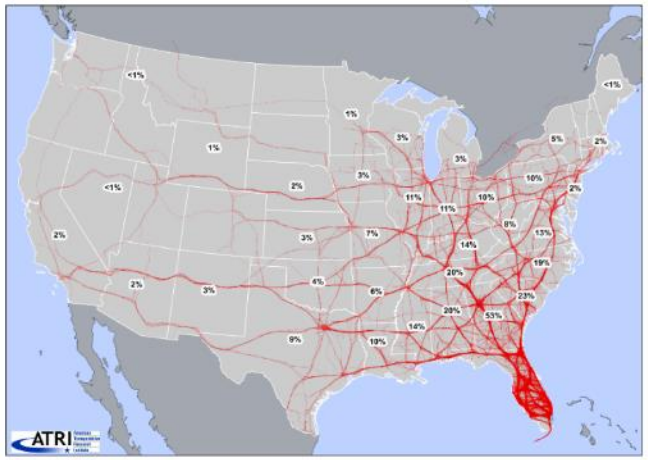
CURRENT APPLICATIONS

- FDOT – District 4 – SHRP2 C20
  - SHRP2 C20: Analysis of Truck Route Choice using Truck-GPS Data, 2015
- Systems Planning Office
  - Using Truck Fleet Data in Combination with Other Data Sources for Freight Modeling and Planning, 2014 - Final Report BDK84-977-20 Final Report info at http://www.dot.state.fl.us/research-center/Completed_Proj/Summary_PL/FDOT-BDV25-977-17-sum.pdf

POTENTIAL APPLICATIONS

- Freight Performance Measures
- Congestion Management
- Traffic Operations/Services
- Safety Planning and Analysis
- Environmental Planning
- Emergency Preparedness and Security Planning
- Regulation and Enforcement
- Model Validation
- Terminal and Border Access Planning
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning
- Urban Tour-based Freight Modeling
- Roadway Pavement and Bridge Maintenance Planning

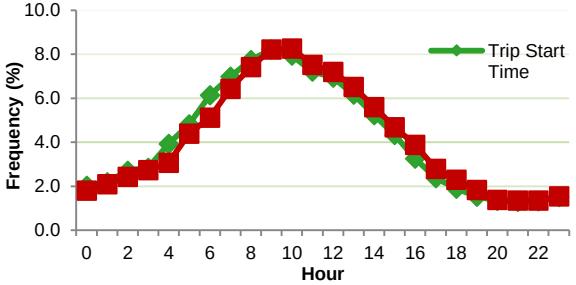
Location Visited During One Week by 1000 Trucks Starting in Miami*



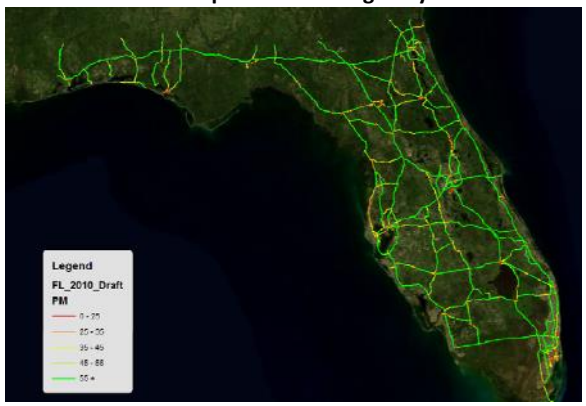
** Source: Analysis of Truck Route Choice using Truck-GPS Data, 15th TRB National Planning Applications Conference, 2015*

One day ATRI truck GPS data coverage, 2010*

Time of Day Profile for Truck Trips in Tampa*



PM Peak Period Speeds on SIS Highway Network*



Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	●	○	○	◐	●	●	◐	◐	◐

SUMMARY

The Association of American Railroads (AAR) is a railroad policy, research, standard setting and technology organization that focuses on the safety and productivity of the U.S. freight rail industry. AAR's data center prepares and publishes weekly, quarterly and annual rail industry data and statistics for major freight railroads in North America as well as Amtrak. The data includes economic, financial, policy, traffic, safety and general statistical information which provide a comprehensive insight into the operations of North America's freight railroads. AAR also provides publications catalogs and research reports covering many aspects of freight railroad from North America's freight rail network attributes and investment and economic statistics to the correct means of loading and securing various freight shipments.

MORE ABOUT THE DATA:

Developer: Association of American Railroad (AAR)
Update Frequency: Weekly, Quarterly, and Annually
Latest Year Available: 2016
Temporal Coverage: Annual
Geographical Coverage: North America
Geographical Resolution: Major Freight Railroads and Amtrak
Modal Coverage: Rail
Data Format: Tabular
Licensing Agreement: Required
Acquisition Cost: Variable (free for Members)
Contact:
FDOT TRANSTAT
(850) 414-4848

CURRENT APPLICATIONS

- Rail and Motor Carrier Operations Office
  - 2010 Florida Rail System Plan, 2010
- Office of Policy Planning
  - Transportation System: Rail Facilities- Freight and Passenger, 2011

POTENTIAL APPLICATIONS

- Freight Performance Measures
- Traffic Operations/Services
- Safety Planning and Analysis
- Freight Mobility Planning
- Emergency Preparedness and Security Planning
- Terminal and Border Access Planning
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning
- Regulation and Enforcement
- Hazardous Material Planning

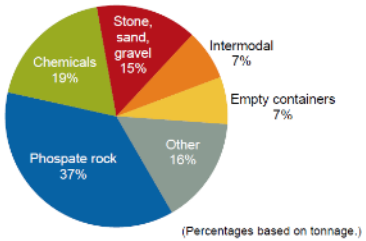
Summary Of Freight Railroads in Florida, 2012*

14	2,900	4,981	$106,110	28,642
Number of Freight Railroads	Freight Railroad Miles	Freight Railroad Employees	Ave. Wages and Benefits Per Freight Railroad Employee	Railroad Retirement Beneficiaries

Florida 2012 Totals	Number of Freight Railroads	Miles Operated Excluding Trackage Rights	Miles Operated Including Trackage Rights
Class I	2	1,693	1,793
Regional	2	431	431
Local	9	774	782
Switching & Terminal	1	2	2
Total	14	2,900	3,008

Freight Rail Tonnage Starting and Ending In Florida, 2012*

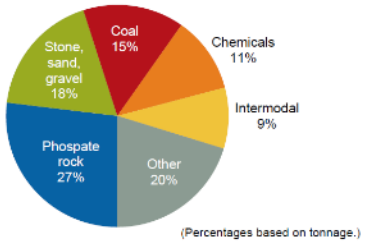
Rail Traffic Originated in 2012 — **Total Tons: 43.7 million** — **Total Carloads: 764,700**



Commodity	Tons	Carloads
Phospate rock	16,095,000	147,500
Chemicals	8,173,000	94,900
Stone, sand, gravel	6,438,000	66,500
Intermodal	3,220,000	196,100
Empty containers	3,010,000	116,000
Other	6,785,000	143,600

Phosphate rock is used mainly in the production of fertilizers and animal nutrient supplements. Florida was sixth nationally in 2012 in originated rail tons of chemicals (primarily fertilizers), and ninth in intermodal traffic originated.

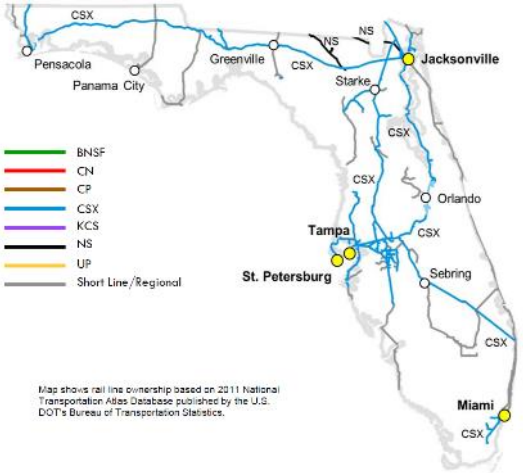
Rail Traffic Terminated in 2012 — **Total Tons: 66.7 million** — **Total Carloads: 1,221,000**



Commodity	Tons	Carloads
Phospate rock	17,960,000	166,600
Stone, sand, gravel	12,085,000	120,900
Coal	9,804,000	84,200
Chemicals	7,414,000	89,700
Intermodal	5,913,000	385,200
Other	13,501,000	374,300

Florida was second nationally in 2012 in terminated rail tons of crushed stone, sand, and gravel, used mainly for construction. Florida was also the nation's 12th-largest electricity generator from coal in 2012. Railroads delivered most of that coal.

Florida Rail Lines, 2012*



* Source: https://www.aar.org/data-center/railroads-states#state/FL

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	●	●	○	◐	◐	●	●	◐	●

SUMMARY

The Automatic Identification Systems (AIS) monitors ship traffic for the purpose of improving safety of navigation worldwide. This system provides coastal planners with insight into marine transportation patterns over long periods of time. The National AIS program was initiated in response to the **Maritime Transportation Security Act of 2002.** The NAIS system currently receives 92 million AIS messages per day from approximately 12,700 unique vessels.

MORE ABOUT THE DATA

Developer: United States Coastal Guard, Bureau of Ocean Energy Management, and National Oceanic and Atmospheric Administration

Update Frequency: Annually

Temporal Coverage: Per minute

Geographical Coverage: National

Geographical Resolution: Ship Location

Modal Coverage: Marine (Water)

Data Range: 2009-present

Data Format: File Geodatabases

Licensing Agreement: N/A

Acquisition Cost: Free

Legal Reference: Maritime Transportation Security Act, 2002

Contact:

FDOT TRANSTAT
(850)-414-4848

CURRENT APPLICATIONS

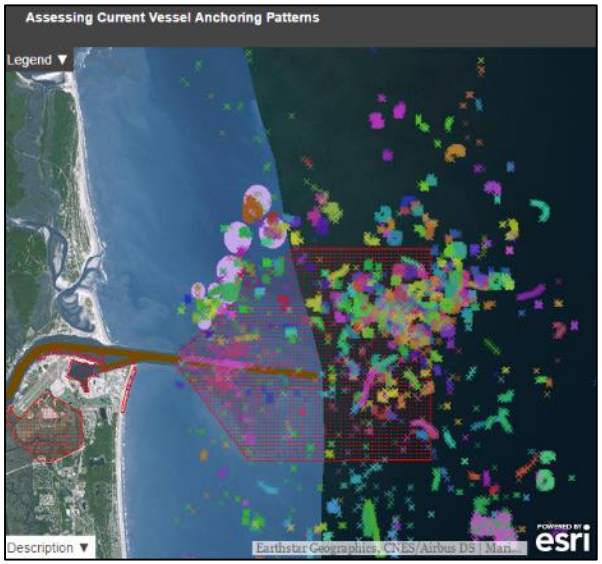
- North Carolina Wind Energy Task Force
  - Identify outer continental shelf lease blocks for offshore wind energy siting
- Eastern Research Group
  - 2007 commercial vehicle emissions in Texas
- U.S Coast Guard
  - Training in workshops
- Jacksonville
  - Studying Anchorage patterns

POTENTIAL APPLICATIONS

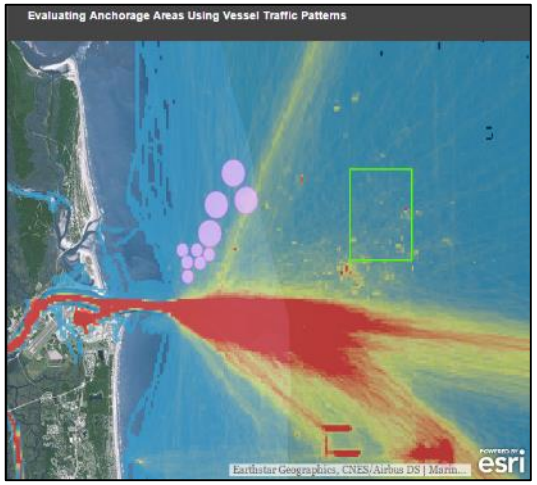
- Data fusion of PIERS and AIS
- Anchorage patterns
- Port volume and capacity
- Model vessel noise
- Temporal trends
- Shipping lanes and regulations
- Infrastructure evaluation
- Determine potential location-based conflicts
- Developing and tracking port performance measures

DESCRIPTION OF DATA

- AIS database contains vessel traffic data for security and planning purposes within the U.S. coastal waters.
- Broadcast point feature class contains the position reports, which have been pre-filtered to a one-minute time stamp.
- AIS is required on ships of 300 gross tons or more and for ships greater than or equal to 65 feet in length and towing vessels greater than 26 feet in length.
- AIS data do not include recreational boats or other small craft. Vessels owned, leased, or operated by the military or other U.S. government entities are also exempt from the carriage requirement.
- NAIS collects valuable maritime data in 58 critical ports throughout the United States and collect safety and security data from AIS-equipped vessels in the nation's territorial waters and adjacent sea areas.
- AIS is a ship-to-ship collision avoidance system that allows for communication of position, speed, and other ship data.
- Major attributes are Vessel Identifier, Purpose, Course, Vessel location, MMSI, and Speed, Heading, Vessel Information, Timestamp, Draft.



A. Point Vessel Data (Anchorage Patterns)



B. Vessel Density (Density Maps)

Case Study: Jacksonville – Studying anchorage patterns

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/ update	Accuracy	Access	Usability
Rating	●	◐	○	●	●	●	●	●	●

SUMMARY

The BEA Industry Economic Accounts enable users to track and understand industry interactions, productivity trends, and the changing structure of the U.S. economy. Economic accounts covers industry classes in NAICS and SIC system and comprises a variety of economic datasets including:

"GDP by Industry Accounts": estimate contribution of each industry to the Nation's GDP. (Latest update 2014)

"Annual Input-Output (IO) Accounts": provide a time series of detailed information on the flow of goods and services between industries and final users in form of make and use tables. (Latest update 2013)

"Benchmark Input-Output Accounts": are based on the economic census data and provide similar information as the Annual IO Accounts but with more industry detail. (Latest update 2007)

MORE ABOUT THE DATA:

Developer: Bureau of Economic Analysis

Update Frequency: Annually
*Benchmark IO: Every 5 years

Latest Year Available: Variable

Temporal Coverage: Annual

Geographical Coverage: National

Geographical Resolution: N/A

Modal Coverage: N/A

Data Format: MS Excel

Licensing Agreement: N/A – Citations are required using BEA guideline

Acquisition Cost: Publicly available/Free

Legal Reference: 15 USC 4908

Contact:
FDOT TRANSTAT
(850) 414-4848

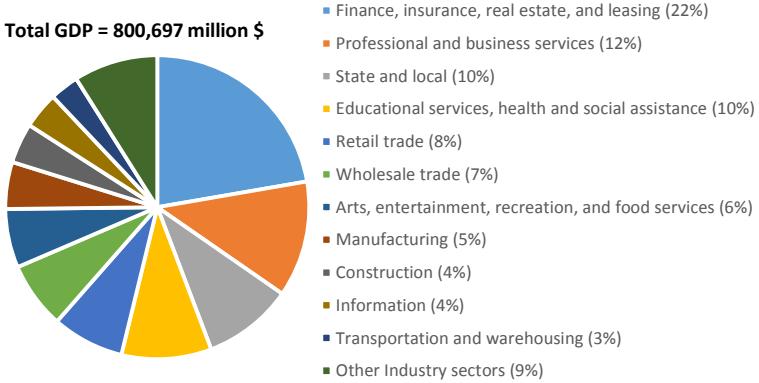
CURRENT APPLICATIONS

- Transportation Statistics Office
  - Florida Statewide Freight Model (FreightSIM), 2015
- Rail and Motor Carrier Operations Office
  - Economic Impacts FEC Rail Corridor Program, 2009
- Office of Policy Planning
  - Macroeconomic Analysis of Florida's Transportation Investments, 2015

POTENTIAL APPLICATIONS

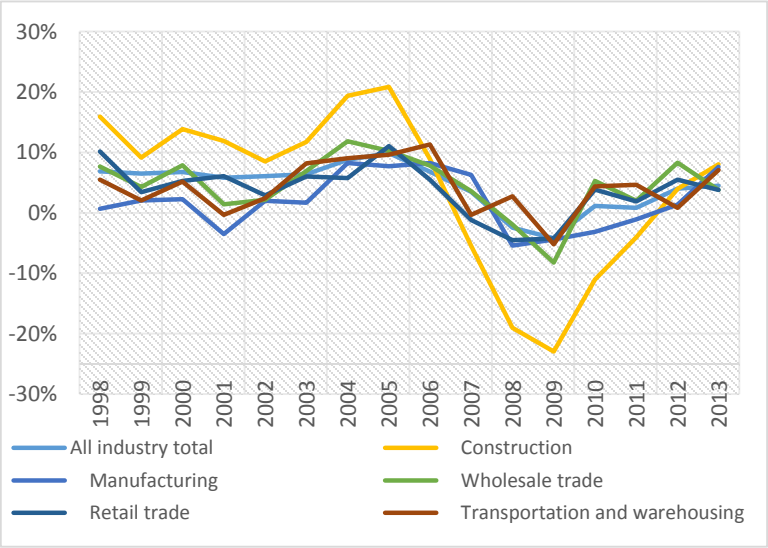
- Economic Development Planning and Analysis
- Freight Transportation and Land Use Planning
- Freight Mobility Planning
- Sustainable Transportation Investment
- Freight Demand and Supply Chain Analysis

Florida GDP Share By Industry 2013



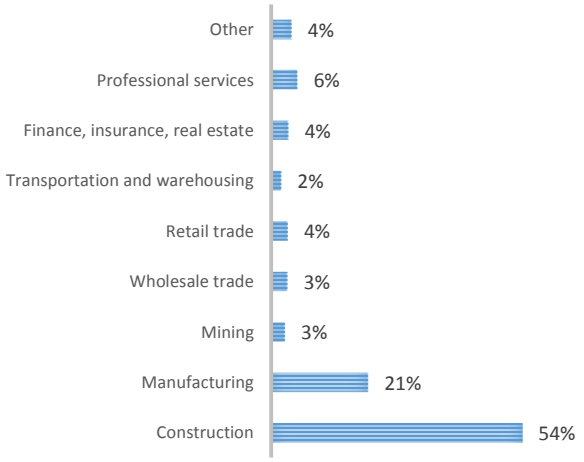
Source: RS&H, Inc.

Annual Growth in GDP in Florida State



Source: RS&H, Inc.

Inputs value by Industry Required to Deliver One Dollar of Construction Industry Output



Source: RS&H, Inc.

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	○	○	●	○	◐	◐	●	●	●

SUMMARY

Air Carrier Statistics is a monthly data reported by certificated U.S. and foreign air carriers on passengers, freight and mail transported. The other indicators include aircraft type, service class, available capacity and seats, and aircraft hours ramp-to-ramp and airborne. There are 6 datasets:

- T-100 Market - Domestic Carrier
- T-100 Market - International Carrier
- T-100 Market - All Carrier
- T-100 Segment - Domestic Carrier
- T-100 Segment- International Carrier
- T-100 Segment - All Carrier

In market data, a passenger is "enplaned" and is counted only once as long as he/she remains on the same flight number. In segment data, a passenger is "transported" and is counted for each leg of the trip. The data was established under Intermodal Surface Transportation Efficiency Act of 1991 Section 6006.

MORE ABOUT THE DATA:

Developer: Bureau of Transportation Statistics

Update Frequency: Monthly

Geographical Coverage: U.S

Temporal coverage: 1990 - present

Geographical Resolution: Airport

Modal Coverage: Air

Data Format: CSV

Licensing Agreement: N/A

Acquisition Cost: N/A

Legal Reference: 49 CFR 111(c) (2)

Contact:

FDOT TRANSTAT
(850)-414-4848

CURRENT USERS

- Florida Department of Transportation:
  - Florida Aviation System Plan
- U.S.Department of Transportation:
  - U.S International Air Passenger and Freight Statistics
- National Cooperative Freight Research Program Reports
- Federal Aviation Administration:
  - One of the data sources for FAA Database: Air Carrier Activity Information System (ACAIS)

POTENTIAL APPLICATIONS

- Freight Performance Measures
- Congestion Management
- Traffic Operations/Services
- Safety Planning and Analysis
- Environmental Planning
- Emergency Preparedness and Security Planning
- Regulation and Enforcement
- Demand Forecasting
- Demand/Capacity analysis
- Return on investment on infrastructure

Code	Description	Summary
FX	Federal Express Corporation	12,575,513,752
5X	United Parcel Service	7,736,997,469
5Y	Atlas Air Inc.	1,498,607,686
DL	Delta Air Lines Inc.	1,042,336,072
UA	United Air Lines Inc.	925,012,179
AA	American Airlines Inc.	915,696,993
PO	Polar Air Cargo Airways	787,125,358
KE	Korean Air Lines Co. Ltd.	761,944,366
CX	Cathay Pacific Airways Ltd.	719,743,467
ABX	ABX Air Inc	698,195,276

T-100 Market Freight (pounds) for Major Air Carriers (2014)

Rank	Origin Airport	Summary
1	Miami International Airport	1806910612
2	Orlando International Airport	160176297
3	Fort Lauderdale–Hollywood International Airport	95372540
4	Tampa International Airport	89338692
5	Jacksonville International Airport	75794736
6	Palm Beach International Airport	22641689
7	St. Pete–Clearwater International Airport	17110950
8	Southwest Florida International Airport	12234392
9	Tallahassee International Airport	8988681
10	Pensacola International Airport	4375565
11	Ocala International Airport	562463
12	Orlando Sanford International Airport	433630
13	Key West International Airport	284359
14	Sarasota–Bradenton International Airport	267901
15	Florida Keys Marathon Airport	202186
16	Melbourne International Airport	175650
17	Daytona Beach International Airport	127948
18	Northwest Florida Beaches International Airport	35506
19	Cecil Airport	15000
20	Destin - Fort Walton Beach Airport	11473

T-100 Market Freight (pounds) for Major Florida Origin Airports (2014)

Rank	Destination Airport	Summary
1	Miami International Airport	2280943532
2	Orlando International Airport	190955443
3	Fort Lauderdale–Hollywood International Airport	100449098
4	Tampa International Airport	95686454
5	Jacksonville International Airport	75278136
6	Palm Beach International Airport	31319811
7	St. Pete–Clearwater International Airport	24949756
8	Southwest Florida International Airport	23287891
9	Tallahassee International Airport	10458790
10	Pensacola International Airport	8646923
11	Orlando Sanford International Airport	881005
12	Key West International Airport	713527
13	Florida Keys Marathon Airport	368512
14	Melbourne International Airport	194812
15	Sarasota–Bradenton International Airport	181217
16	Ocala International Airport	175304
17	Daytona Beach International Airport	164148
18	Space Coast Regional Airport	121440
19	Northwest Florida Beaches International Airport	59601
20	Gainesville Regional Airport	36583

T-100 Market Freight (pounds) for Major Florida Destination Airports (2014)

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/ update	Accuracy	Access	Usability
Rating	●	○	○	◐	●	●	●	●	●

SUMMARY

The National Transportation Atlas Database (NTAD) provides nationwide geographic datasets of transportation facilities, transportation networks, associated infrastructure for different modes of transportation and other geographical information related to transportation. The geographic datasets include spatial information for transportation networks by mode, intermodal logistics terminals and the related attribute information for these facilities. For each database, a metadata documentation is also. The data can be used for modal transportation analysis to support decision-making procedures at national, regional, state and local level.

The new NTAD data will be released by the end of June 2016; this Includes the North American Rail Network (NARN).

MORE ABOUT THE DATA:

Developer: Bureau of Transportation Statistics (USDOT)

Update Frequency: Variable amongst datasets

Latest Year Available: 2015

Temporal Coverage: N/A

Geographical Coverage: National

Geographical Resolution: County-level

Modal Coverage: Multimodal

Data Format: GIS Layers

Licensing Agreement: N/A

Acquisition Cost: Publicly available/Free

Legal Reference: 49 CFR. 111(c)(2).

Contact:
FDOT TRANSTAT
(850) 414-4848

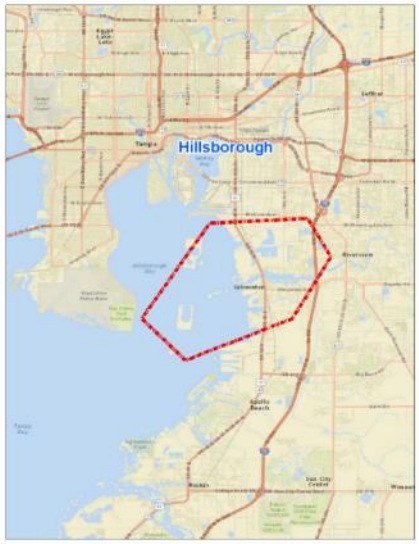
CURRENT APPLICATIONS

- Systems Planning Office
  - Identification of Corridor Conditions and Needs, 2012
  - US 27 Transportation Alternatives Study, 2012
- Safety Office
  - Transportation Issues: Pedestrian Safety, 2003

POTENTIAL APPLICATIONS

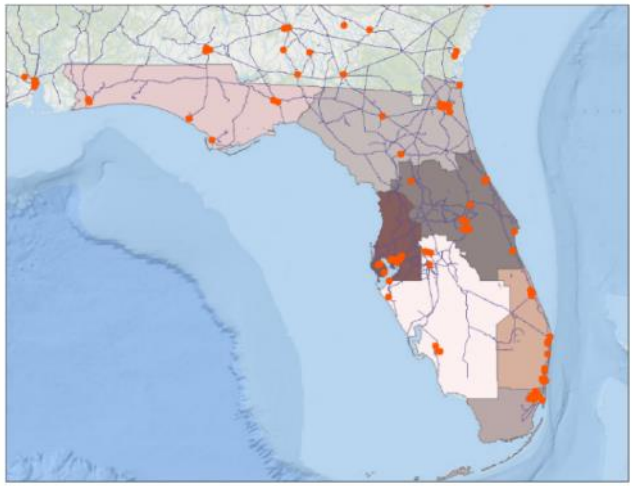
- Congestion Management
- Traffic Operations/Services
- Safety Planning and Analysis
- Freight Mobility Planning
- Modal Shift Analysis
- Environmental Planning
- Emergency Preparedness and Security Planning
- Freight Transportation and Land Use Planning
- Intermodal Trade Corridor Planning
- Roadway Pavement and Bridge Maintenance Planning
- Terminal and Border Access Planning
- Freight Performance Measurements
- Economic Development Planning
- Sustainable Transportation Investment

SO2 Non-Attainment Area in Port Tampa Bay Area, District 7, 2010



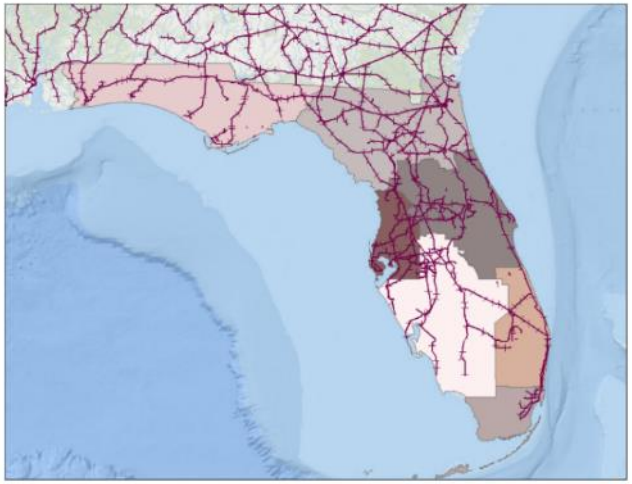
http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_atlas_database/2015/polygon

Florida Intermodal Terminal Facilities, 2015



http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_atlas_database/2015/point

Florida Rail Network, 2015



http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_atlas_database/2015/polyline

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	◐	○	○	◐	○	◐	●	●	●

SUMMARY

The North American TransBorder Freight Database contains freight flow data by commodity type and by mode of transportation including rail, truck, pipeline, air, and vessel for U.S. exports to and imports from Canada and Mexico. The database includes two sets of tables; one is commodity based while the other provides geographic detail. The database provides transportation information on North American trade flows. The information is used to monitor freight flows and changes to these since the enacting of the North American Free Trade Agreement (NAFTA) in 1993. The database is also used for trade corridor studies, transportation infrastructure planning, marketing and logistics plans and other purposes. It allows users to analyze movement of merchandise by all modes.

MORE ABOUT THE DATA:

Developer: Bureau of Transportation Statistics (USDOT)

Update Frequency: Monthly

Latest Year Available: 2015

Temporal Coverage: Annual

Geographical Coverage: National

Geographical Resolution: U.S. exports to and imports from Canada and Mexico

Modal Coverage: Multimodal

Data Format: Tabular, Interactive Maps

Licensing Agreement: N/A

Acquisition Cost: Publicly available/Free

Legal Reference: 49 CFR 111(c)(2).

Contact:

FDOT TRANSTAT

(850) 414-4848

CURRENT APPLICATIONS

- Systems Planning Office
  - Florida Transportation Trends and Conditions, Travel Demand: Trade and Freight Transportation Demand, 2012

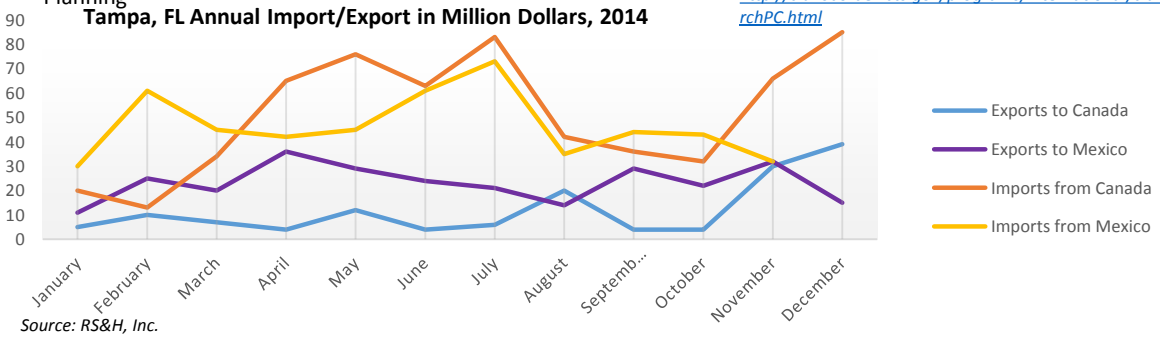
POTENTIAL APPLICATIONS

- Economic Development Planning
- Modal Shift Analysis
- Intermodal Trade Corridor Planning
- Roadway Pavement and Bridge Maintenance Planning
- Terminal and Border Access Planning
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning
- Freight Mobility Planning
- Hazardous Material Planning
- Freight Demand Modeling

Top Five Exporter States to Canada and Mexico for Fertilizers Commodity, 2014

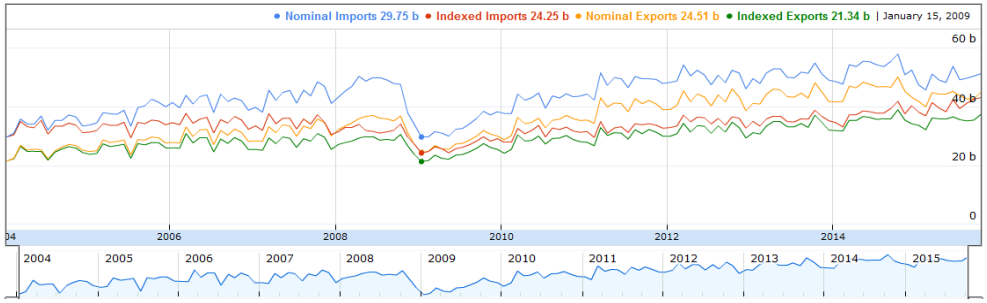
http://transborder.bts.gov/programs/international/transborder/TBDR_QuickSearchPC.html

Tampa, FL Annual Import/Export in Million Dollars, 2014



Source: RS&H, Inc.

Adjusted and Unadjusted Freight Flow Data: U.S.-Canada and U.S.-Mexico by all modes , 2004-2015



http://transborder.bts.gov/programs/international/transborder/index/Index_Interface.html

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	◐	●	○	●	◐	◐	●	●	●

SUMMARY

The CND database provides Motor Carrier Size and Weight System (MCSAW) weigh stations, Department of Agriculture and Consumer Services (DACS) interdiction stations and Florida Highway Patrol – Commercial Vehicle Enforcement (FHP-CVE) with real-time information needed to identify carriers with and out of service status or carriers that have overdue fines. FHP-CVE also uses the system to verify log books during stops. The database system stores commercial vehicle identification, license plate numbers and USDOT numbers for use by FDOT weigh stations and DACS agricultural interdiction stations. Retrieval and display of this data is limited to users authorized by FDOT's Commercial Vehicle Operations (CVO). There are 36 LPR cameras deployed statewide and images/data is retained for 30 days.

MORE ABOUT THE DATA:

Developer: FDOT – MCSAW and Florida DACS

Update Frequency: Daily

Temporal Coverage: Daily-Hourly

Geographical Coverage: Statewide

Geographical Resolution: Roadway

Modal Coverage: Trucks

Data Format: Web format

Licensing Agreement: Need permission

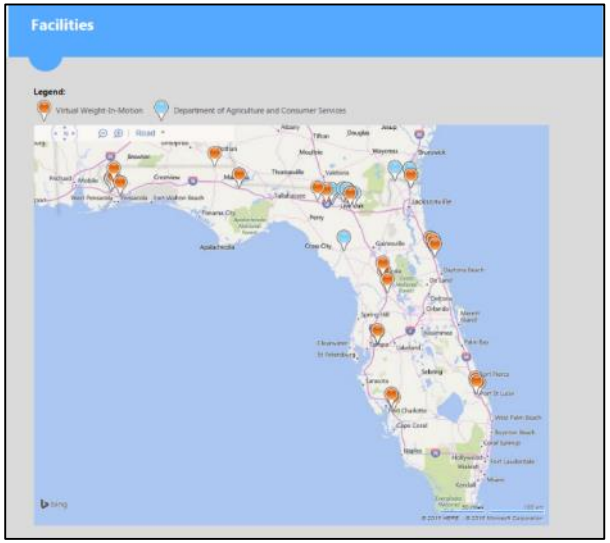
Acquisition Cost: Free

Contact:

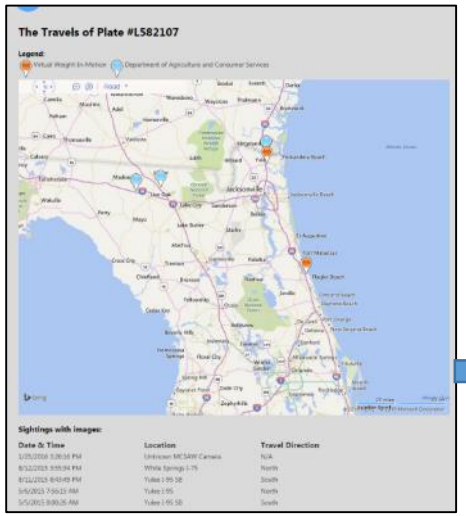
FDOT TRANSTAT
(850)-414-4848

POTENTIAL APPLICATIONS

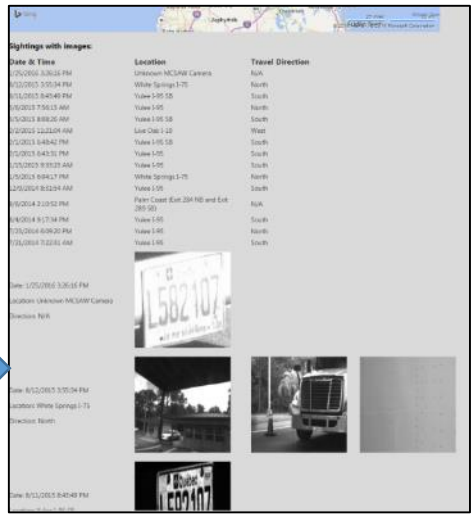
- Database can filtered as per date range, reader stations, violators/non-violators, vehicle information (USDOT Number, Make and Year) and reasons for citation.
- The database will allow users to query container numbers and ancillary data and develop software for tracking the container movements and presenting this data graphically.
- Ancillary data includes location of the container and a time-stamp.
- Potentially will involve links to other databases such as Florida's Electronic Freight Theft Management Systems, to check for stolen cargo activity and aid recovery.
- Real time notifications for a registered investigator or an enforcement officer of specific commercial vehicles.
- This database can be used as an important component to determine origin and destination information of commercial vehicles.
- Future Potential of tracking back haul truck movements



Data Collection/Reader Stations



Travel Characteristics of a Commercial Vehicle



License Plate scans of the Commercial Vehicle

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/ update	Accuracy	Access	Usability
Rating	●	○	○	◐	●	●	●	◐	●

SUMMARY

The CARS database is generated generally by merging crash data from Department of Highway Safety and Motor Vehicles (DHSMV) with roadway information from FDOT. The database contains all the information recorded in the long form crash report. All reported crashes with a fatality, an injury and high property damage that occurred on state roads are included in the database.

MORE ABOUT THE DATA:

Developer: FDOT – Safety Office and Department of Highway Safety and Motor Vehicles (DHSMV)

Update Frequency: Annually

Temporal Coverage: Daily-Hourly

Geographical Coverage: Statewide

Geographical Resolution: Roadway/Point file

Modal Coverage: Auto/Non-auto

Range of Data: 1994-present

Data Format: CSV, Shape files, Oracle SQL Databases

Licensing Agreement: N/A

Acquisition Cost: Free

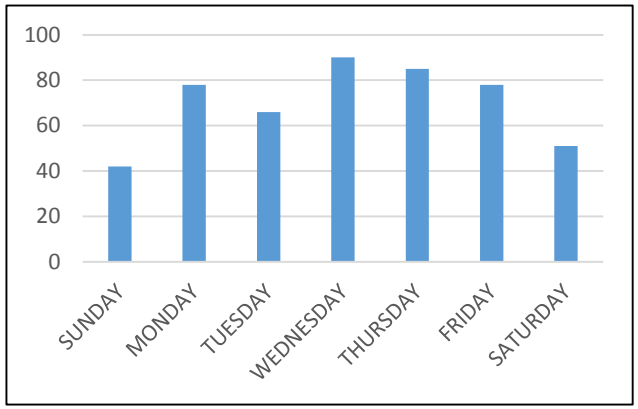
Legal Reference: Florida Senate's statute 316.066

Contact:

FDOT TRANSTAT
850-414-4848

CURRENT USERS/APPLICATIONS

- Florida Department of Transportation
  - Safety Office
  - Office of Policy Planning
  - Design Office
- University
  - Signal Four Analytics
  - Safety Analyst tool
  - Florida's Integrated Report Exchange tool



Fatal Crashes involving Commercial Vehicles (2011-2013)

POTENTIAL APPLICATIONS

- Identification of risky locations
- Engineering countermeasures
- Pavement friction performance analysis
- Sustainability studies
- Analysis for complete street projects
- Infrastructure needs assessment
- Evaluation of safety reduction technologies
- Developing freight and bicycle routes
- Policy actions
- Safety performance measures

Fatal Crashes Involving Commercial Vehicles (2011-2013)

MAJOR ATTRIBUTES IN CARS

For each crash, there are more than 300 variables used to describe the site and time of the crash, the geometric conditions, the traffic control, and drivers/pedestrian's characteristics. The variables can be classified into three major categories, including person, vehicle and crash. For each variable, several code values were assigned to represent different categories of the variable. For example, for the variable "Light", the code value is used to denote "daylight", 02 denotes "dusk", 03 denotes dawn, 04 denotes dark with street light, 05 denotes dark with no street light and 8 denotes unknown.

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/ update	Accuracy	Access	Usability
Rating	●	○	○	◐	●	●	●	◐	●

SUMMARY

An electronic freight theft management system was developed for Florida by the Center for Advanced Transportation Systems Simulation in 2005. The system is a comprehensive online application for the reporting, documentation, inventory, and distribution of information on intermodal freight theft and related occurrences. The system provides law enforcement with the immediate distribution of freight related theft information. The online archived database can assist law enforcement in prioritizing theft investigations and conduct recovery operations by the importance of the stolen cargo. The online application was updated in 2008.

MORE ABOUT THE DATA:

Developer: FDOT Traffic Engineering and Operations Office

Update Frequency: Unknown

Latest Year Available: 2016

Temporal Coverage: Date/Time

Geographical Coverage: Statewide

Geographical Resolution: Roadways

Modal Coverage: Truck

Data Format: Tabular and Spatial

Licensing Agreement: Required

Acquisition Cost: Publicly available/Free

Legal Reference: 49 USC 31106, SAFETEA-LU section 4126

Contact:
FDOT TRANSTAT
(850) 414-4848

CURRENT APPLICATIONS

- Department of Highway Safety and Motor Vehicles
- Traffic Engineering and Operations Office
  - Commercial Vehicle Operations Program
  - Traffic Incident Management
  - Commercial Vehicle Information Systems and Networks

POTENTIAL APPLICATIONS

- Traffic Operations/Services
- Safety Planning and Analysis
- Freight Performance Measures
- Regulation and Enforcement
- Freight Transportation and Land Use Planning

Theft/Recovery Activities, Lee County, 2008

Source: The Enhancement and Upgrade of The EFTMS, University of Central Florida, 2008

Online Tool for Geocoding the Theft/Recovery Location Using the Address or Map

Source: The Enhancement and Upgrade of The EFTMS, University of Central Florida, 2008

Freight Theft GIS Tool

Source: The Enhancement and Upgrade of The EFTMS, University of Central Florida, 2008

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	●	●	○	◐	●	◐	◐	◐	●

FDOT REST AREAS AND SERVICE AREA LOCATIONS - OFFICE OF MAINTENANCE

SUMMARY

Florida Department of Transportation (FDOT) operates 53 rest areas at 35 sites along Florida's interstate highways to provide safe, secure and comfortable rest stops for Florida travelers. Rest areas are generally located about 45 minutes traveling time apart. These rest areas provide restrooms, picnic areas (in most locations), pet walk areas, telephones and vending machines to aid travelers seeking a break from a long drive.

MORE ABOUT THE DATA:

Developer: FDOT – Maintenance Data

Update Frequency: Annually

Temporal Coverage: 2014

Geographical Coverage: Statewide

Geographical Resolution: Point

Modal Coverage: Trucks/Cars

Data Format: GIS, Tabular

Licensing Agreement: N/A

Acquisition Cost: Free

Legal reference: 334.044(2), 337.405, 337.406

Contact:

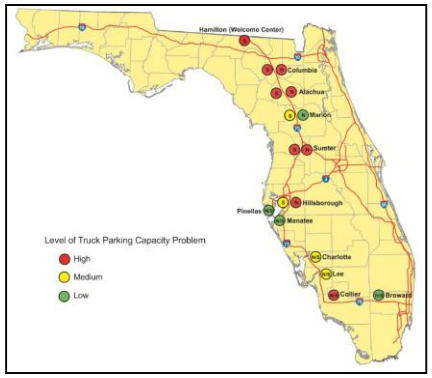
FDOT TRANSTAT
(850)-414-4848

MAJOR ATTRIBUTES

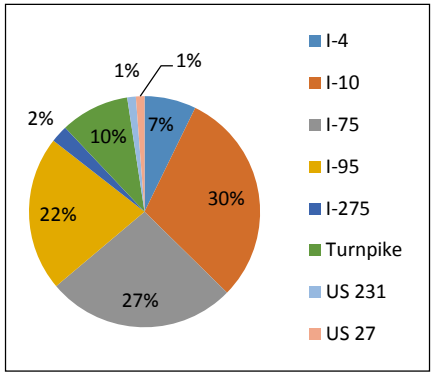
- Florida Department of Transportation
  - Traffic Operations
  - Safety Office
  - TRANSTAT
  - Office of Maintenance
  - Office of Policy and Planning

POTENTIAL APPLICATIONS

- Emergency Response
- Regulatory Management and Compliance
- Smart Growth Planning
- Environmental Planning
- Commercial Vehicle Safety Evaluation
- Parking Studies



I-75 truck capacity parking problem
Source: Commercial Motor Vehicle Parking Trends at Rest Areas and Weight Stations



Percent of facilities on different corridors

CURRENT USERS

Number of facilities:

- **Rest Areas:** 53 Units (2 are closed for remodeling)
- **Service Plazas:** 8 Units
- **Truck Comfort Stations (WIM):** 19 units
- **Welcome Centers:** 4 units

Total number of parking spaces in rest areas, WIMs and welcome centers is 2529 (from Jason's law study)

Additional remarks:

- Welcome Centers are operated by Visit Florida, Inc. (FLAUSA)
- The facilities in our Welcome Centers and Interstate Rest Areas are open and maintained 24 hours a day, 7 days a week

Major Attributes:

- Presence of family restrooms
- Presence of nighttime security
- Interstate information

Rest Areas and Service Area Facility
Source: Office of Maintenance

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/ update	Accuracy	Access	Usability
Rating	●	○	◐	◐	●	●	●	◐	●

SUMMARY

FDOT's Transportation Statistics Office conducts traffic data collection to obtain, compile, and maintain traffic data including volumes, types of vehicles, and the weight of trucks using the state highway network. The office also conducts an Annual Traffic Data Collection program to obtain traffic surveys, process raw counts, and maintain current and historic databases for the State Road System. This program is supplemented with additional counts that are performed as needed for special purposes. FDOT operates over 300 permanent Telemetered Traffic Monitoring Sites (TTMS) and over 12,000 Portable Traffic Monitoring Sites (PTMS). The data collected through these stations are provided via different mediums including, Traffic Data Shapefiles, Florida Transportation Information DVDs, Real-time Traffic Information, and Florida Traffic Online.

MORE ABOUT THE DATA:

Developer: FDOT TRANSTAT Traffic Data Section & GIS Section

Update Frequency: Annually

Latest Year Available: 2015

Temporal Coverage: Annual

Geographical Coverage: Statewide

Geographical Resolution: Roadways

Modal Coverage: Truck

Data Format: Tabular and Spatial

Licensing Agreement: N/A

Acquisition Cost: Publicly available/Free

Legal Reference: 23 CFR 420.105 (b)

Contact: FDOT TRANSTAT
(850) 414-4848

CURRENT APPLICATIONS

- Transportation Statistics Office (TRANSTAT)
  - FDOT Truck Volume Maps, 2015
  - Traffic Demand Forecasting
  - Florida Traffic Online
  - Florida Traffic Information Mobile App (App Store)
  - Freight Performance Metrics Development, 2015
  - Emergency Management Planning and Operations
  - Florida Commercial Vehicle Information Systems and Networks
  - Florida Port of Entry Feasibility Study
  - Traffic Studies

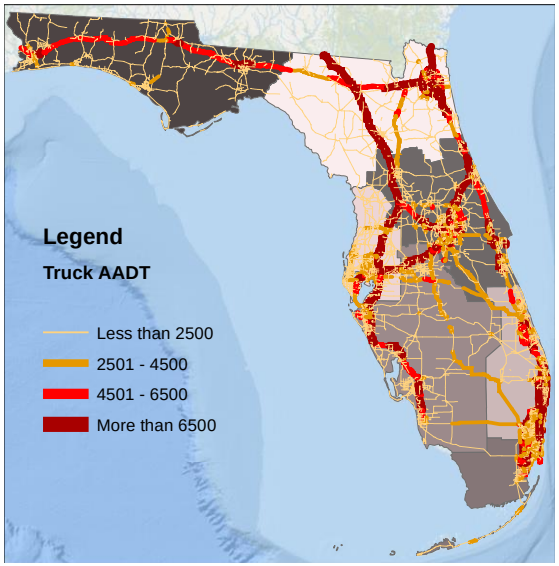
POTENTIAL APPLICATIONS

- Congestion Management
- Traffic Operations/Services
- Freight Performance Measures
- Safety Planning and Analysis
- Environmental Planning
- Roadway Pavement and Bridge Maintenance Planning
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning

Florida Traffic Online Interface, 2014

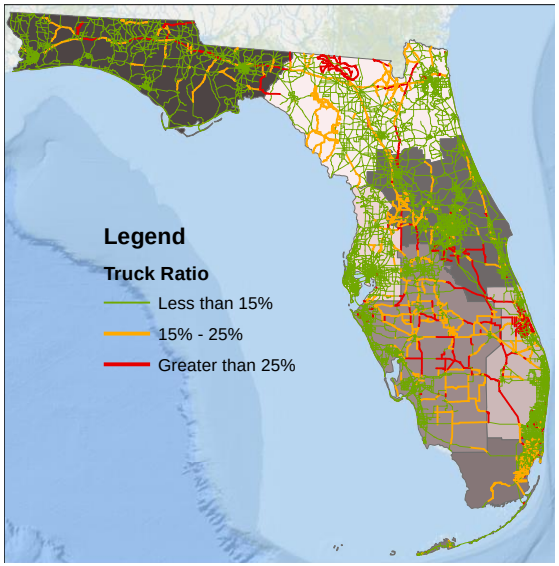
Source: http://www2.dot.state.fl.us/FloridaTrafficOnline/viewer.html

Truck AADT on Florida Highway Network, 2014



Source: RS&H, Inc.

Truck Factor on Florida Highway Network, 2014



Source: RS&H, Inc.

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	●	○	○	◐	◐	◐	●	●	●

SUMMARY

The Motor Carrier Size and Weight program is designed to assist FDOT in providing a safe transportation system by enforcement of commercial vehicle size and weight regulations. The program operates 20 fixed weigh station and several mobile enforcement location with portable scales throughout the state. More than 20 million vehicles are weighted annually at these stations. The primary objective of the program is to reduce the damage from overweight vehicles on Florida's highway system and bridges. The program provides detailed information on weight stations and data collected at each station.

MORE ABOUT THE DATA:

Developer: FDOT Office of Maintenance

Update Frequency: Weekly

Latest Year Available: 2016

Temporal Coverage: 1974-present

Geographical Coverage: Statewide

Geographical Resolution: Roadways

Modal Coverage: Truck

Data Format: Tabular, Spatial

Licensing Agreement: N/A

Acquisition Cost: Publicly available/Free

Legal Reference: 49 USC, Chapter 316 of the Florida Statutes

Contact:

FDOT TRANSTAT
(850) 414-4848

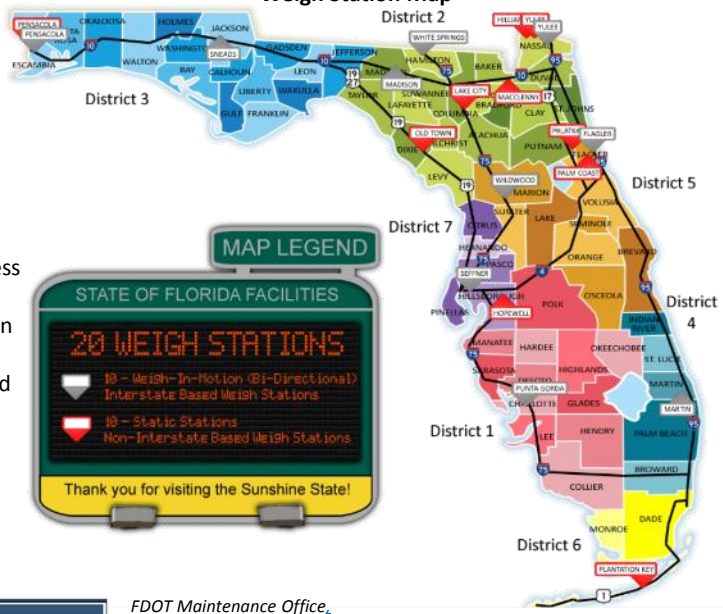
CURRENT APPLICATIONS

- Traffic Engineering and Operations Office
  - Commercial Vehicle Information Systems and Networks
  - Florida Port of Entry Feasibility Study, 2014
- Research Center
  - Commercial Motor Vehicle Parking Trends At Rest Areas And Weigh Stations, 2012

POTENTIAL APPLICATIONS

- Freight Performance Measures
- Traffic Operations/Services
- Safety Planning and Analysis
- Freight Mobility Planning
- Emergency Preparedness and Security Planning
- Hazardous Material Planning
- Terminal and Border Access Planning
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning
- Regulation and Enforcement

Weigh Station Map



FDOT Maintenance Office,
http://www.dot.state.fl.us/statemaintenanceoffice/motorcarrier.shtm

Seffner I-4 Weigh Station (WIM) with Driver Facility

Seffner I-4 Weigh Station (WIM) with Truck Comfort Station

Mile Marker	13 - Hillsborough Co. - D7	**Supervisor**	Staff Directory
Parking Spaces EB	15 Truck, 19 Standard	**Parking Spaces WB**	15 Truck, 19 Standard
Lat./Long. EB	28.015546, -82.265185	**Lat./Long. WB**	28.018564, -82.272593
Phone Number EB	(813) 657-7780	**Phone Number WB**	(813) 651-2143
Address (EB) 1251 Interstate 4, Seffner, Fl. 33584			
Address (WB) 1250 Interstate 4, Seffner, Fl. 33584			

FDOT Maintenance Office,
http://www.dot.state.fl.us/statemaintenanceoffice/motorcarrier.shtm

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	●	○	○	◐	●	●	●	●	●

SUMMARY

The Federal Aviation Administration (FAA) conducts research to ensure efficient and safe commercial and general aviation. FAA also complies information on various datasets including Accident & Incident Reports, Aviation Data & Statistics, Commercial Space Data, Forecast Data, Passenger & Cargo Data, Safety, and Funding & Grant Data. The Passenger & Cargo Data provides information on all cargo airports including location, service level, hub size, and total annual landed weight of cargo. FAA provides archived historical data from 2000 to the present and All-Cargo reporting which includes reports on aircraft operations dedicated to the transport of cargo.

MORE ABOUT THE DATA:

Developer: Federal Aviation Administration
Update Frequency: Annually
Latest Year Available: 2014
Temporal Coverage: Annual
Geographical Coverage: National
Geographical Resolution: Airports
Modal Coverage: Air
Data Format: MS Excel, PDF
Licensing Agreement: N/A
Acquisition Cost: Publicly Available
Legal Reference: 14 USC
Contact:
FDOT TRANSTAT
(850) 414-4848

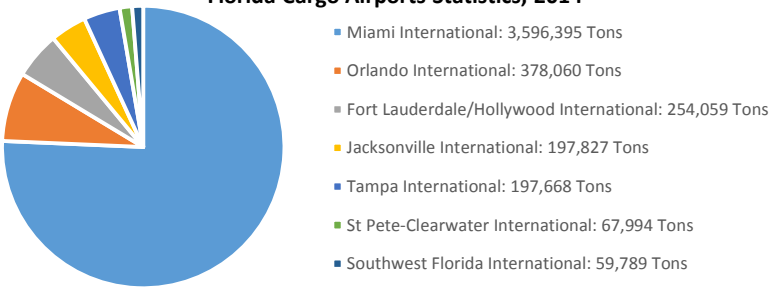
CURRENT APPLICATIONS

- Aviation and Spaceports Office: Projects & Publications

POTENTIAL APPLICATIONS

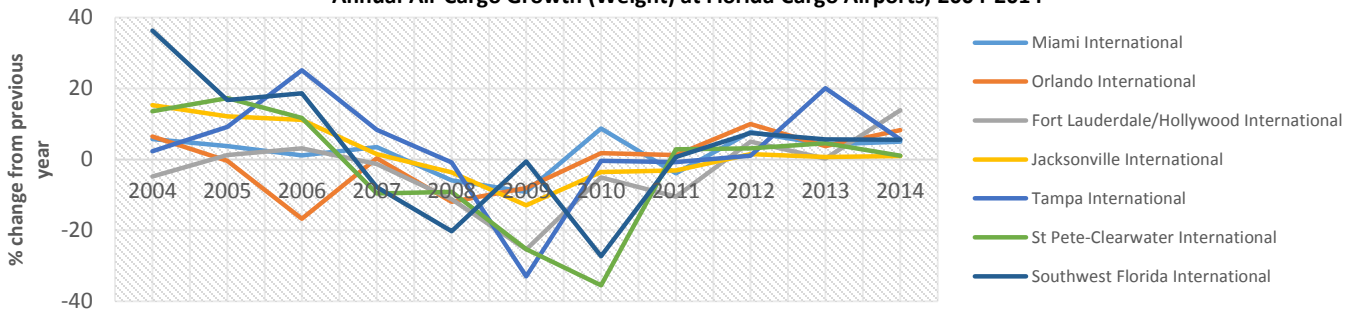
- Freight Performance Measures
- Environmental Planning
- Emergency Preparedness and Security Planning
- Regulation and Enforcement
- Terminal and Border Access Planning
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning

Florida Cargo Airports Statistics, 2014



Source: RS&H, Inc.

Annual Air Cargo Growth (Weight) at Florida Cargo Airports, 2004-2014



Source: RS&H, Inc.

Top 10 US Cargo Airports by Landed Weight, 2014

Rank	ST	Airport Name	City	Service Level	Hub	2014 Landed Weight (lbs.)
1	TN	Memphis International	Memphis	P	M	22,774,592,279
2	AK	Ted Stevens Anchorage International	Anchorage	P	M	15,867,941,046
3	KY	Louisville International-Standiford Field	Louisville	P	S	11,568,369,154
4	IL	Chicago O'Hare International	Chicago	P	L	7,541,411,779
5	FL	Miami International	Miami	P	L	7,192,790,882
6	IN	Indianapolis International	Indianapolis	P	M	5,355,984,715
7	CA	Los Angeles International	Los Angeles	P	L	4,297,359,912
8	KY	Cincinnati/Northern Kentucky International	Greater Cincinnati International Airport	P	M	3,644,404,568
9	NY	John F Kennedy International	New York	P	L	3,170,996,874
10	TX	Dallas/Fort Worth International	Fort Worth	P	L	3,140,733,270

Source: RS&H, Inc.

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	◐	○	○	◐	◐	◐	●	●	●

SUMMARY

Flightaware offers flight tracking data for both private and commercial air traffic, airport status for air travelers, as well as other Automatic Dependent Surveillance – Broadcast (ADS–B) related data and statistics. It combines over 100 real-time worldwide data and integrates them with the web-based interface to provide its flight tracking application. The data include ADS-B Flight Position Data Feed, Fixed Base Operator (FBO) Database, FBO Fuel Prices Data, Airport Database, Air Operations/Airline Database, and METAR (weather information) Reports.

MORE ABOUT THE DATA:

Developer: Flightaware

Update Frequency: Real time data

Latest Year Available: 2016

Temporal Coverage: Real time data

Geographical Coverage: Worldwide

Geographical Resolution: Airports, Aircrafts

Modal Coverage: Air

Data Format: CSV, XML, JSON, TSV

Licensing Agreement: Required

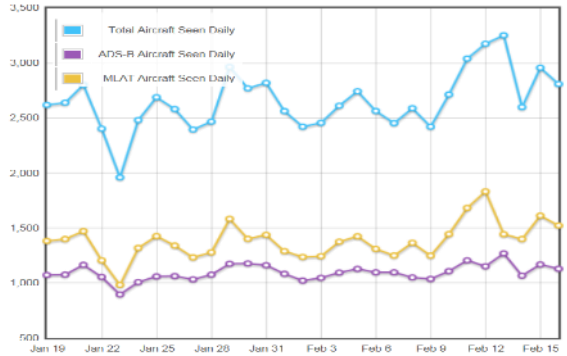
Acquisition Cost: Variable

Contact:
FDOT TRANSTAT
(850) 414-4848

POTENTIAL APPLICATIONS

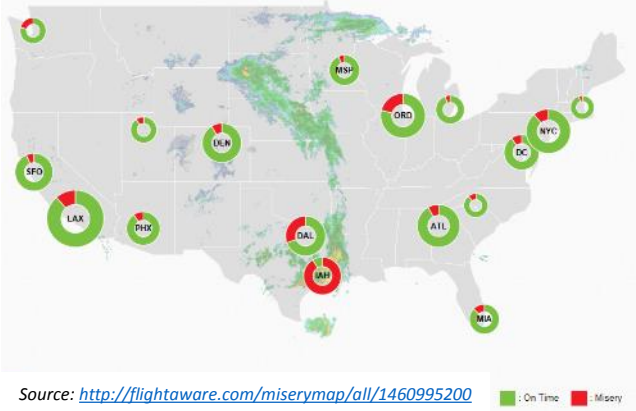
- Freight Performance Measures
- Safety Planning and Analysis
- Regulation and Enforcement
- Terminal and Border Access Planning
- Multimodal Freight Modeling
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning

Distribution of Daily Aircraft Seen in Orlando Intl. Airport, 2016



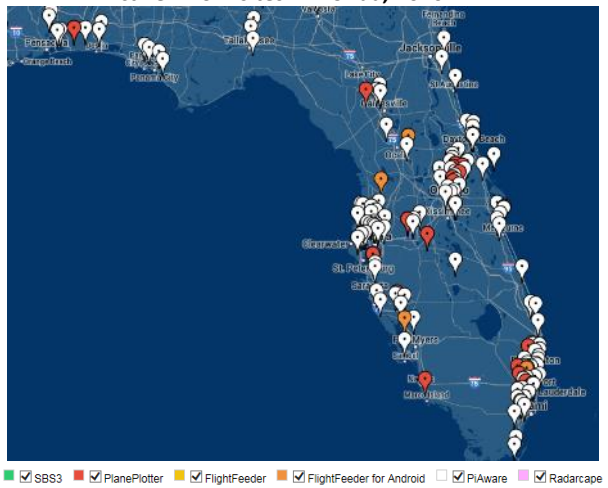
Source: http://flightaware.com/adsb/stats/

Misery Map (Delayed Flights in Major Airports), April 17th 2016



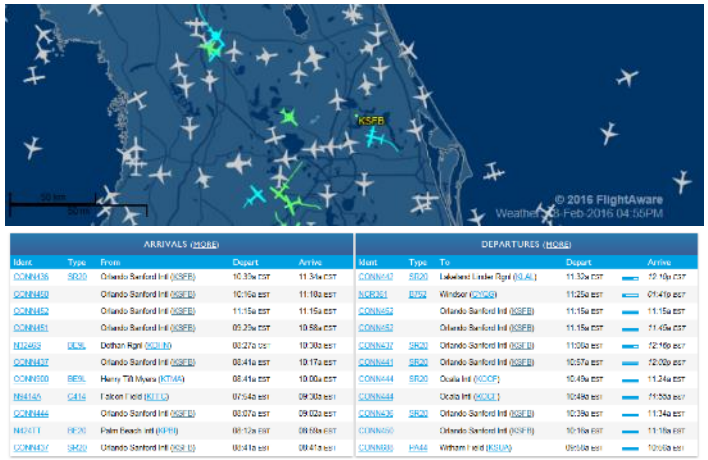
Source: http://flightaware.com/miserymap/all/1460995200

Active ADS-B sites in Florida, 2016



Source: http://flightaware.com/adsb/coverage

Snapshot of Arrival and Departure Flights in Orlando-Sanford Intl. Airport, 2016



Source: http://flightaware.com/adsb/stats/

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	●	○	○	◐	●	◐	●	◐	◐

SUMMARY

Florida Department of Heath tracks GIS public establishment locations and health business data. The website hosts two web base visualization tools incorporating Florida DOH data and demographic data provided by Florida Legislature's Office of Economic and Demographic Research (EDR).

MORE ABOUT THE DATA:

Developer: Florida Department of Health
Update Frequency: Annually
Temporal Coverage: Annual
Geographical Coverage: State
Geographical Resolution: Variable
Modal Coverage: N/A
Data Range: Unknown
Data Format: Shape file, pdf copies, html
Licensing Agreement: N/A
Acquisition Cost: Free
Contact:
FDOT TRANSTAT
(850)-414-4848

CURRENT APPLICATIONS

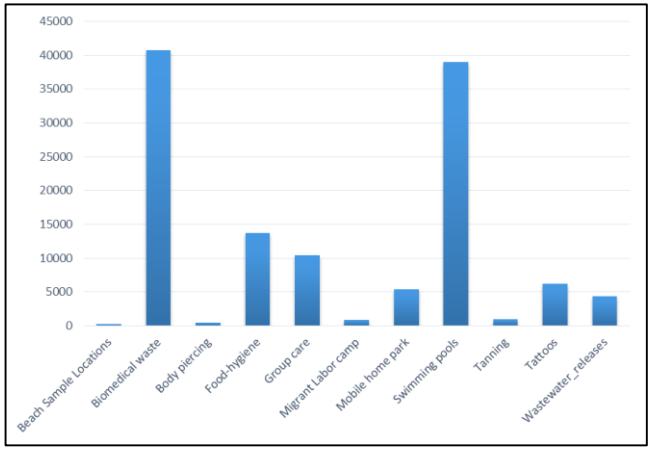
- Florida Department of Health
  - Florida MAPP is a community-wide strategic planning process for improving community health and local public health systems.
  - Vital Statistics Annual and Provisional Reports
  - Florida Health Impact Report

POTENTIAL APPLICATIONS

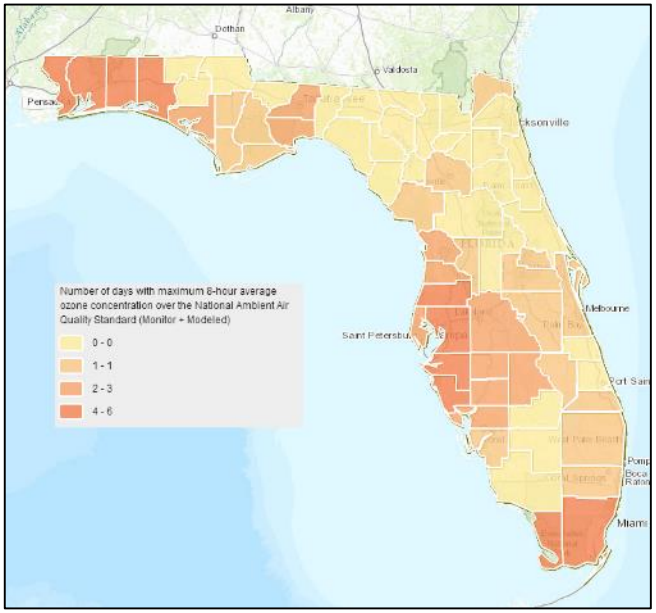
- Freight Planning and Applications
- Air Quality Standards
- Emergency Evacuation models
- Community Health Impacts
- Temporal trends

DIFFERENT RELEVANT DATASETS

- Environmental GIS Health provides establishment data. It has attribute information which includes county, location, company details, program types and owner details
- Distributors and Wholesaler list by product type through Florida Department of Health, WIC program
- Number of Health providers, facilities for every county for a year (Available years – 2003 to 2014)
- Florida Chart web based visualization tool is a community health assessment resource tool set which provides county level socio-economic and demographic characteristics.
- Florida Environmental Public Health tracking is a visualization tool which provides county level information about air quality, built environment, housing and population



Number of Establishments (Specific types) in State of Florida



Visualization map for Florida Environmental Public Health Tracking tool: Air Quality Data

FLORIDA DEPARTMENT OF REVENUE TAX PARCEL DATA (DOR)

SUMMARY

The DOR dataset contains parcel boundaries and associated tax information from the Florida Department of Revenue's tax database. The main purpose of parcel maps and data is tax assessment. The Property Appraiser's office assigns a market value to each property once per year based on recent sales of similar properties. Property taxes for each parcel are then levied based on market value, exemptions, and millage rates defined by local governments. Total number of parcels assessed in Florida during 2015 are 11,335,100

MORE ABOUT THE DATA:

Developer: Florida Department of Revenue

Update Frequency: Bi-Annually (twice in year; July and October)

Temporal Coverage: Annual

Range of Data: 2011-present (Tax data collected since 1976 but not available in GIS/parcel format)

Geographical Coverage: State

Geographical Resolution: Parcel level

Data Format: Tabular CSV, GIS Shapefiles

Licensing Agreement: N/A

Acquisition Cost: Free

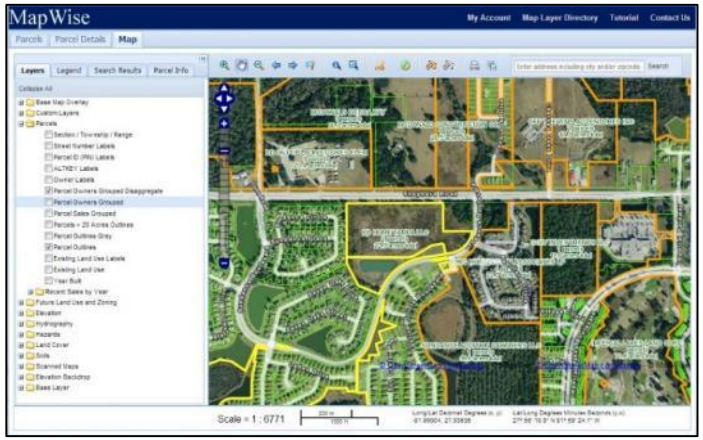
Contact:

FDOT TRANSTAT

(850)-414-4848

CURRENT APPLICATIONS

- FDOT Office of Systems Planning
  - Florida statewide model
  - Warehouses/Distribution Centers Inventory List
- FDOT – District 7
  - Tampa Bay Regional Goods Movement Study Website: Comprehensive Freight Improvement Database (CFID) Map Viewer



MapWise: Online GIS Application for Florida's parcel data

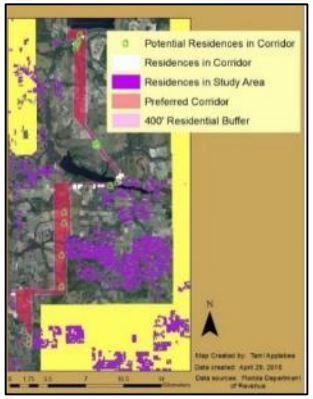
POTENTIAL APPLICATIONS

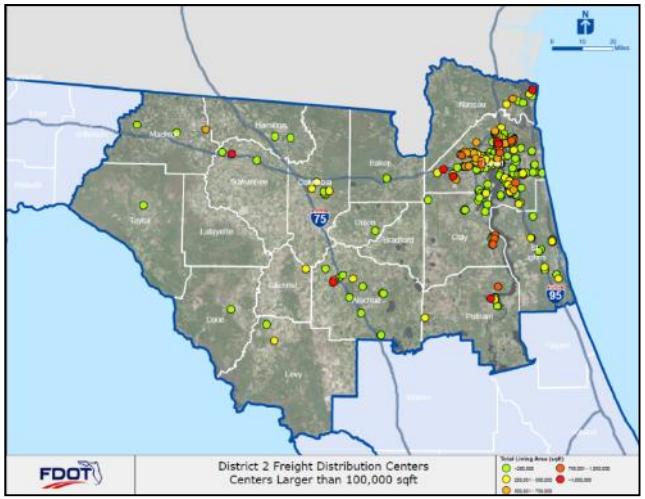
- Economic Development Planning
- Land use Travel Demand Models
- Developing Freight Facilities list
- Economic Impact Studies
- Analyze real estate sales
- Find vacant land for development
- Perform due diligence on properties
- Generate mailing lists that target specific geographic areas
- Freight Transportation & Land Use Planning

MAJOR ATTRIBUTES

- Land use type of property (100 categories)
- Property Market Value
- Land Value
- Square footage of site
- Construction Class
- Effective year built
- First year of primary structure built
- Total Living or usable area
- Number of buildings
- Official record book number of sale
- Sale price
- Owner details
- Fiduciary details

Example application: Identification of residential parcels with DOR data, aerial imagery and county zoning analysis.





District 2 Freight Distribution Centers obtained from 2015 DOR's parcel data

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/ update	Accuracy	Access	Usability
Rating	●	○	●	○	●	●	●	●	●

SUMMARY

Florida's FreightSIM is a travel demand model component integrated into the Florida Statewide Model (FLSWM). It simulates the transport of freight between supplier and buyer business in United States, focusing on movements that involve Florida. FreightSIM produces a list of commodity shipments by mode and converts those to daily vehicle trip tables.

MORE ABOUT THE DATA

Developer: Traffic Modeling Section – Transportation Statistics Office

Update Frequency: 5 years (Approx.)

Temporal Coverage:

- Yearly – Shipments
- Daily – Truck traffic

Geographical Coverage: World (mainly Florida)

Geographical Resolution:

- Traffic Analysis Zone (TAZ) for Florida, Alabama and Georgia
- FAF zones for rest of the country and world

Modal Coverage: Water, Air, Trucks, Rail

Data Range: 2010 (Forecast year:2040)

Data Format: CSV, Access database, Cube outputs and GIS shapefiles

Licensing Agreement: N/A

Acquisition Cost: Free

Contact:

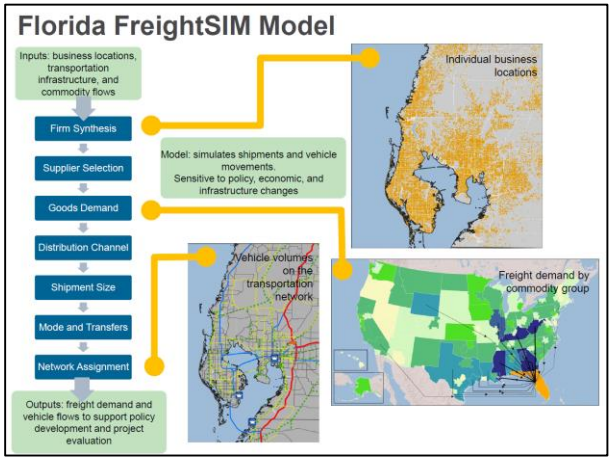
FDOT TRANSTAT
(850)-414-4848

POTENTIAL APPLICATIONS

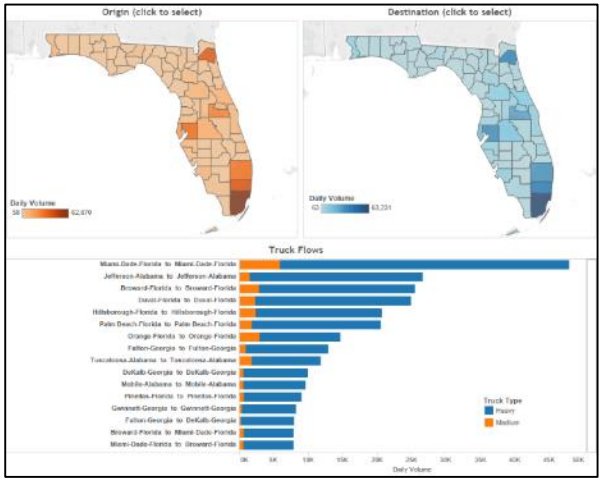
- Infrastructure investment decisions in Strategic Intermodal System (SIS)
- Congestion Management
- Policy effectiveness on mobility and economy
- Performance Metrics and Outreach
- Private Sector Decisions
- Regional Projects
- Environmental emissions applications

DESCRIPTION OF DATA

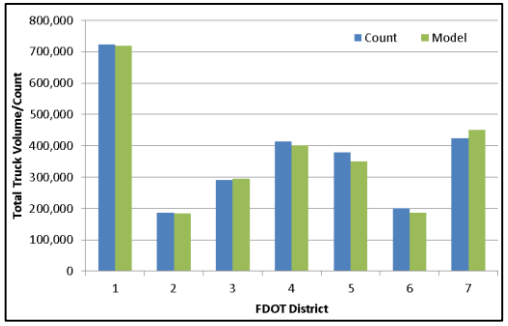
- FreightSIM produces numerous outputs (datasets) describing freight performance:
  - Domestic and international (import/export) shipment movements by mode (road, rail, water, air) with truck based shipments converted to truck trips.
  - Commodity and truck (heavy and medium trucks) zone to zone trip tables
  - Loaded road transportation networks with truck traffic on different network links.



Florida FreightSIM Model Framework



Origin-Destination Truck Trip Table (2010)



FreightSIM (2010) Truck Volume VS. Traffic count by FDOT District

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/ update	Accuracy	Access	Usability
Rating	●	●	●	●	◐	◐	◐	●	●

SUMMARY

The Strategic Intermodal System (SIS) is Florida's network of transportation facilities important to the state's economy. The SIS facilities includes commercial service airports, spaceports, seaports, intermodal freight rail terminals, passenger rail terminals, state highway system, active rail lines and intracoastal and inland waterways. The Systems Planning Office implements SIS through the development of the SIS Needs, Cost Feasible, and Ten Year Project Plans and Work Program. It also provides policies, procedures, tools, training and technical assistance. The TRANSTAT provides freight and modal data and GIS shapefiles of SIS network to be used in the SIS planning process. The office also provides data that supports interactive online mapping tools such as the SIS Project Management tool and eSIS.

MORE ABOUT THE DATA:

Developer: FDOT TRANSTAT & Systems Planning Office

Update Frequency: Variable

Latest Year Available: 2015

Temporal Coverage: Annual

Geographical Coverage: Statewide

Geographical Resolution: SIS facilities

Modal Coverage: Multimodal

Data Format: Shapefile (ESRI), SIS Maps

Licensing Agreement: N/A

Acquisition Cost: Publicly available/Free

Contact:

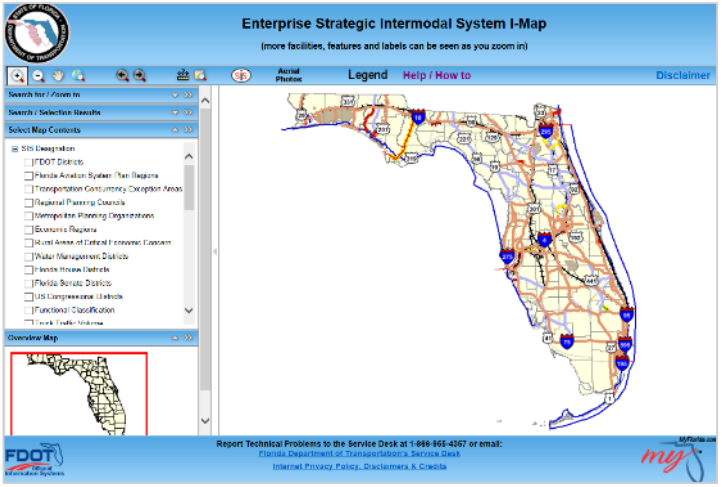
FDOT Systems Planning Office
(850) 414-4900

FDOT TRANSTAT
(850) 414-4848

CURRENT APPLICATIONS

- Office of Policy Planning
  - Strategic Intermodal System Policy Plan, 2016
- Transportation Statistics Office
  - Ready-to-use SIS Maps
- Other SIS Projects
  - Northwest Florida Beaches International Airport
  - JAXPORT Intermodal Container Transfer Facility
  - SunRail
  - I-4/Selmon Expressway connector
  - I-95 Corridor Mobility Planning Project
- Tools and Resources (SIS Plan)
  - SIS PM Tool
  - eSIS I-Map
  - SIS Atlas
  - SIS at 10 – Performance Highlights
  - SIS Funding Eligibility Guide
  - SIS Adopted 5-year Plan

eSIS (Enterprise Strategic Intermodal System) I-Map Interface*

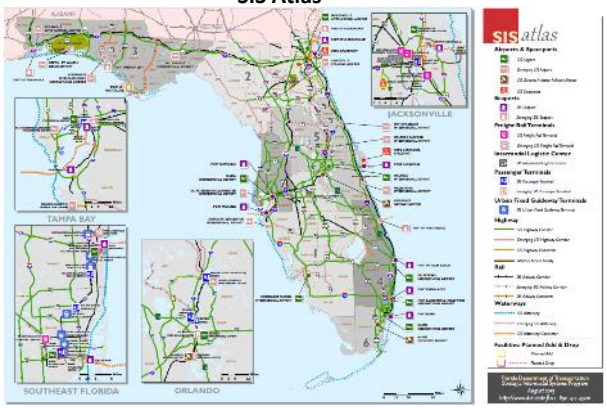


*NOTE: * Site is internal to FDOT business, please contact TRANSTAT for more information.*

POTENTIAL APPLICATIONS

- Congestion Management
- Traffic Operations/Services
- Safety Planning and Analysis
- Environmental Planning
- Roadway Pavement and Bridge Maintenance Planning
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning
- Emergency Preparedness and Security Planning

SIS Atlas



Source: FDOT , Strategic Intermodal System, 2015

Transportation Activity Level on SIS

Source: FDOT , Strategic Intermodal System Policy Plan, FTP-SIS, 2016

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	●	○	○	◐	○	◐	●	●	●

SUMMARY

FAF data include annual commodity flows (quantity, dollar volume, and ton-mile) between FAF origin and destination zones by commodity type for truck, rail, airline, pipeline, ship and multi-modal modes. FAF integrates data from a variety of sources and uses a complex modeling approach to create a comprehensive picture of freight movements among states and major metropolitan areas. The Commodity Flow Survey is one of the major data sources used in FAF. The latest version, FAF4, was developed for the base year of 2012 and includes forecasts of commodity flows and network assignment results.

MORE ABOUT THE DATA:

Developer: Federal Highway Administration

Update Frequency: Every 5 years

Latest Year Available: 2012

Temporal Coverage: Annual

Geographical Coverage: National & International

Geographical Resolution: 123 domestic FAF zones - 8 international FAF zones

Modal Coverage: Multimodal (incl. pipeline)

Data Format: Microsoft Access Database ESRI/TransCAD Network Data

Licensing Agreement: N/A

Acquisition Cost: Publicly available/Free

Legal Reference: 23 USC

Contact:
FDOT TRANSTAT
(850) 414-4848

CURRENT APPLICATIONS

- Transportation Statistics Office
  - Florida Statewide Freight Model (FreightSIM), 2015
  - I-75 Sketch Interstate Plan, Freight Mobility, 2010
  - Multimodal Mobility Performance Measures Source Book, 2015
- Freight, Passenger, and Logistics Office
  - Freight Trade and Mobility Plan, 2013
- Office of Policy Planning
  - Impact Of Transportation: Transportation and the Economy, 2015
  - Travel Demand: Trade and Freight Transportation, 2012
  - Florida Transportation Trends and Conditions

Average Daily Long-Haul Truck Traffic on the NHS 2011

Source: FHWA, Freight Facts and Figures 2013

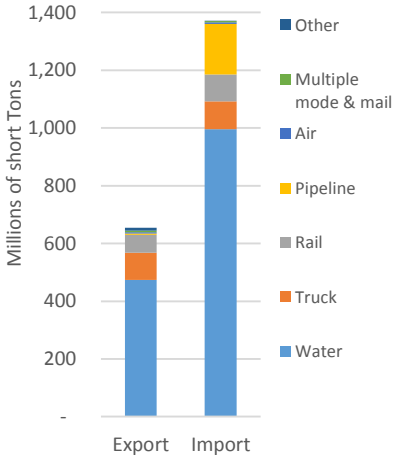
POTENTIAL APPLICATIONS

- Congestion Management
- Traffic Operations/Services
- Safety Planning and Analysis
- Modal Shift Analysis
- Environmental Planning
- Emergency Preparedness and Security Planning
- Roadway Pavement and Bridge Maintenance Planning
- Terminal and Border Access Planning
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning
- Intermodal Trade Corridor Planning

Combination Truck Tonnage on Florida Highway System

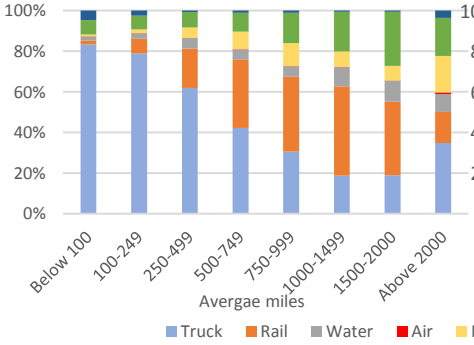
Source: FDOT Multimodal Mobility Performance Measures Source Book, 2015

International Trade 2011

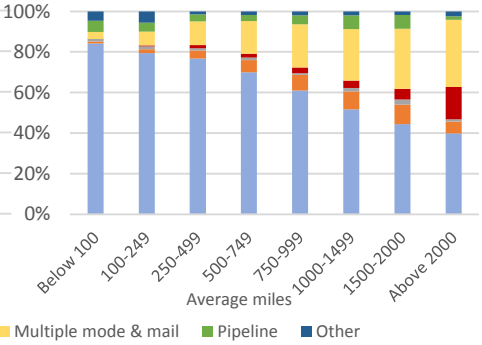


Source: RS&H, Inc.

Modal Split of Freight Tonnage by Distance



Modal Split of Freight Value by Distance



Source: RS&H, Inc.

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	◐	●	○	●	◐	◐	◐	●	●

SUMMARY

The HPMS is a national level highway information system that includes data on the extent, condition, performance, use and operating characteristics of the nation's highways. The HPMS contains system information on all public roads, and information on characteristics of arterial and collector functional systems. Limited information on travel and paved miles for the lowest functional systems is also provided in the data. The major purpose of the HPMS is to support a data driven decision process within FHWA, the DOT, and the U.S. Congress. The data are used extensively in the analysis of highway system condition, performance, and investment needs.

MORE ABOUT THE DATA:

Developer: Office of Highway Policy Information (FHWA)

Update Frequency: Annually

Latest Year Available: 2013

Temporal Coverage: Annual

Geographical Coverage: National

Geographical Resolution: State

Modal Coverage: Road

Data Format: Tabular, Maps

Licensing Agreement: N/A

Acquisition Cost: Publicly available/Free

Legal Reference: 49 CFR. 111(c)(2).

Contact:
FDOT TRANSTAT
(850) 414-4848

CURRENT APPLICATIONS

- Transportation Statistics Office
  - Highway Performance Monitoring System Video Training
  - Development of Road Characteristics Inventory (RCI)

POTENTIAL APPLICATIONS

- Congestion Management
- Traffic Operations/Services
- Safety Planning and Analysis
- Modal Shift Analysis
- Environmental Planning
- Emergency Preparedness and Security Planning
- Intermodal Trade Corridor Planning
- Roadway Pavement and Bridge Maintenance Planning
- Terminal and Border Access Planning
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning

Florida Vehicle Miles Traveled by Functional System Class, 2013

Vehicle Miles Traveled by Functional System (Millions- VM-2)		Distribution	% of National
Interstate	35,398	18.4%	4.8%
Other Freeways/Expressways	13,651	7.1%	1.8%
Other Principal Arterial	46,378	24.1%	7.1%
Minor Arterial	30,734	15.9%	5.9%
Major Collector	22,084	11.5%	3.4%
Minor Collector	1,572	0.8%	2.7%
Local	42,885	22.3%	10.4%
Total	**192,702**	**100.0%**	**6.4%**

http://www.fhwa.dot.gov/policyinformation/statistics/abstracts/2013/state.cfm?loc=fl

Florida Functional System Lane Length, 2013

Functional System Lane Length (HM-60)		Distribution	% of National
Interstate	7,964	2.9%	3.6%
Other Freeways/Expressways	3,537	1.3%	4.8%
Other Principal Arterials	23,741	8.8%	5.0%
Minor Arterial	19,016	7.0%	3.4%
Major Collector	25,292	9.3%	2.3%
Minor Collector	6,591	2.4%	1.2%
Local	184,883	68.2%	3.2%
Total	**271,024**	**100.0%**	**3.1%**

http://www.fhwa.dot.gov/policyinformation/statistics/abstracts/2013/state.cfm?loc=fl

Florida Primary Highway Freight System, 2015

http://ops.fhwa.dot.gov/freight/infrastructure/ismt/state_maps/states/florida.htm

Florida Vehicle Registration Distribution, 2013

Vehicle Registrations - (MV-1)		Distribution	% of National
Autos	7,425,492	49.07%	6.53%
Buses	58,744	0.39%	6.79%
Trucks	7,102,047	46.93%	5.34%
Total	**14,586,283**		
Motorcycles	545,452	3.60%	6.49%
Grand Total	**15,131,735**	**100.00%**	**5.91%**

http://www.fhwa.dot.gov/policyinformation/statistics/abstracts/2013/state.cfm?loc=fl

SUMMARY

Jason's Law directed the U.S. Department of Transportation (DOT) to conduct a survey and a comparative assessment to:

1. Evaluate the capability of each State to provide adequate parking and rest facilities for commercial motor vehicles engaged in interstate transportation;
2. Assess the volume of commercial motor vehicle traffic in each State; and,
3. Develop a system of metrics to measure the adequacy of commercial motor vehicle parking facilities in each State.

MORE ABOUT THE DATA:

Developer: USDOT – Federal Highway Administration (FHWA)

Update Frequency: N/A

Temporal Coverage: 2015

Geographical Coverage: Nationwide

Geographical Resolution: Point

Modal Coverage: Truck

Data Format: GIS, Tabular

Licensing Agreement: N/A

Acquisition Cost: Free

Legal reference: MAP-21; P.L. 112-141

Contact:

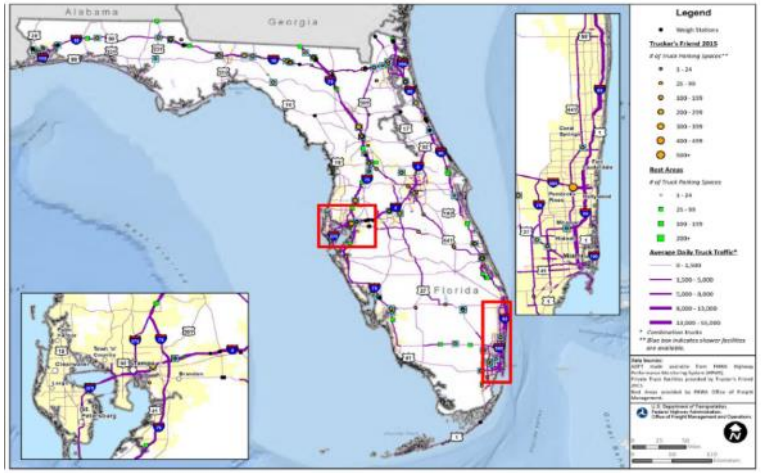
FDOT TRANSTAT
(850)-414-4848

POTENTIAL APPLICATIONS

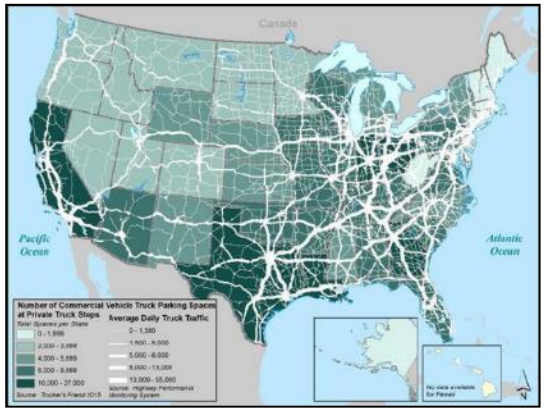
- Emergency Response
- Regulatory Management and Compliance
- Smart Growth Planning
- Environmental Planning
- Critical Infrastructure Protection Assessment

MAJOR ATTRIBUTES

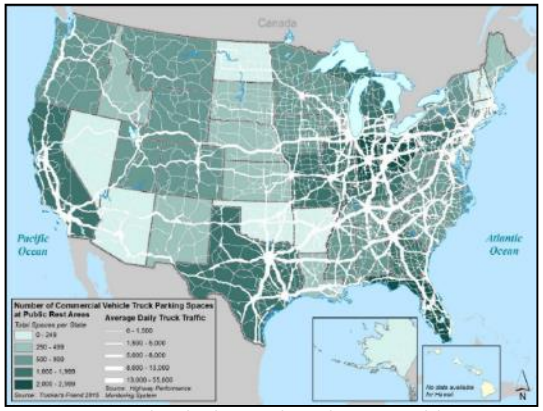
- Private parking facilities were acquired from 2015 Trucker's Friends directory.
- Public parking facilities were obtained from state DOTs and NATSO provided Service plazas information.



Truck Parking Locations (2015)
Source: Jason's Law Truck Parking Survey Results and Comparative Analysis



Commercial Vehicle Truck Parking at Private Truck Stops
Source: Jason's Law Truck Parking Survey Results and Comparative Analysis



Commercial Vehicle Truck Parking at Public Rest Areas
Source: Jason's Law Truck Parking Survey Results and Comparative Analysis

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/ update	Accuracy	Access	Usability
Rating	●	○	◐	◐	●	●	●	◐	●

SUMMARY

FDOT's Transportation Statistics Office publishes two Source Books: the Multimodal Mobility Performance Measures Source Book and a companion General Interest Highway Statistics Source Book that includes data on public roads. The Multimodal Mobility Performance Measures Source Book, is a compilation of current and historical transportation related data and analyses describing the performance of Florida's transportation system in moving people and freight. It is intended to be the primary source of mobility performance measure results for the State of Florida. The data represents the State Highway System (SHS) including the Strategic Intermodal System (SIS) facilities and provides data for all modes of travel.

MORE ABOUT THE DATA:

Developer: FDOT TRANSTAT

Update Frequency: Annually

Latest Year Available: 2015

Temporal Coverage: Annual

Geographical Coverage: SHS

Geographical Resolution: Roadways

Modal Coverage: Multimodal

Data Format: MS Excel

Licensing Agreement: N/A

Acquisition Cost: Publicly available/Free

Legal Reference: 23 CFR 420.105 (b)

Contact:

FDOT TRANSTAT
Performance Measure Section
(850) 414-4848

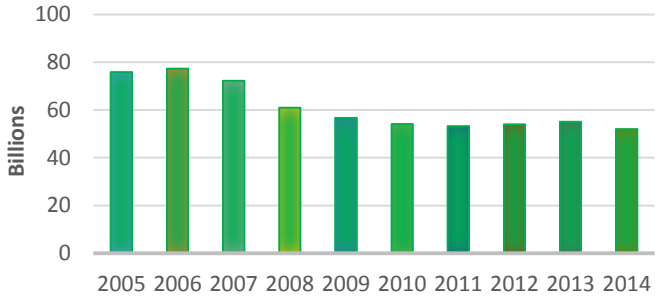
CURRENT APPLICATIONS

- FDOT Performance Reports
- Freight Mobility and Trade Plan, 2013

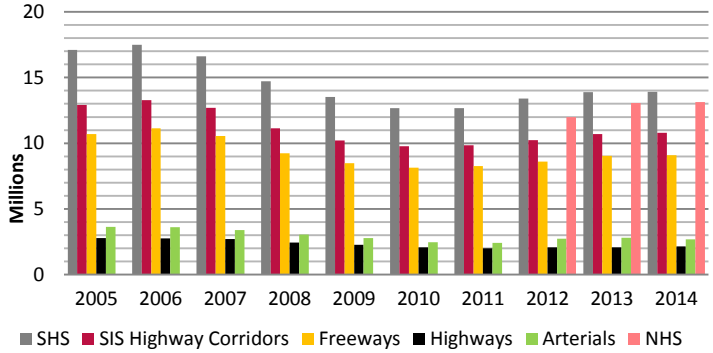
POTENTIAL APPLICATIONS

- Congestion Management
- Traffic Operations/Services
- Freight Performance Measures
- Safety Planning and Analysis
- Environmental Planning
- Emergency Preparedness and Security Planning
- Roadway Pavement and Bridge Maintenance Planning
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning
- Freight Mobility Planning

Combination Truck Ton Miles Traveled*



Combination Truck Miles Traveled By Facility Type*



** Source: FDOT Multimodal Mobility Performance Measure Source Book, 2015*

SHS Stats By Geographical District, 2014*

Population & Land Area

District	Population*	Land Area**	People / Square Mile
1	2,757,100	11,579	238
2	2,014,400	11,797	171
3	1,407,100	11,263	125
4	3,736,500	4,798	779
5	3,874,400	8,212	472
6	2,687,700	2,881	933
7	3,030,300	3,095	979
Florida Total	19,507,500	53,625	364

**April 2014 estimate, from FDOT Office of Policy Planning*
***Square miles, from Florida Statistical Abstract 2010, (http://www.bebr.ufl.edu/ecodb/localities/617/county)*

Centerline Miles (CLM)*

District	SHS CLM	CLM per Million People	CLM per 1000 Sq. Miles
1	1,870.6	678	162
2	2,555.5	1,269	217
3	2,408.5	1,712	214
4	1,377.3	369	287
5	2,124.0	548	259
6	700.1	260	243
7	1,079.9	356	349
Florida Total	12,115.9	621	226

**2014State Highway System Mileage Report*

Lane Miles (LM)*

District	SHS LM	LM per Million People	LM per 1000 Sq. Miles
1	6,309.7	2,289	545
2	8,239.3	4,090	698
3	6,748.5	4,796	599
4	6,433.5	1,722	1,341
5	8,314.1	2,146	1,012
6	3,009.2	1,120	1,044
7	4,538.2	1,498	1,466
Florida Total	43,592.5	2,235	813

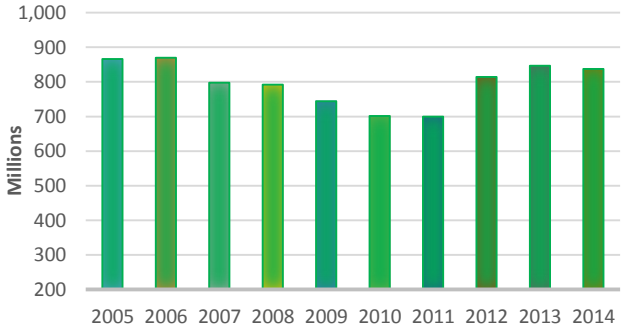
**2014State Highway System Mileage Report*

Daily Vehicle Miles Traveled (DVMT), Thousands*

District	SHS DVMT	DVMT/CLM	DVMT/LM
1	37,721.2	20.2	6.0
2	42,459.7	16.6	5.2
3	27,203.8	11.3	4.0
4	56,409.0	41.0	8.8
5	60,777.5	28.6	7.3
6	32,895.2	47.0	10.9
7	38,796.7	35.9	8.5
Florida Total	296,263.1	24.5	6.8

**2014 State Highway System Mileage Report*

Combination Truck Tonnage*



Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	●	○	○	●	◐	◐	◐	●	●

SUMMARY

NPRMDS provides vehicle probe-based travel time data for passenger autos and trucks. The data is made up of HERE and ATRI databases. The real-time probe data are collected from a variety of sources including mobile devices, connected autos, portable navigation devices, commercial fleet and sensors. NPMRDS includes historical average travel times in 5 minutes increments on daily basis covering the National Highway System (NHS). The data is provided in two parts. The first part is a Traffic Message Channel (TMC) static file that contains TMC information that does not change frequently. The second part includes travel times and identifies roadways geo-referenced to TMC location codes. The two datasets need to be joined in GIS-based software to provide the full picture.

MORE ABOUT THE DATA:

Developer: HERE Traffic

Update Frequency: Annually, with monthly release

Latest Year Available: 2016

Temporal Coverage: Daily Speed Info with 5 minutes increments

Geographical Coverage: NHS

Geographical Resolution: States/Region

Modal Coverage: Truck and car

Data Format: CSV & ArcGIS shapefiles

Licensing Agreement: Required

Acquisition Cost: Free for DOTs & MPOs

Legal Reference: 49 CFR 111(c)(2).

Contact:

FDOT TRANSTAT

(850) 414-4848

CURRENT APPLICATIONS

- Transportation Statistics Office
  - Express Lanes Reliability Measures, 2014
  - Data for Florida's Mobility Performance Measures, 2015
- Turnpike
  - Performance Scorecard

POTENTIAL APPLICATIONS

- Congestion Management
- Traffic Operations/Services
- Safety Planning and Analysis
- Environmental Planning
- Economic Development Planning
- Roadway Pavement and Bridge Maintenance Planning
- Terminal and Border Access Planning
- Sustainable Transportation Investment
- Emergency Preparedness and Security Planning

Sample NPMRDS Data

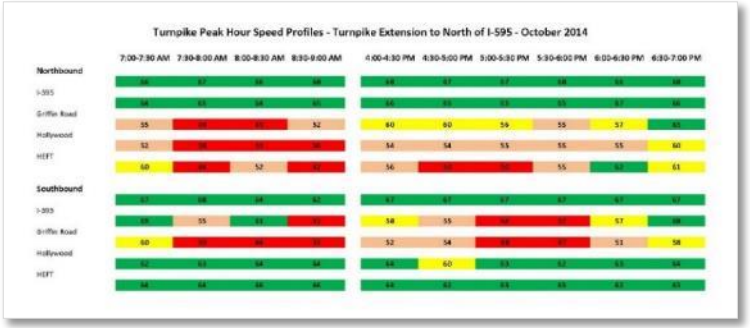
TMC	Date	Epoch	Travel time All vehicles	Travel time Passenger vehicles	Travel time Freight trucks
118N04174	11132013	180	113	115	113
118N04174	11132013	181	108	105	115
118N04174	11132013	182	110		110
118N04174	11132013	183	113	110	113
118N04174	11132013	184	117	115	122
118N04174	11132013	185	113	112	114
118N04174	11132013	186	109	108	110
118N04174	11132013	187	111	111	113

Source: Using NPMRDS to Generate Statewide Performance Measures, Chen-Fu Liao, University of Minnesota

Broward County October 2013 AM Peak Average Speeds

Source: FDOT-D4, Application of the NPMRDS

AM Peak Hour Speed Profiles – Turnpike Extension to North of I-595, 2014



Source: Turnpike Uses of NPMRDS Data, FDOT-Turnpike

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	●	○	○	◐	●	●	●	◐	●

SUMMARY

The National Pipeline Mapping System (NPMS) is a dataset containing locations of and information about gas transmission and hazardous liquid pipelines and Liquefied Natural Gas (LNG) plants which are under the jurisdiction of the Pipeline and Hazardous Materials Safety Administration (PHMSA). The NPMS also contain voluntarily submitted breakout tank data. There are three major databases: NPMS Public Map Viewer, Pipeline Information Management Mapping Application (PIMMA) and pipeline owner details database.

MORE ABOUT THE DATA:

Developer: USDOT – Pipeline and Hazardous Materials Safety Administration (PHMSA)

Update Frequency: Annually

Temporal Coverage: 1999-present

Geographical Coverage: Nationwide

Geographical Resolution: Pipeline network/point locations

Modal Coverage: Pipeline

Data Format: GIS, CAD, Tabular

Licensing Agreement: N/A for public data, necessary for PIMMA

Acquisition Cost: Free

Legal reference: Pipeline Safety: Miscellaneous Changes to Pipeline Safety Regulations – Section 195.61

Contact:

FDOT TRANSTAT
(850)-414-4848

CURRENT USERS

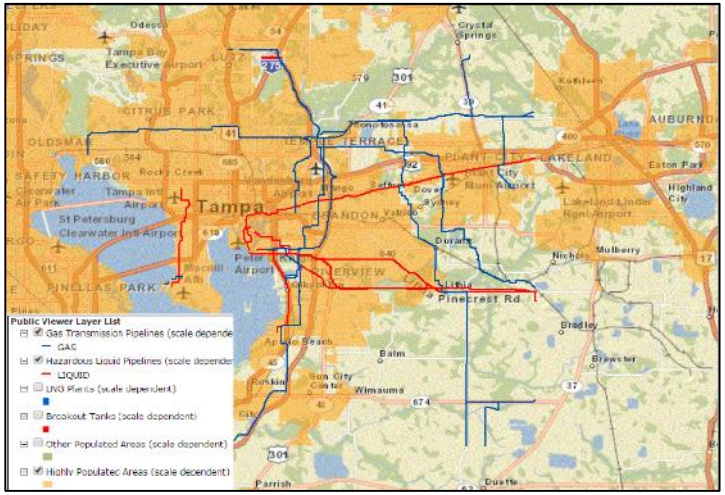
- Florida Southeast Connection Project
- Florida Pipeline Awareness
- Florida City Gas
- Office of Pipeline Safety
- U.S Energy Information Administration

POTENTIAL APPLICATIONS

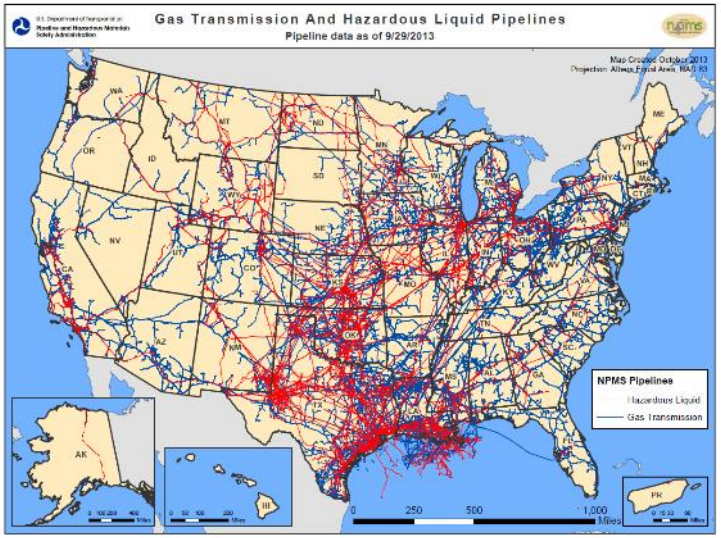
- Emergency Response
- Pipeline Inspections
- Regulatory Management and Compliance
- Smart Growth Planning
- Environmental Planning
- Critical Infrastructure Protection Assessment
- Freight Demand Models

MAJOR ATTRIBUTES IN NPMS

- Public Map Viewer provides information one county at a time and is for reference purposes. It should not be used as substitute for in-depth studies or calling 811.
- Dataset provides GIS data layers for gas transmission and hazardous liquid pipelines. These layers provides information about operators, commodity, interstate presence, nominal diameter and pipeline status code.
- Other data layers are LNG plants and break-out tanks which provide information about operator details, plant name and status of plants.
- PIMMA is a password protected application, needs licensing agreement and is available to federal government users and state officials (limited capabilities).
- The following data layers derived from a study (Natural Disaster Study, 1996) conducted by the Federal Emergency Management Agency (FEMA) are included: Earthquake Hazard Rank, Hurricane Hazard Rank, Flood Hazard Rank, Landslide Hazard Rank, Natural Pipeline Risk Index



Snapshot of NPMS Public Map Viewer
Source: NPMS Viewer



Gas Transmission and Hazardous Liquid Pipelines (2013)

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/ update	Accuracy	Access	Usability
Rating	●	◐	◐	◐	●	●	●	◐	●

SUMMARY

The Colography Group was established in 1983 and they conducted National Survey of U.S. Expedited Cargo. The survey captures a rich variety of shipping needs and behaviors for over 450,000 U.S. business establishments in a time-series database. The survey is based on detailed interviews with transport and logistics decision-makers who collectively control more than 75% of U.S. expedited cargo shipping activity. The Colography Group statistical and survey methods are accredited by Master of Marketing Research (MMR) faculty at The University of Georgia.

MORE ABOUT THE DATA:

Developer: Colography Group

Update Frequency: Annually

Temporal Coverage: 1993 - present

Geographical Coverage: Nationwide

Geographical Resolution: Establishment

Modal Coverage: Multimodal

Data Format: CSV

Licensing Agreement: Yes

Acquisition Cost: Yes

Contact:

FDOT TRANSTAT
(850)-414-4848

MAJOR SURVEY ATTRIBUTES

The National Survey of U.S. Expedited Cargo is stratified across 520 statistical groups or cells in order to representatively size and segment the U.S. shipping market with a high degree of statistical confidence.

- 5 employment sizes (businesses with 1 to 4, 5 to 19 employees, 20 to 99 employees, 100 to 499 employees and those with 500 or more employees)
- Mode of transport (domestic air, domestic ground parcel, domestic LTL, domestic TL export air, import air, rail, vessel, etc.)

Shipment volume and weight separately for domestic air, domestic ground parcel, export ground parcel, export air and import air by:

- Letters, packages 0-2 pounds, packages 2-70 pounds, freight 71-150 pounds and freight 151 pounds or more
- Carrier used
- Destination type (business vs. residential address)
- How the shipment is tendered to carrier (drop box, pickup, carrier sort dock, etc.)
- For domestic shipments: mileage bands the shipment travels (less than 150 miles, 150 to 350 miles, 1,800 or more miles, etc.)
- For international shipments: world area of origin or destination (Africa, Europe, Asia, etc.)
- Transit time: overnight, 2 days, 3 or more days (for domestic air only)

The survey excludes government locations and home-based businesses.

APPLICATIONS

- Quarterly Traffic And Yield Analyses and Market Share reports: U.S. Domestic & Export Air, Domestic Ground, LTL
- Domestic Air Cargo Trends
- U.S. International Trade Lanes

OTHER SURVEYS CONDUCTED BY COLOGRAPHY

- Customer Value Analysis
- Critical Buying Factors
- U.S. domestic and international business shipping practices
- Customer churn: frequency and nature of carrier-switching behavior
- NAFTA multimodal expedited transportation market
- U.S. domestic air and ground parcel returns
- U.S. air import market
- Same-day shipping demand

SUMMARY

The Navigation Data Center (NDC) is responsible for establishing and maintaining databases of waterborne commerce, domestic commercial vessels, port facilities, lock facilities, lock operations, and navigation dredging projects. The NDC data collection and dissemination efforts encompass all the commercially navigable waterways of the United States. The sources of these data include monthly reporting from more than 1,500 vessel operating companies, lockage and dredging statistics from Army Corps' and Engineers personnel at locks and district offices, and commercial port and terminal characteristics from on-site surveys conducted by NDC engineers

MORE ABOUT DATA

Developer: U.S. Army Corps of Engineers Institute for Water Resources

Update Frequency: Annually; except dredging projects (monthly)

Geographical Coverage: Nationwide

Geographical Resolution: Ports/waterway network

Modal Coverage: Waterborne

Data Format: Printed publications, CSV, Shape files, Oracle Databases

Licensing Agreement: N/A

Acquisition Cost: Free

Contact:

FDOT TRANSTAT
(850)-414-4848

WATER-BORNE COMMERCE STATISTIC CENTER DATA:

Temporal Coverage: 1922 - present

Legal Reference: River and Harbor Act, September 22, 1922 (42 Stat; 1043)

Important attributes of data: For domestic: vessel name, vessel type, commodity carried (SITC), tonnage, origin-destination (port, dock, date departed, draft)

PORTS AND WATERWAYS DIVISION DATA:

Temporal Coverage: 1922 - present

Legal Reference: Section 7 of the River and Harbor Act of 1918, Section 8 of the Merchant Marine Act of 1920, Section 500 of the Transportation Act of 1920

Important attributes of data: Location, operation characteristics, types and dimensions of construction, water body name

LOCK PERFORMANCE MONITORING SYSTEM DATA:

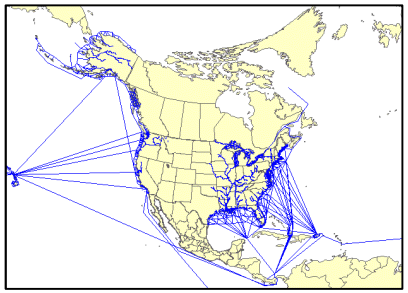
Temporal Coverage: 1975 - present

Legal Reference: Engineering Regulation 1130-2-429

Important attributes of data: number of vessels and barges using the lock; type, dates, and times of lockage, entry and exit types; number of cuts

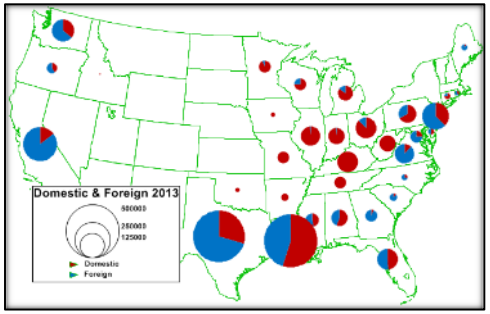
LOCK PERFORMANCE MONITORING SYSTEM DATA:

Lock Characteristics data base contains information on physical aspects of all USACE locks. Data base relies on updates from field surveys and District personnel to provide the most current and accurate data about the physical aspects of locks.



U.S Waterway Network

Domestic and Foreign Commodity tonnage (2013)



CURRENT APPLICATIONS

- **Florida DOT – Office of Policy Planning**
  - Florida Transportation Trends and Conditions
- **Florida DOT – Design Office**
  - Structures Design Guidelines
- **Florida DOT – Systems Planning**
  - Structures Design Guidelines
- **Florida DOT – Seaport Office**
  - South Florida Inland Port Feasibility Study
  - Florida Seaport System Plan

POTENTIAL APPLICATIONS

- Managing dredging and locking operations
- Support U.S Customs Service in collecting harbor maintenance
- Freight travel demand models
- Seaports planning
- Intermodal Trade Corridor Planning
- Environmental Planning
- Modal Shift Analysis
- Terminal and Border Access Planning
- Economic Development Planning
- Sustainable Transportation Investment
- Structural Design

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/ update	Accuracy	Access	Usability
Rating	●	◐	◐	◐	●	●	●	◐	●

SUMMARY

The Official Airline Guide (OAG) is an air travel intelligence reference that provides data on airline schedules, cargo and aviation analytics. OAG's databases include cargo flight information updated daily, worldwide cargo schedules from freighter aircraft to road feeder services, origin/destination information, flight details, airline code, airport, and aircraft type. Furthermore, OAG offers a comprehensive reference guide for cargo flights that is updated monthly to provide visibility of all flight options available. Data can be customized to specifically contain the parameters desired by the user.

MORE ABOUT THE DATA:

Developer: Official Airline Guide

Update Frequency: Daily

Latest Year Available: 2015

Temporal Coverage: Up-to-the-minute

Geographical Coverage: Worldwide

Geographical Resolution: Airport

Modal Coverage: Air

Data Format: Web based, XML, Online Server with secure access, Printed

Licensing Agreement: Required

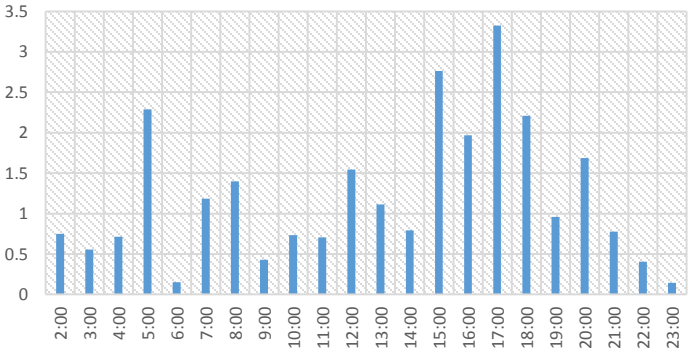
Acquisition Cost: Variable

Contact:
FDOT Transportation Statistics Office
(850) 414-4848

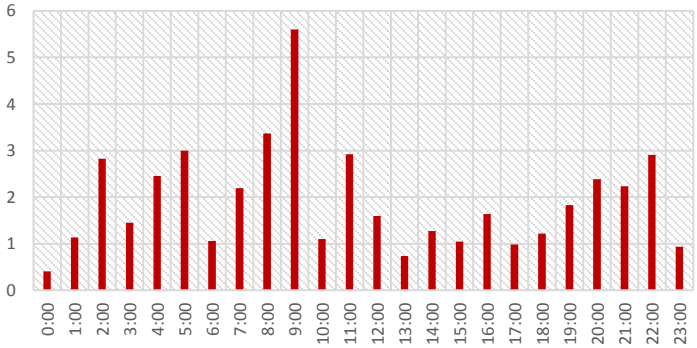
POTENTIAL APPLICATIONS

- Freight Performance Measures
- Traffic Operations/Services
- Safety Planning and Analysis
- Emergency Preparedness and Security Planning
- Regulation and Enforcement
- Terminal and Border Access Planning
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning

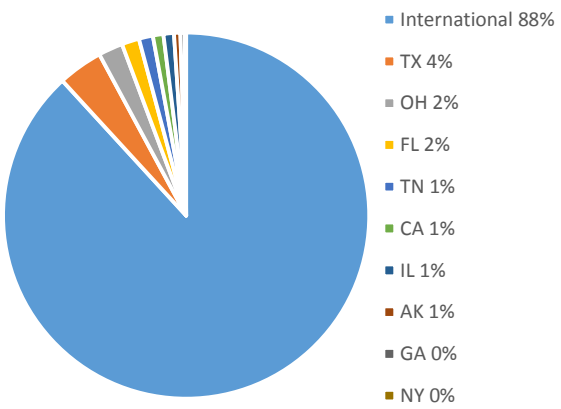
Average Number of Daily Cargo Flights Arrived in Miami International by Hour, 2013*



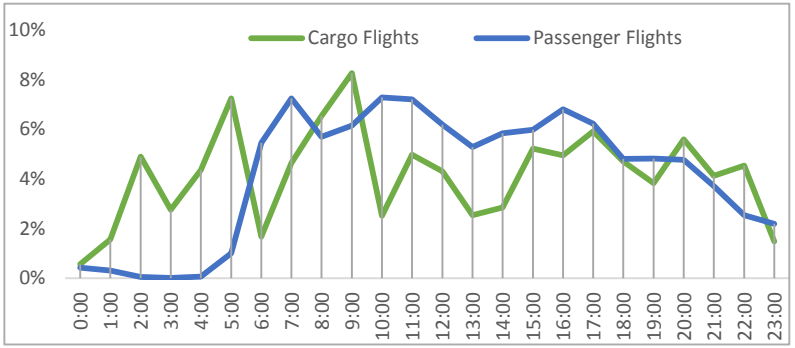
Average Daily Cargo Flights Departed from Miami Intl. Airport by Hour, 2013*



Average Daily Air Cargo Destination Market Share from Miami International, 2013*



Comparison of Average Daily Cargo and Passenger Flights Arriving and Departing from Miami International by Hour, 2013*



** Source: FDOT Aviation Office*

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	●	○	○	◐	●	●	●	◐	●

PERMIT APPLICATION SYSTEM FOR OVERWEIGHT AND OVER-DIMENSIONAL VEHICLES

SUMMARY

The Overweight and Over-Dimensional Vehicle Permit Program provides required permits for vehicles that exceed the maximums specified weight and size limits in Sections 316.515 and 316.535, Florida Statutes. New features in the automated Permit Application System (PAS) include the creation of an account profile to store user data, automated permit delivery, vehicle analysis, route analysis, and payment processing. Based on the input information, a database on oversize and overweight vehicles is created. Different attributes are included in the data such as permit application number, vehicle type, load description, vehicle dimension, gross weight, number of axles and route information. The data can be used to identify segments of highway system that undergo stress from overweight and oversize freight vehicles.

MORE ABOUT THE DATA

Developer: FDOT Office of Maintenance

Update Frequency: Variable (Based on construction projects)

Latest Year Updated: 2016

Temporal Coverage: N/A

Geographical Coverage: Statewide

Geographical Resolution: Highways/Bridges

Modal Coverage: Truck

Data Format: Online Application Tool

Licensing Agreement: Required

Acquisition Cost: Publicly available/Free

Legal Reference: Rule 14-26, F.A.C.

Contact:

FDOT TRANSTAT
(850) 414-4848

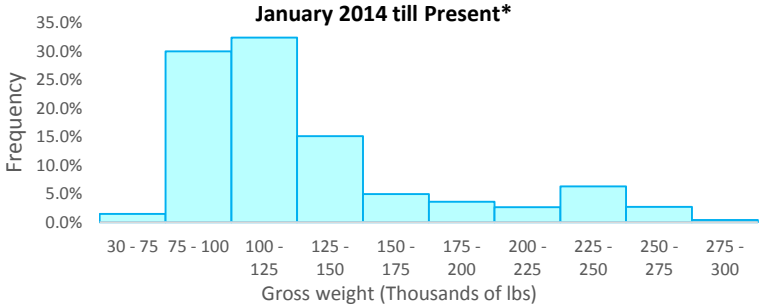
CURRENT APPLICATIONS

- Office of Inspector General
  - Annual Report FY 2014-2015
- Traffic Engineering and Operations Office
  - Commercial Vehicle Information Systems and Networks
  - Florida Port of Entry Feasibility Study, 2014
- Office of Maintenance
  - Bridge Load Rating Manual, 2012

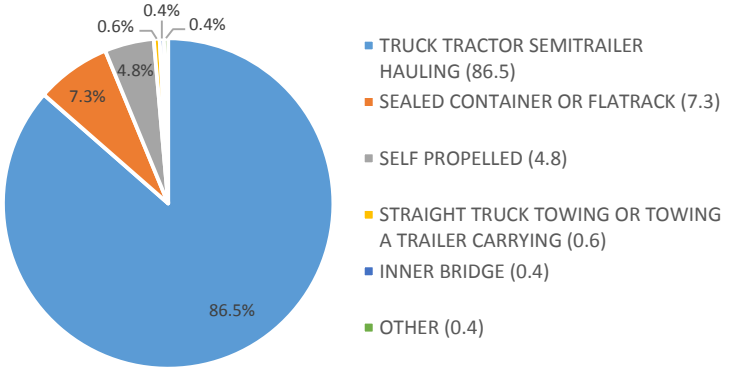
POTENTIAL APPLICATIONS

- Freight Performance Measures
- Traffic Operations/Services
- Safety Planning and Analysis
- Freight Mobility Planning
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning
- Regulation and Enforcement

Distribution of Overweight Vehicles by Weight
January 2014 till Present*

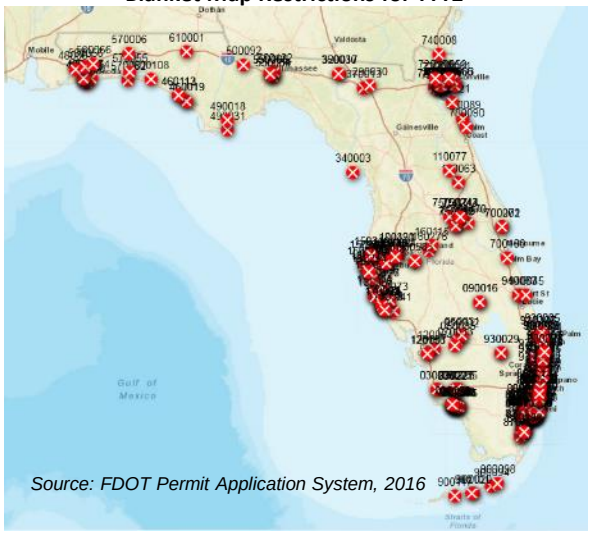


Share of Overweight Vehicles By Vehicle Configuration
January 2014 till Present*



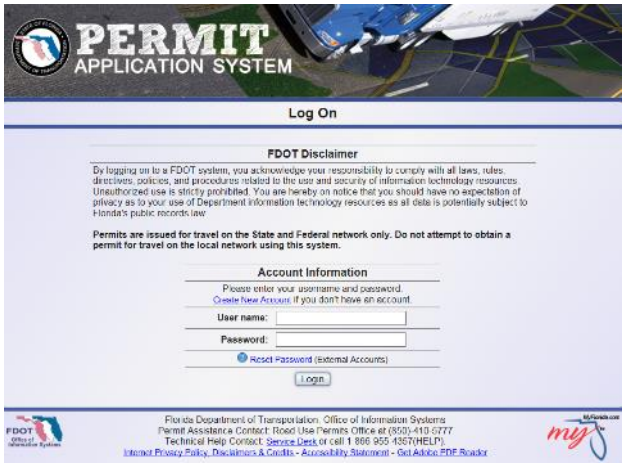
* Source: FDOT Permit Office

Blanket Map Restrictions for TTT2



Source: FDOT Permit Application System, 2016

Log-on Web Page for PAS Application Submittal



https://gis.dot.state.fl.us/PermitApplicationSystem/Account.aspx/LogOn?ReturnUrl=%2fPermitApplicationSystem

SUMMARY

PIERS collects import/export data from Bills of Lading for all waterborne cargo vessels that enter or exit U.S. ports. This data is analyzed and augmented with supplementary datasets to produce the PIERS trade intelligence data resources. PIERS provides comprehensive trade data that contains detailed information on commodity description, tonnage shipped, TEUs, estimated value, and import/export companies profiles. It also provides historical records dating from 1950. PIERS data can be used for multiple purposes including market share and trend analysis by different users such as manufacturing industries or government agencies.

MORE ABOUT THE DATA

Developer: JOC Group (IHS Inc.)
Update Frequency: Daily
Latest Year Available: 2016
Temporal Coverage: Annual
Geographical Coverage: National & Worldwide
Geographical Resolution: Major U.S. Ports
Modal Coverage: Maritime (Water)
Data Format: MS Excel, PDF
Automated platform (Dashboards, Online Queries)
Licensing Agreement: Subscription agreement required
Acquisition Cost: Variable
Contact:
FDOT Seaports and Waterways Office
(850) 414-4527
FDOT TRANSTAT
(850) 414-4848

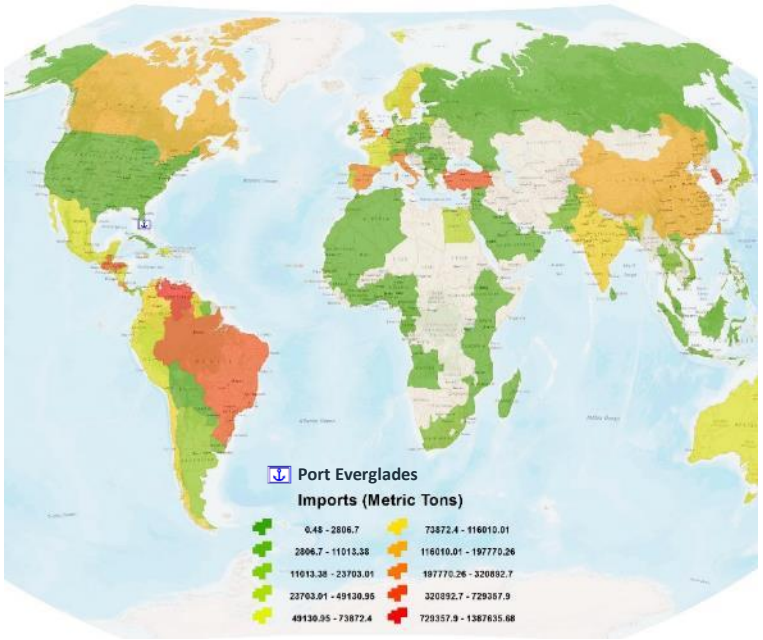
CURRENT APPLICATIONS

- State Seaport and Waterways Office
  - Florida Seaport System Plan, 2015
  - Florida Seaport System Plan, 2010
  - Office Research and Statistical Analysis, Ongoing
- Florida Ports Council and Individual Florida Ports
  - Five-year Florida Seaport Mission Plan, Annual
  - Analysis of Global Opportunities and Challenges for Florida Seaports, 2013
- Florida Chamber Foundation
  - Florida Trade and Logistics Study 2.0, 2012
  - Florida Trade and Logistics Study, 2010
- TRANSTAT
  - Florida Statewide Freight Model (FreightSIM), 2015
  - Reducing Traffic Congestion in South Florida, 2008

POTENTIAL APPLICATIONS

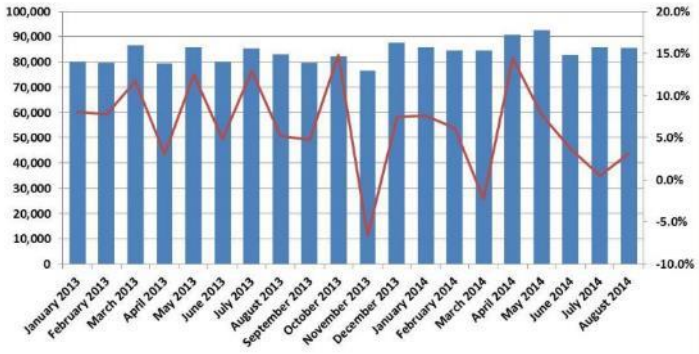
- Economic Development Planning
- Modal Shift Analysis
- Environmental Planning
- Intermodal Trade Corridor Planning
- Freight Mobility Planning
- Operations/Services
- Terminal and Border Access Planning
- Sustainable Transportation Investment
- Land Use Planning
- Congestion Management

Port Everglades Import Commodity Flows, 2013

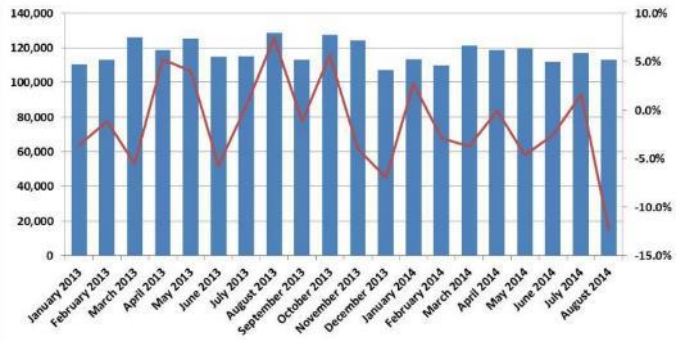


Source: FDOT TRANSTAT, GIS Section

Import Volume in TEUs



Export Volume in TEUs



Source: Florida Seaports Market Trends: Extracting Intelligence From Trade Data, 2014

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	●	●	●	◐	●	◐	●	◐	●

SUMMARY

The Public Use Waybills Sample (PUWS) data provides rail traffic information by rail carriers that terminate at least 4,500 revenue carloads annually. The PUWS provides detail information on rail freight movements in the U.S., Canada and Mexico. The data includes origin and destination, number of carload, car type, commodity type, tonnage, revenue, charges, line miles, number of interchanges, intermodal flag, etc. The PUWS is derived from a confidential Waybill Sample File which contains more detailed and proprietary information.

MORE ABOUT THE DATA:

Developer: Surface Transportation Board (STB)

Update Frequency: Annually

Latest Year Available: 2014

Temporal Coverage: Annual

Geographical Coverage: National, Canada & Mexico

Geographical Resolution: Business Economic Area (BEA)

Modal Coverage: Rail - Carload

Data Format: Text

Licensing Agreement: N/A
*Access of confidential Waybills Sample requires agreement

Acquisition Cost: Publicly available/Free

Contact:
FDOT TRANSTAT
(850) 414-4848

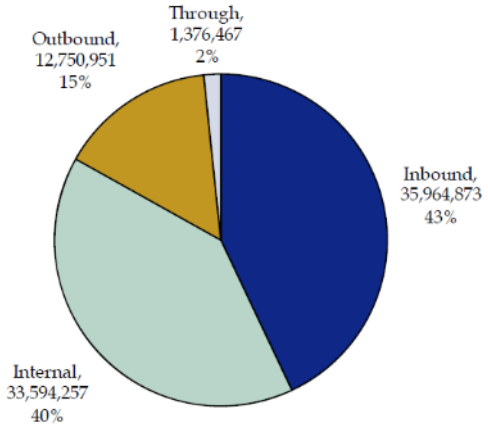
CURRENT APPLICATIONS

- Intermodal Systems Development Office
  - The Florida Rail System Plan: Investment Element, 2010
- Systems Planning Office
  - Adopted SIS Facility Types, Criteria, and Thresholds, 2014
  - Transportation Systems: Rail Facilities-Freight and Passengers, 2011
- TRANSTAT
  - Multimodal Mobility Performance Measures Source Book, 2015
- Florida Chamber Foundation
  - Florida Trade and Logistics Study, 2010

POTENTIAL APPLICATIONS

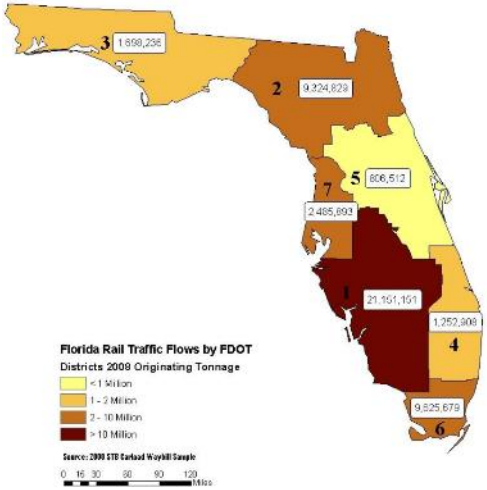
- Safety Planning and Analysis
- Modal Shift Analysis
- Environmental Planning
- Emergency Preparedness and Security Planning
- Intermodal Trade Corridor Planning
- Terminal and Border Access Planning
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning

Florida Freight Rail Tonnage by Direction, 2008

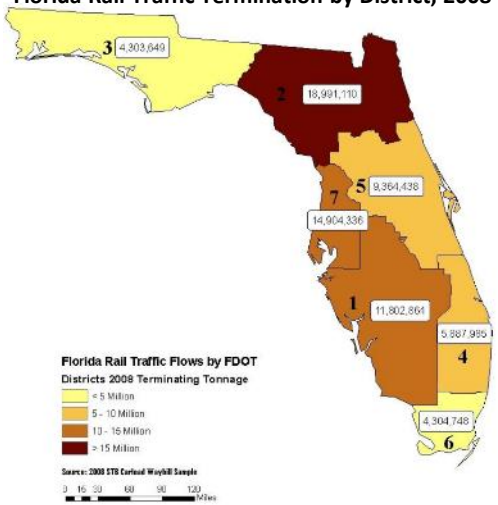


Source: The Florida Rail System Plan: Investment Element, Cambridge Systematics, Inc. 2010

Florida Rail Traffic Origins by District, 2008



Florida Rail Traffic Termination by District, 2008



Source: The Florida Rail System Plan: Investment Element, Cambridge Systematics, Inc. 2010

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	◐	●	○	◐	◐	◐	●	◐	●

RAND MCNALLY SAMPLE DATASET (COVERAGE: MAY 2014 – MAY 2015)

SUMMARY

Rand McNally GPS devices provide mileage and routing information to truck drivers. It also provides advanced lane guidance, estimated toll costs, fuel log, speed warnings, service/maintenance alerts, and route logs. For fleets, Rand McNally provides receivers which provides tracking, speeding and braking events information/alerts to drivers as well as fleet operators. These features help drivers/operators to improve safety and efficiency. To monitor performance of trucks and vehicles, the device provides hours of service compliance alerts and electronic vehicle inspection routing. Rand McNally data is a GPS point data for trucks with FHWA vehicle classes 5-13. GPS information is collected by a Rand McNally receiver in variable intervals of 10-20 min (determined by fleet owners). GPS device accuracy is approximately 1 m to 5 m. Rand McNally does not provided: truck identifier data, sample size, route, nor directionality.

MORE ABOUT THE DATA:

Developer: Rand McNally

Update Frequency: Monthly/Annually

Temporal Coverage: Month/Annual

Geographical Coverage: Statewide

Geographical Resolution: Point Location

Modal Coverage: Truck

Data Format: CSV

Licensing Agreement: Required

Acquisition Cost: Variable

Contact:

FDOT TRANSTAT
(850)-414-4848

CURRENT APPLICATIONS

- TRANSTAT (FDOT – Central Office)
  - Pilot study with a sample data

POTENTIAL APPLICATIONS

- Identification of major freight activity-centers parking locations, warehouses and distribution centers
- Supplement local network speed profiles to National Performance Management Research Data Set which covers speed profiles for National Highway System Network
- Identify and validate truck bottlenecks.
- Data cannot provide truck identifier, sample size or directionality information.

DATA ANALYSIS

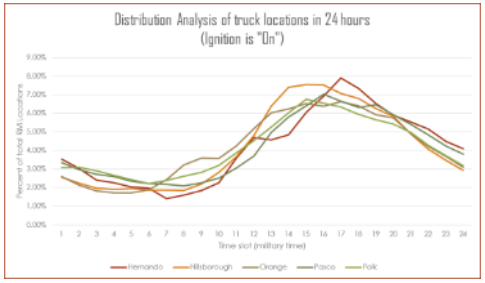
- Utilization of Rand McNally Data on the network requires GIS spatial assignment to the NAVTEQ road network.
- Rand McNally technical support recommends a 10 m (32.81 ft.) tolerance be used.

Number of records per county

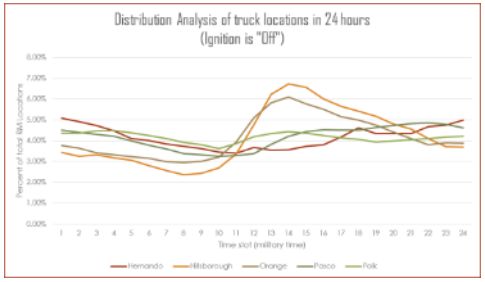
Number of RM locations as per county	Total Number of RM locations
Hernando	37315
Hillsborough	245723
Orange	291999
Pasco	415576
Polk	537325

VARIABLES

- Spot Speed (mph)
- Time stamp (hh:mm)
- Date (mmddyyy)
- Ignition On (Yes/No)

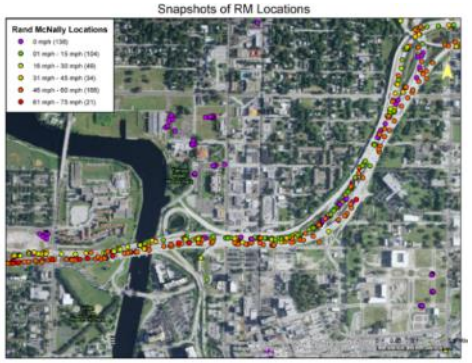


Distribution of Analysis of Truck Locations in 24 hours (Ignition is 'Off')



Distribution of Analysis of Truck Locations in 24 hours (Ignition is Off')

Annual Average Truck Speed on NAVTEQ Network (Sample Data)



Snapshot of Rand McNally Locations

All information provided by Rand McNally for this presentation is owned and confidential to Rand McNally. ©2015 Rand McNally. All rights reserved

SUMMARY

RCI is a database of roadway physical, administrative and conditions. RCI also contains information on rail lines and non motorized ways. RCI is one of the most influential databases used at FDOT. It is linked to and used by many departmental offices and other governmental agencies. RCI is maintained by District and Central Office personnel and it includes more than 12 million records and growing.

MORE ABOUT THE DATA:

Developer: FDOT Office of Information Technology (OIT)

First year: 1977

Recent year: 2016

Data Sponsors: Maintenance, Transportation Statistics, Traffic Operations, Rail and Systems Planning

RCI Update Frequency: Live

Shapefile Update Frequency: Weekly

Temporal Coverage: N/A

Geographical Coverage: Statewide

Geographical Resolution: Roadway

Modal Coverage: Multimodal

Data Format: CSV, Shapefiles, Oracle SQL Databases

Licensing Agreement: N/A

Acquisition Cost: Free

Legal Reference: 23 CFR 420.105 (b)

Contact:

FDOT TRANSTAT
(850)-414-4848

CURRENT APPLICATIONS

Funding apportionment, Highway Performance Monitoring System (HPMS), Demand Models, Safety Analyst tool, MOVES emission tool, Work Program Roadway Information

IMPORTANT DOCUMENTS

- RCI Features and Characteristics Handbook
- RCI Planning Data Handbook
- RCI User Manual

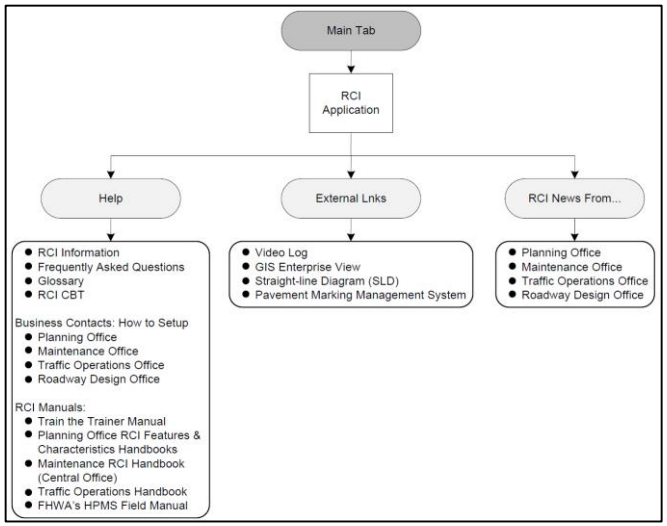
MAJOR FEATURES IN RCI

Functional Classification, Highway Maintenance Class, Service Plazas, Parking restrictions, Rail Line Facility, AASHTO, HPMS, Federal System, State Road System, Facility Class, Stationing Exceptions, Managed Lanes, Strategic Intermodal System, AADT Type, Direction, High Occupancy Vehicle Lanes, Number of rest areas without facilities/with facilities, urban size, number of lanes in peak direction, Traffic monitoring sites, turning restrictions, railroads, crossovers, signals, mile-marker signs, intersections and interchanges

RCI USERS

In FDOT: General Counsel Office , Office of Maintenance , Outdoor Advertising Office , Public Transit Office, Right of Way Office , Safety Office , Systems Planning Office, Rail and Motor Carrier Operations Office, Traffic Engineering and Operations and Work Program.

Outside FDOT: General public, local governments, engineers, mapping companies, law enforcement agencies, the legal profession, realtors, developers, theme park operators, the media, emergency medical service providers.



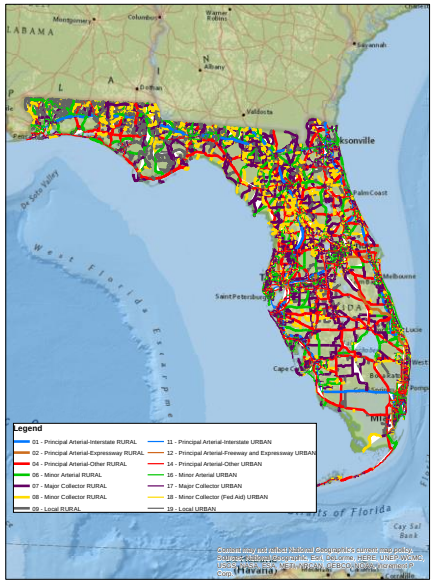


Figure: RCI Functional Classification

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/ update	Accuracy	Access	Usability
Rating	●	◐	◐	●	●	●	●	●	●

SUMMARY

TranSearch (TS) data includes annual commodity flows (tons, $ value, units and ton-miles) between US counties by commodity type and mode of transportation, including truckload, less-than-truckload, private truck, rail carload, rail/highway intermodal, air and water. The data relies on economic models and provides very detailed information about most domestic shipments and more than 340 commodity types. The most recent TRANSEARCH data purchase for FDOT is for 2011 with forecasts for 2015, 2020, 2025, 2030, 2035 and 2040.

MORE ABOUT THE DATA:

Developer: IHS Global Insight Inc.

Update Frequency: Annually

Latest Year Available: 2015

Temporal Coverage: Annual

Geographical Coverage: National

Geographical Resolution: County-level
*Apportionment option at TAZ-level

Modal Coverage: Multimodal

Data Format: MS Access Database, ESRI Network Data

Licensing Agreement: Required

Acquisition Cost: Variable
*Depending on level of details requested

Contact:
FDOT TRANSTAT
(850) 414-4848

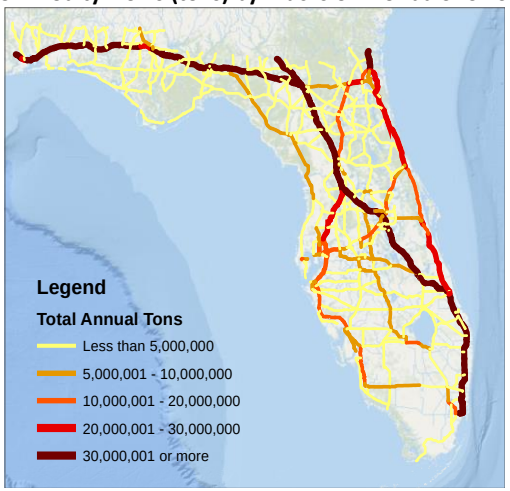
CURRENT APPLICATIONS

- Systems Planning Office
  - I-75 Sketch Interstate Plan, Freight Mobility, 2010
  - Urban Highway Freight Modeling Including Intermodal Connectors For Florida, 2002
- Transportation Statistics Office
  - Freight Intensity Measures, 2015
  - Florida Statewide Freight Model (FreightSIM), 2015
- Freight Logistics and Passenger Operations Office
  - County-wide Freight & Logistics Overview, 2012

POTENTIAL APPLICATIONS

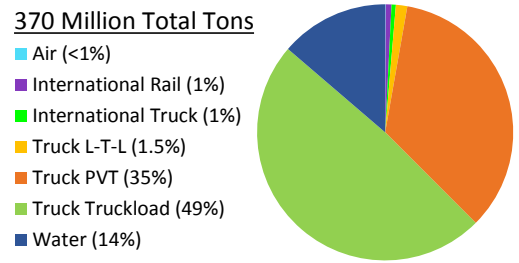
- Congestion Management
- Traffic Operations/Services
- Safety Planning and Analysis
- Modal Shift Analysis
- Environmental Planning
- Emergency Preparedness and Security Planning
- Freight Transportation and Land Use Planning
- Intermodal Trade Corridor Planning
- Roadway Pavement and Bridge Maintenance Planning
- Terminal and Border Access Planning
- Economic Development Planning
- Sustainable Transportation Investment

Commodity Flows (tons) by Trucks on Florida SHS 2011



Source: RS&H, Inc.

Modal Split of Freight Tons Entering/Leaving/Within Florida



Source: RS&H, Inc.

Commodity Flow Patterns Between Florida and Other Business Economic Areas

Source: FDOT Transtat Office, IHS TRANSEARCH TRAINING, 2014

Top 10 Outbound Truck Routes Florida 2011

Rank	Origin	Destination	Annual Tonnage
1	Jacksonville, FL	Savannah, GA	1,548,900
2	Pensacola, FL	Mobile, AL	1,216,520
3	Miami, FL	New York, NY	1,032,824
4	Jacksonville, FL	Albany, GA	926,617
5	Orlando, FL	New York, NY	907,335
6	Miami, FL	Atlanta, GA	638,690
7	Jacksonville, FL	Charleston, SC	606,938
8	Tampa, FL	New York, NY	582,104
9	Orlando, FL	Minneapolis, MN	577,696
10	Orlando, FL	Atlanta, GA	523,158

Source: RS&H, Inc.

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	◐	●	○	●	◐	◐	◐	◐	◐

SUMMARY

The TSI is a monthly measure of the volume of services performed by the for-hire transportation sector. The index covers the activities of for-hire freight carriers and for-hire passenger carriers. The TSI provides indicators of how transportation services have increased or decreased from month to month and can help to understand the current and future course of the economy. The movement of the index over time can be compared with other economic measures to understand the relationship of transportation to long-term changes in the economy. TSI is the only combined, multimodal, seasonally adjusted economic measure of transportation measured on a monthly basis.

MORE ABOUT THE DATA:

Developer: Bureau of Transportation Statistics

Update Frequency: Monthly

Temporal Coverage: 1996 - present

Geographical Coverage: Nationwide

Geographical Resolution: Nation

Modal Coverage: Multiple modes

Data Format: Graphs/Tabular format

Licensing Agreement: N/A

Acquisition Cost: Free

Contact:

FDOT TRANSTAT
(850)-414-4848

CURRENT APPLICATIONS

- **U.S DOT**
  - Transportation Services Index and the Economy
  - Transportation Trends in Focus

POTENTIAL APPLICATIONS

- Economic Indicator
- Monthly shifts in transportation services output and analyze short-term trends
- Multimodal perspective of transportation growth

IMPORTANT HIGHLIGHTS

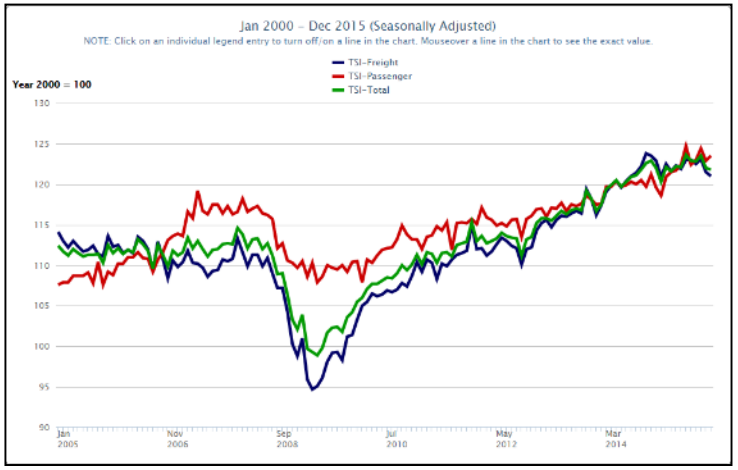
The freight transportation index consists of:

1. for-hire trucking (parcel services are not included)
2. freight railroad services (including rail-based intermodal shipments such as containers on flat cars)
3. inland waterway traffic
4. pipeline movements (including principally petroleum and petroleum products and natural gas)
5. air freight

- The index does not include international or coastal steamship movements, private trucking, courier services, or the United States Postal Service.
- By its nature, the TSI takes a macro-level view of transportation and cannot substitute for detailed data in examining local and mode-specific transportation issues.
- The TSI does not yet cover 100% of the for-hire transportation industry.
- The research findings on the relationship between the TSI and economic indicators revealed that the freight TSI acted as a strong leading economic indicator.

Index	Mode	Source	Measure
Freight	Trucking	American Trucking Association	Monthly Truck Tonnage Index
	Air	Bureau of Transportation Statistics	Air Revenue Ton-Miles of Freight and Mail
	Rail	Association of American Railroads	Weekly Carloads and Intermodal Units
		Federal Railroad Administration	Quarterly Rail Ton-Miles
	Water	US Army Corps of Engineers	Tons
	Pipeline	Energy Information Administration	Movement between PADDs plus Alaska field consumption
	Natural Gas	Energy Information Administration	Monthly Consumption of Natural Gas
Passenger	Air	Bureau of Transportation Statistics	Air Revenue Passenger Miles
	Rail	Federal Railroad Administration	AMTRAK and Alaska RR Corp. Passenger Miles
	Transit	American Public Transportation Association	Unlinked Passenger Trips

Data Sources used in TSI



TSI – 2005 to 2015

SUMMARY

CFS is the primary data source for national and state-level domestic freight shipments. The data is part of the Economic Census and is developed from various industry sectors including mining, wholesale, manufacturing, auxiliaries, and selected retail and service trade. It provides information on the type, origin and destination, value, weight, mode of transportation, distance shipped, and ton-miles of commodities shipped between origin-destination zones. CFS is the cornerstone of many other freight data sources such as FAF.

The 2012 CFS Public Use Microdata provides commodity flow data at firm level for individual shipper/seller firms. The CFS Microdata can be used for freight modeling and analysis at disaggregate (firm) level.

MORE ABOUT THE DATA:

Developer: US Census Bureau

Update Frequency: Every 5 years

Latest Year Available: 2012

Temporal Coverage: Annual

Geographical Coverage: National, Exports

Geographical Resolution: Metropolitan and state level

Modal Coverage: Multimodal

Data Format: CSV

Licensing Information: N/A

Acquisition Cost: Publicly available/Free

Legal Reference: 13 USC and 26 USC

Contact:

FDOT TRANSTAT

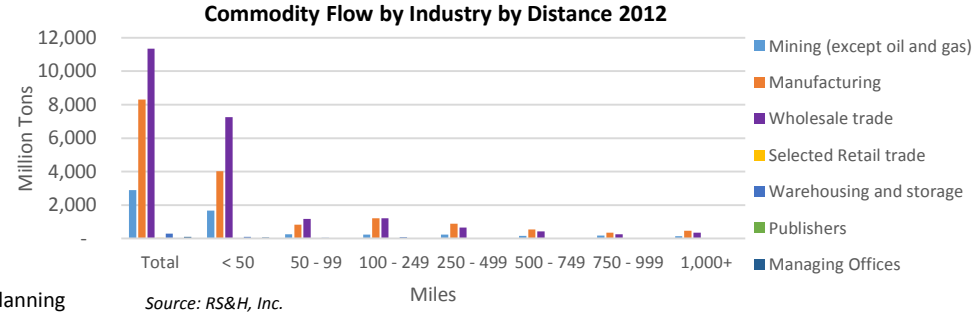
(850) 414-4848

CURRENT APPLICATIONS

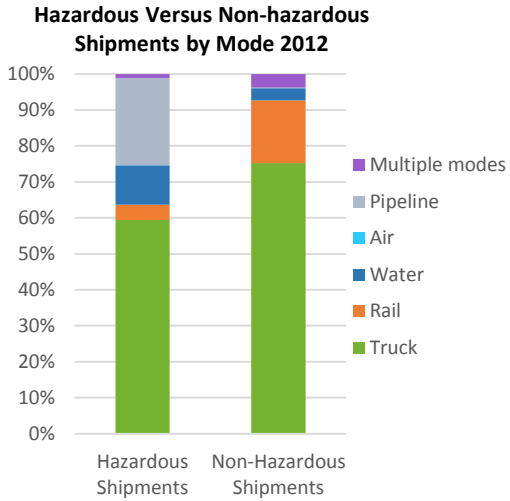
- Transportation Statistics Office
  - Florida Statewide freight Model (FreightSIM), 2015
- Office of Policy Planning
  - Travel Demand: Trade and Freight Transportation, 2012

POTENTIAL APPLICATIONS

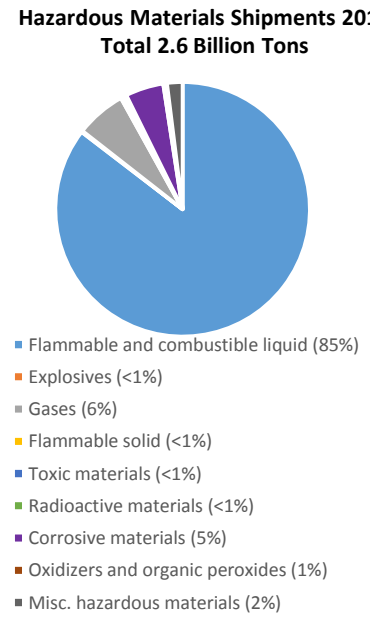
- Freight Mobility Planning
- Modal Shift Analysis
- Freight Transportation and Land Use Planning
- Emergency Preparedness and Security Planning
- Environmental Planning
- Congestion Management
- Sustainable Transportation Investment
- Safety Planning and Analysis
- Intermodal Trade Corridor Planning
- Terminal and Border Access Planning
- Freight Performance Measurements
- Economic Development Planning



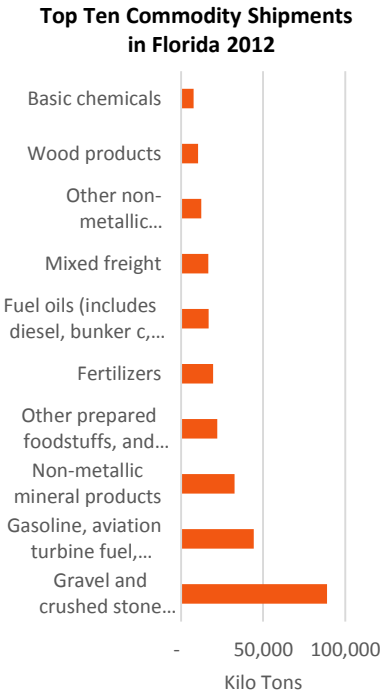
Source: RS&H, Inc.



Source: RS&H, Inc.



Source: RS&H, Inc.



Source: RS&H, Inc.

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	◐	●	◐	●	◐	◐	◐	●	●

SUMMARY

County Business Patterns (CBP) is an annual economic data source that provides detailed national and regional economic information. The data provides economic statistics for different industry classes including number of establishments, employment payroll. CBP can be used for various decision making and planning purposes such as economic development analysis, analyzing market potential, and studying temporal economic changes. Economic activity statistics are available for most of industry classes with 2-digit to 6-digit North American Industry Classification System (NAICS) codes. In addition, Census provides a web-based analysis tool, Census Explorer, which can be used to develop maps using CBP data.

MORE ABOUT THE DATA:

Developer: U.S. Census Bureau

Census Explorer

Update Frequency: Annually

Latest Year Available: 2013

Temporal Coverage: Annual

Geographical Coverage: National

Geographical Resolution: Variable Metropolitan, State, County, and Zip-code level

Modal Coverage: N/A

Data Format: .CSV, .TXT

Licensing Agreement: N/A

Acquisition Cost: Publicly available/Free

Legal Reference: 13 USC, 26 USC

Contact:

FDOT TRANSTAT

(850) 414-4848

CURRENT APPLICATIONS

- Transportation Statistic Office
  - Florida Statewide Freight Model (FreightSIM), 2015
- Office of Policy Planning
  - IMPACT OF TRANSPORTATION: Transportation and the Economy, 2015
- Transit Office
  - Estimating Costs and Benefits of Emissions Reduction Strategies for Transit by Extending the TRIMMS Model, 2012

POTENTIAL APPLICATIONS

- Economic Development Planning and Analysis
- Freight Transportation and Land Use Planning
- Sustainable Transportation Investment
- Freight Demand Modeling and Supply Chain Analysis

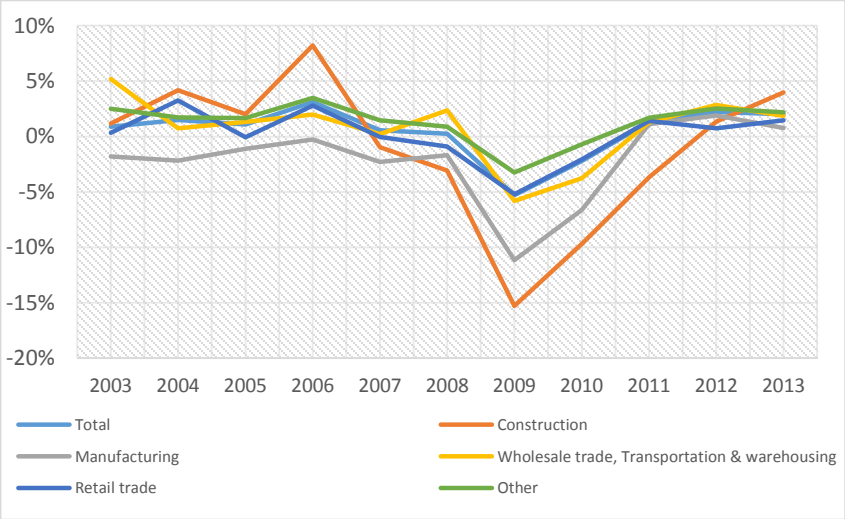
Economic Statistics 2013 *(Example Analysis)*

Industry	Paid employees	Annual payroll ($1,000)	Total establishments
Health Care and Social Assistance	15.7%	14.8%	11.3%
Retail Trade	12.7%	6.9%	14.2%
Accommodation and Food Services	10.5%	3.8%	9.0%
Manufacturing	9.5%	10.9%	3.9%
Administrative, Support, Waste Management and Remediation Services	8.6%	6.5%	5.3%
Professional, Scientific, and Technical Services	7.0%	11.2%	11.6%
Finance and Insurance	5.1%	9.6%	6.3%
Wholesale Trade	5.0%	6.9%	5.6%
Construction	4.6%	5.2%	8.8%
Other Services (except Public Administration)	4.5%	2.7%	9.8%
Transportation and Warehousing	3.6%	3.4%	2.9%
Educational Services	3.0%	2.2%	1.3%
Information	2.8%	4.9%	1.8%
Management of Companies and Enterprises	2.6%	5.8%	0.7%
Arts, Entertainment, and Recreation	1.8%	1.2%	1.7%
Real Estate and Rental and Leasing	1.7%	1.6%	4.8%
Mining, Quarrying, and Oil and Gas Extraction	0.6%	1.2%	0.4%
Utilities	0.5%	1.1%	0.2%
Agriculture, Forestry, Fishing and Hunting	0.1%	0.1%	0.3%
Industries not classified	0.0%	0.0%	0.2%
Total for all sectors	**118,266,253**	**5,621,697,325**	**7,488,353**

Source: RS&H, Inc.

Changes in the Number of Paid Employees by Industry 2003-2013

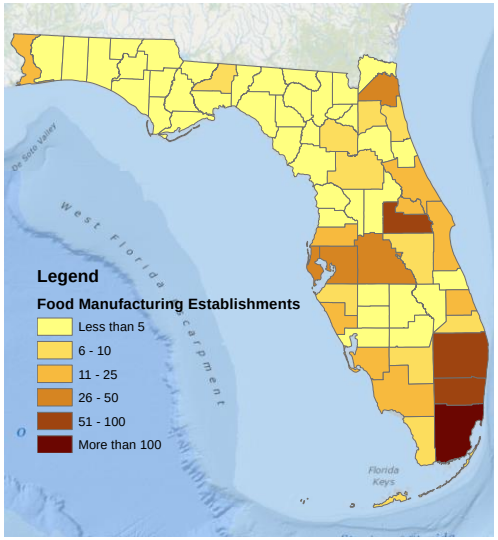
(Example Analysis)



Source: RS&H, Inc.

Distribution of Food Manufacturing Firms, Florida 2013

(Example Analysis)



Source: RS&H, Inc.

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	●	○	●	○	◐	◐	◐	●	●

SUMMARY

The US Census Foreign Trade database is the official source for U.S. export and import statistics. The data contains detailed statistics on goods and estimates of services shipped from the U.S. to foreign countries. Data provides information on commodity classification, quantities, values, shipping weights, mode of transportation (air or vessel), state of (movement) origin, customs district, customs port, country of destination, and whether contents are domestic goods or re-exports. The US Census Foreign Trade also provides an online interactive visualization tool for presenting the data.

MORE ABOUT THE DATA:

Developer: US Census Bureau

Update Frequency: Monthly

Latest Year Available: 2016

Temporal Coverage: Annual

Geographical Coverage: National

Geographical Resolution: Metropolitan and state level

Modal Coverage: Multimodal

Data Format: CSV, Tabular

Licensing Information: N/A

Acquisition Cost: Publicly available/Free

Legal Reference: 13 USC, 26 USC

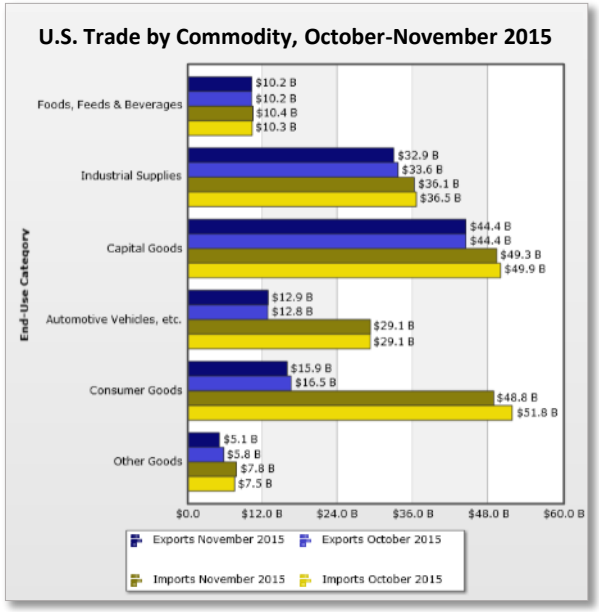
Contact:
FDOT TRANSTAT
(850) 414-4848

CURRENT APPLICATIONS

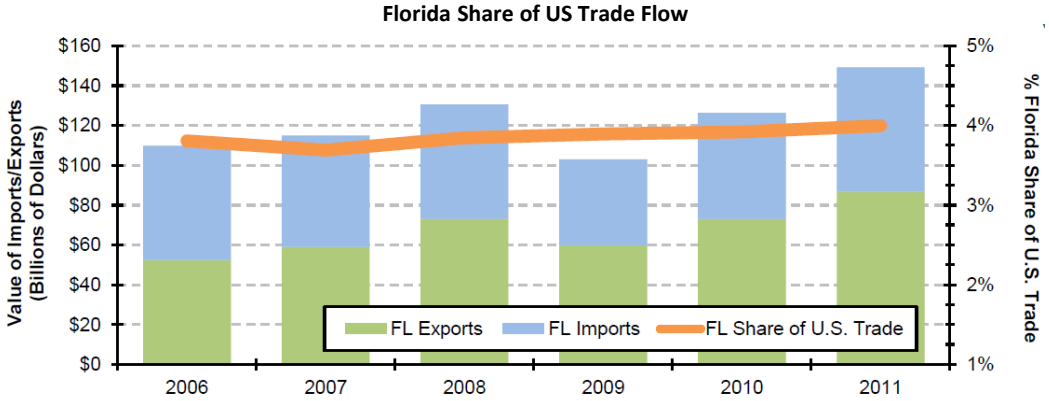
- Policy Planning Office
  - 2060 Florida Transportation Plan Scorecard, 2014
- Systems Planning Office
  - Impact Of Transportation: Transportation and the Economy, 2015
- Traffic Engineering and Operations
  - Economic Impacts Of Intelligent Transportation Systems In Florida, 1999

POTENTIAL APPLICATIONS

- Freight Mobility Planning
- Freight Transportation and Land Use Planning
- Intermodal Trade Corridor Planning
- Terminal and Border Access Planning
- Freight Performance Measurements
- Economic Development Planning
- Sustainable Transportation Investment



Source: US Census Interactive Graphs http://www.census.gov/foreign-trade/statistics/graphs/enduse.html



Source: FDOT, 2060 FTP Scorecard, 2015

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	●	●	◐	◐	◐	◐	●	●	●

US CENSUS VEHICLE INVENTORY AND USE SURVEY (VIUS)

SUMMARY

The VIUS (formerly Truck Inventory and Use Survey) provides detailed information on physical and operating characteristics of a large sample of private and commercial truck population in the U.S. The collected data includes weight, number of axles, length, engine and body type, major use, operator classification, gas mileage, annual and lifetime miles driven, transported commodity type, and hazardous materials hauled. The data includes "weighting factors" to expand sample truck counts and miles to the total truck population in the country. The survey was conducted every 5 years following the census year but it is discontinued since 2002. However, restoring the survey by FHWA has been discussed recently.

MORE ABOUT THE DATA:

Developer: U.S. Census Bureau

Update Frequency: Discontinued

Latest Year Available: 2002

Temporal Coverage: Annual

Geographical Coverage: National Sample with Weight Factors

Geographical Resolution: N/A

Modal Coverage: Truck

Data Format: SAS & TEXT files

Licensing Agreement: NA

Acquisition Cost: Publicly available/Free

Legal Reference: 13 USC

Contact:

FDOT TRANSTAT

(850) 414-4848

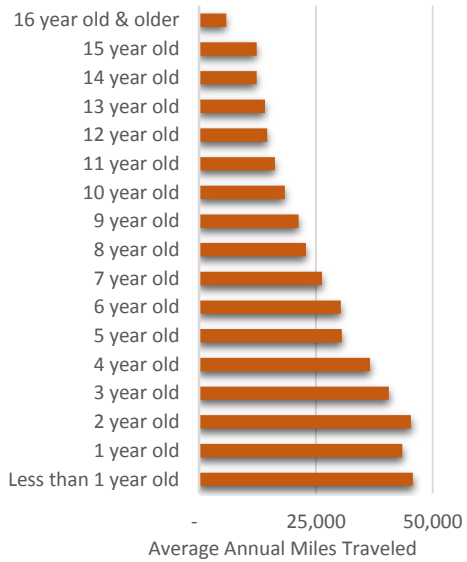
CURRENT APPLICATIONS

- FHWA
  - Estimation of Truck Flows in FAF data, 2010

POTENTIAL APPLICATIONS

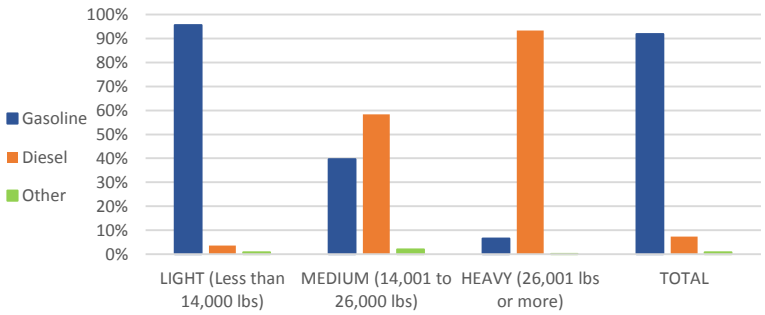
- Congestion Management
- Traffic Operations/Services
- Safety Planning and Analysis
- Freight Mobility Planning
- Environmental Planning
- Roadway Pavement and Bridge Maintenance Planning
- Freight Performance Measurements
- Sustainable Transportation Investment
- Fuel Economy of Freight Trucks

Average Annual Miles Traveled Per Truck by Truck Age



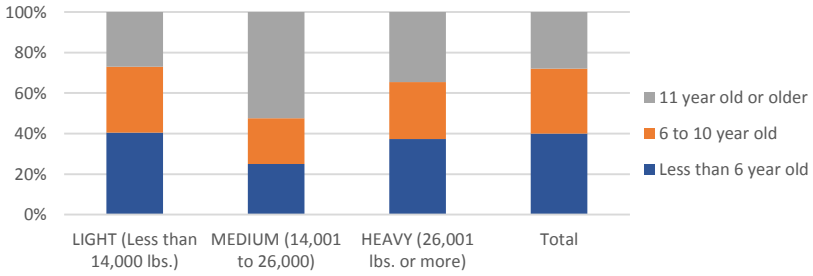
Source: RS&H, Inc.

Distribution of Truck Gross Vehicle Weight Rating By Type of Fuel



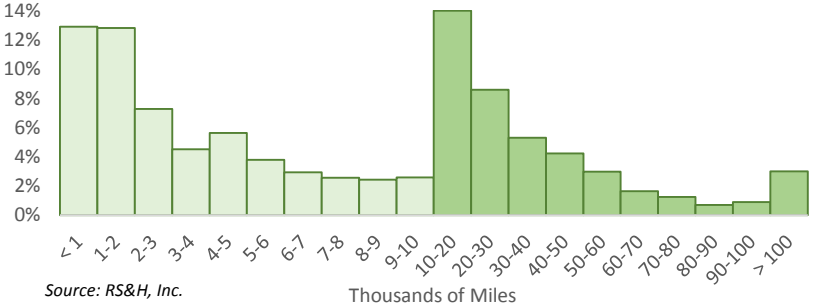
Source: RS&H, Inc.

Distribution of Truck Gross Vehicle Weight Rating By Truck Age



Source: RS&H, Inc.

Annual Miles Traveled by Surveyed Truck Sample, 2002



Source: RS&H, Inc.

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	◐	◐	○	◐	○	○	●	●	●

SUMMARY

The United States Department of Agriculture (USDA) Economic Research Service provides historical data on farming, agriculture, forestry, and food in the U.S. The data covers a wide variety of agricultural topics including Animal Products, Crops, Farm Economy, Farm Practices and Management, Food and Nutrition Assistance, Food Choices &Health, Food Markets and Prices, Food Safety, International Markets and Trade, Natural Resources and Environment, and Rural Economy and Population. The data can help decision makers to meet the needs of farmers and ranchers, promote agricultural trade and production, assure food safety, protect natural resources, foster rural communities and end hunger in the US.

MORE ABOUT THE DATA:

Developer: USDA Economic Research Service

Update Frequency: Annually

Latest Year Available: 2014

Temporal Coverage: Annual

Geographical Coverage: National

Geographical Resolution: States

Modal Coverage: N/A

Data Format: CSV, Tabular, Charts

Licensing Agreement: N/A

Acquisition Cost: Publicly available/Free

Legal Reference: 7 USC 55

Contact:

FDOT TRANSTAT

(850) 414-4848

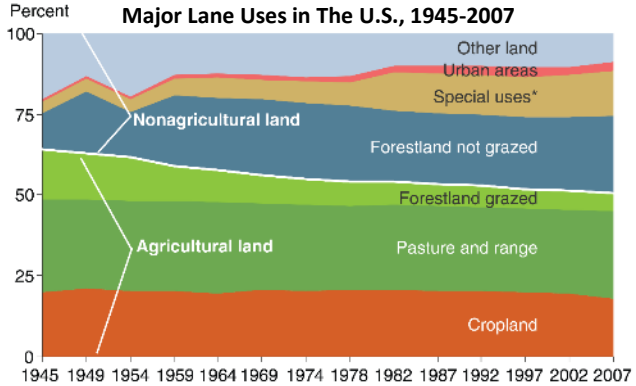
CURRENT APPLICATIONS

- Office of Aviation
  - Florida Statewide Airport Stormwater Study, 2005

POTENTIAL APPLICATIONS

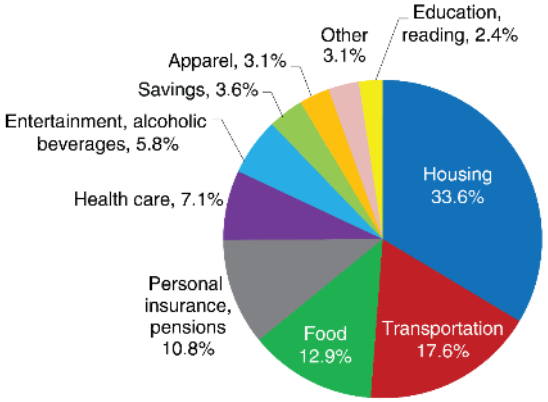
- Environmental Planning
- Economic Development Planning
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning

Major Lane Uses in The U.S., 1945-2007



http://ers.usda.gov/data-products/chart-gallery/detail.aspx?chartId=40023&ref=collection&embed=True&widgetId=39734

American Household Expenditures by Major Categories, 2013



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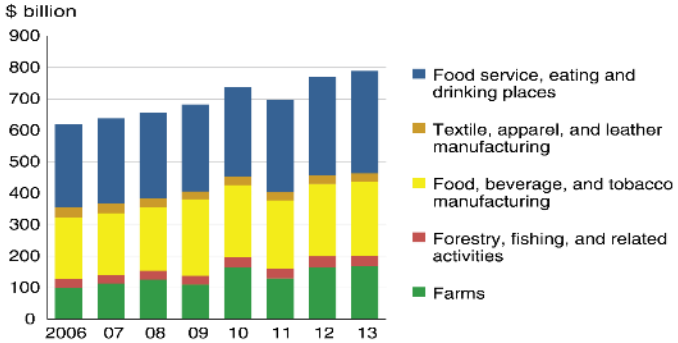
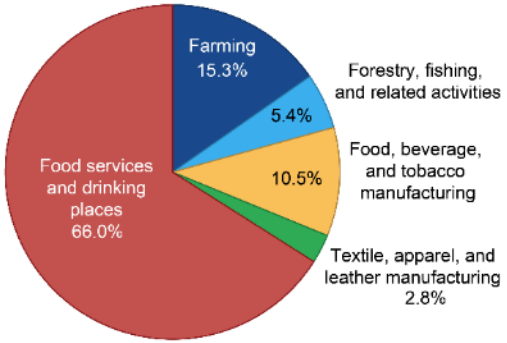
Value Added to GDP by Agriculture and Related Industries, 2006-2013



http://ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials.aspx

Agriculture-related Industries Employment Share of Total of 17.3 million Jobs, 2014



http://ers.usda.gov/data-products/chart-gallery/detail.aspx?chartId=40043&ref=collection&embed=True&widgetId=39734

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	◐	◐	◐	○	○	◐	●	●	●

SUMMARY

The United States Department of Agriculture (USDA) National Agricultural Statistics Service (NASS) provides agricultural statistics for every state and county in the U.S. The data is classified by commodity code, county and district geographic boundaries. The database contains various information including crops and plants, livestock and animals, demographics, economics and prices, environmental, and research, science and technology. The website provides an online tool that can be used to display data by charts and maps at state or county level.

MORE ABOUT THE DATA:

Developer: USDA National Agricultural Statistics Service

Update Frequency: Monthly

Latest Year Available: 2014

Temporal Coverage: Annual

Geographical Coverage: National

Geographical Resolution: County

Modal Coverage: N/A

Data Format: CSV, Tabular, Charts, GIS Layers

Licensing Agreement: N/A

Acquisition Cost: Publicly available/Free

Legal Reference: 7 USC 55

Contact:

FDOT TRANSTAT

(850) 414-4848

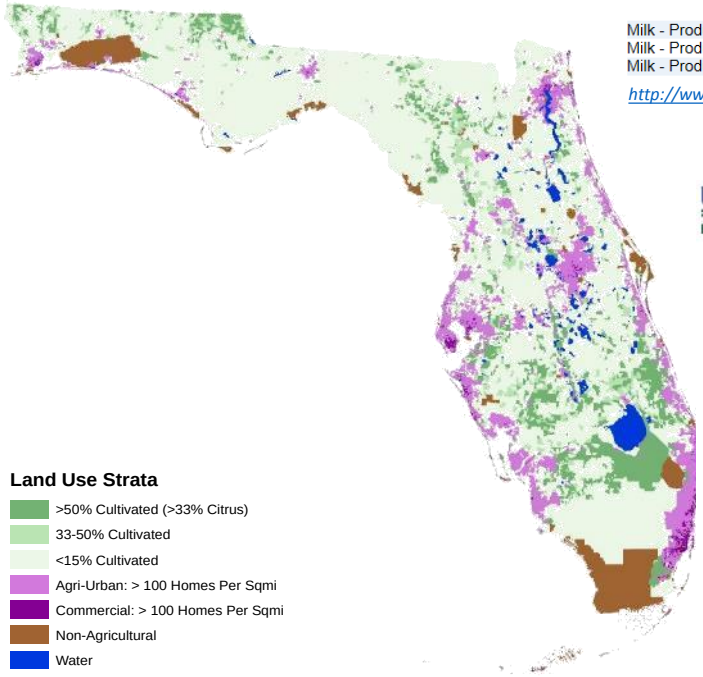
CURRENT APPLICATIONS

- Office of Aviation
  - Florida Statewide Airport Stormwater Study, 2005

POTENTIAL APPLICATIONS

- Environmental Planning
- Economic Development Planning
- Sustainable Transportation Investment
- Freight Transportation and Land Use Planning

Stratification of Florida Land Use, 2010



http://www.nass.usda.gov/Research_and_Science/stratafront2b.php

2014 STATE AGRICULTURE OVERVIEW

Florida

Farms Operations†

Farm Operations - Area Operated, Measured in Acres / Operation	200
Farm Operations - Number of Operations	47,600
Farm Operations - Acres Operated	9,500,000

Livestock Inventory †

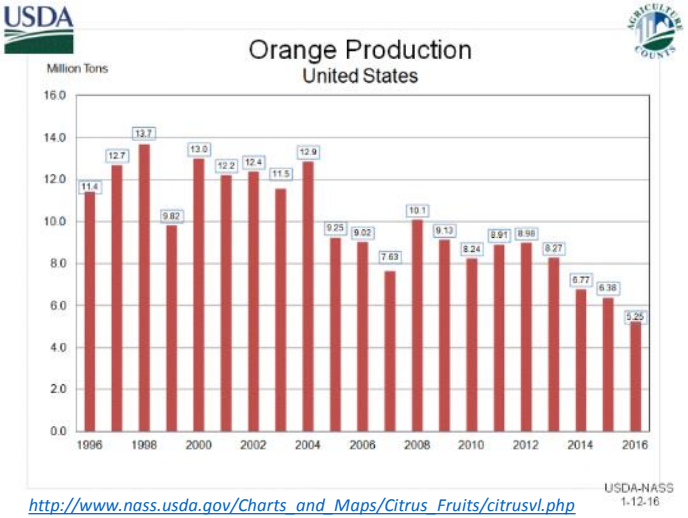
Cattle, Cows, Beef - Inventory (First of Jan. 2015)	916,000
Cattle, Cows, Milk - Inventory (First of Jan. 2015)	124,000
Cattle, Incl Calves - Inventory (First of Jan. 2015)	1,700,000
Goats, Meat & Other - Inventory (First of Jan. 2015)	45,000
Goats, Milk - Inventory (First of Jan. 2015)	6,400
Hogs - Inventory (First of Dec. 2014)	17,000
Chickens, Broilers - Production, Measured in Head	66,700,000

Milk Production †

Milk - Production, Measured in Lb / Head	20,382
Milk - Production, Measured in $	706,974,000
Milk - Production, Measured in Lb	2,507,000,000

http://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=FLORIDA

Utilized Orange Production by Year



http://www.nass.usda.gov/Charts_and_Maps/Citrus_Fruits/citrusvl.php

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/update	Accuracy	Access	Usability
Rating	◐	◐	◐	○	○	◐	●	●	●

SUMMARY

FDOT'S Transtat Office maintains an Oracle database which stores per-vehicle, time-stamped WIM data. The Transtat WIM stations are maintained independently from the MCSAW office's weigh stations. The primary purpose of the weight enforcement program is to protect Florida's highway system and bridges from damage from overweight vehicles. The following vehicles are required to use weigh stations: agricultural, motor vehicles except private passenger automobiles with no trailer in tow, travel trailers, camping trailers, and motor homes; any commercial vehicle (a) with a GWR of 10,000 lbs. or more, (b) designed to transport more than 10 passengers, (c) used to transport hazardous materials.

MORE ABOUT THE DATA:

Developer: FDOT TRANSTAT

Update Frequency: Weekly

Temporal Coverage: 1974 - present

Geographical Coverage: Statewide

Geographical Resolution: Point

Modal Coverage: Trucks

Data Format: CSV, Shape files, Oracle SQL Databases, pdf files

Licensing Agreement: N/A

Acquisition Cost: Free

Contact:

FDOT TRANSTAT
(850)-414-4848

CURRENT APPLICATIONS

- **FDOT TRANSTAT**
  - Project Traffic Forecasting Handbook
  - Traffic Performance Measures

POTENTIAL APPLICATIONS

- Synthesis of truck traffic by type and loading conditions using WIM data
- Combining Container Number Database with Weigh-In Motion database
- Useful in validation exercise in modeling and performance measures

IMPORTANT HIGHLIGHTS

- Currently, the FDOT TRANSTAT Office maintains 31 WIM stations within the state.
  - A 32nd WIM station is planned for I-75 at the Florida / Georgia state border but the site is not active yet. Some additional infrastructure installation is required before polling/data collection begins at the site.
- WIM stations are maintained independently from the Office of Maintenance's Weight stations.
- Oracle Database characteristics:
  - WIM equipment collects the speed, volume, vehicle classification, axle weights, and axle spacing of every vehicle that passes over the sensors.
  - The vehicle classification and speed data are binned similarly to the continuous speed and classification sites.
  - The vehicle weight and axle spacing data are only saved for buses, vehicle classes 4 and higher, in order to conserve memory in the counters.
  - Major attributes include weight, axle weight, volume, speed, FHWA classifications and time stamp of every truck crossing WIM stations.

Weigh in Motion Locations
Source: Traffic Data Section

A	B	C	D	E	F	G	H	I	J	K
COUNTY	SITE	DIR	LANE	BEGDATE	VEHNO	SCHEMEF_CODE	VEHTYP	SPEED	VEH_LENGTH	GROSS_W
74	9923	S	6	01/01/2016 00:00:00	38494	08	38	62	5614	18,739
74	9923	S	6	01/01/2016 00:00:00	38526	08	38	67	4941	15,232
74	9923	N	1	01/01/2016 00:00:00	38529	09	40	66	7352	74,433
74	9923	N	1	01/01/2016 00:00:00	38540	09	40	64	7277	41,855
74	9923	S	6	01/01/2016 00:00:00	38574	09	40	74	7910	71,094
74	9923	N	2	01/01/2016 00:00:00	38579	05	20	66	2274	9,754
74	9923	N	1	01/01/2016 00:00:00	38677	08	38	66	4695	14,667
74	9923	S	5	01/01/2016 00:00:00	38775	08	38	66	5397	17,750
74	9923	S	6	01/01/2016 00:00:00	38792	09	40	71	7986	75,198

Snapshot of WIM Data in Oracle database

Complexity Measure	Spatial Coverage	Commodity Coverage	Industry Coverage	Modal Coverage	Temporal Coverage	Collection Frequency/ update	Accuracy	Access
Rating	●	○	○	●	●	●	●	●

2.1 FREIGHT AND MODAL DATA FEEDBACK SURVEY

In order to gather and coordinate freight and modal data business intelligence used by various FDOT offices and identify the available freight and modal data and information, separate meetings with FDOT Central Office staffs were conducted. The survey questionnaire instrument and survey raw data results are presented in Appendix B. Appendix C provides minutes of meetings with the different offices. A survey was administered as follow up to those meetings and was aimed at gathering specific information about data which are used by the FDOT Central Office staff and are impacted by freight only.

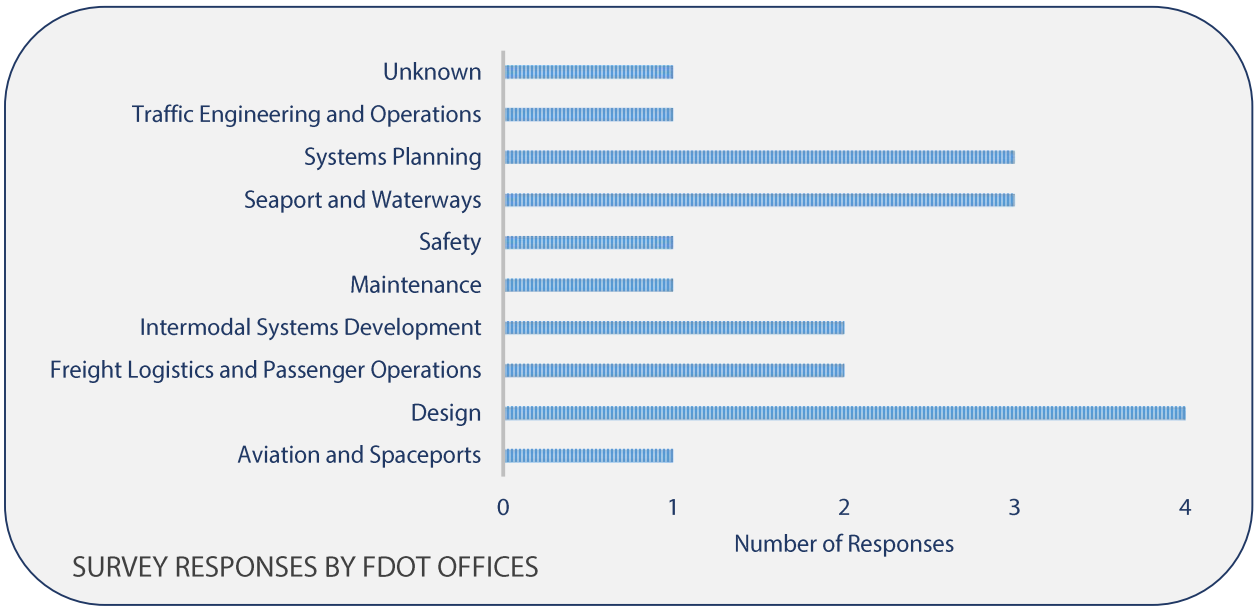
2.1.1: Design of the Survey

The purpose of the survey was to learn about the respondents' freight and modal data usage, needs and procedures. The information they provided through this survey is expected to add valuable guidance to enhance FDOT's Freight and Modal Data Program.

The survey link was sent to 11 different FDOT Central Office staffs on April 28, 2016 and was active for the period from April 28, 2016 to May 12, 2016. The sample size of respondents was approximately 50 FDOT Central Office staff and included the staff who attended the separate meetings. Survey questions included: general questions about where the respondents work; usage of freight and modal data; other FDOT offices where data is acquired; procedures used to request data; resources acquired from non-FDOT offices; tools used for data sharing; freight and modal data usage frequency; data usage needs; data gaps encountered; current communication tools; tools needed for daily business operations in future; where the data is hosted; and the location envisioned to host data in future.

2.1.2: Survey Results

The survey was sent to approximately 50 respondents, which included 11 different FDOT Central Office staffs. At least one response from every FDOT office, with the exceptions of Environmental Management Office and Rail & Motor Carrier Office, was received.



Of the respondents, 52.6% indicated that they have acquired freight and modal data from another FDOT office. Respondents indicated that they acquire many datasets from other FDOT offices which included free as well as proprietary data sets. They use simple forms of communications like phone call and an email to a direct point of contact for acquiring datasets. As per the responses, datasets acquired by an FDOT office from another FDOT offices is currently limited. This indicates lack of need or lack of sufficient information about different data resources available.

PHONE CALLS AND EMAIL COMMUNICATION WERE IDENTIFIED AS THE PREFERRED MEANS TO CONTACT OTHER OFFICES FOR ACQUIRING DATASETS

ALL RESPONDING FDOT OFFICES INDICATED THAT ONLINE FILE DELIVERY SERVICES WERE PRIMARY MEANS TO TRANSFERING DATA (EX. DROPBOX)

Every respondent indicated other FDOT offices provide their data using online services or email attachments. This question listed other response options which were portable devices like CDs, pen drives, etc. None of the respondents indicated usage of portable devices for acquiring data from other FDOT offices. This is an encouraging sign as it is evident that FDOT offices have migrated from traditional forms of data sharing and will be more receptive to new technologies for data sharing.

MAJORITY OF THE RESPONDES INDICATED THAT MULTIMODAL FREIGHT DATA INFORMATION IS NEEDED IN THEIR DAY-TO-DAY ACTIVITIES; WITH THE EXCEPTION OF THE DESIGN OFFICE

WITH THE DAILY NEED FOR MULTIMODAL FREIGHT DATA IT IS ALSO IMPORTANT THAT FREIGHT DATA SOURCES ARE REGULARLY UPDATED AND REFRESHED WITH UP-TO-DATE INDUSTRY IFORMATION

Modal offices, traffic engineering and operations and safety offices use data daily with the exception of ISD and Design who use data rarely and never respectively. They use freight and modal data for preparing their plan documents, analysis of specific case studies, performance measures and for major policy and decision-making.

Except Safety office, all other offices believe that there are "No" goals and objectives of their business plan which are not currently supported through the required freight and modal data and information. Respondents were asked if they have any big data gaps in their planning and reporting functions. They have identified funding constraints for data acquisition, data storage, maintenance and required analytics as the major big data gap. The other big data gap they have identified is lack of enough knowledge about available data sources and lack of tools for search of available data sources.

THE MAJOR GAPS RELATED TO MULTIMODAL FREIGHT DATA WERE IDENTIFIED AS:

FUNDING CONSTRAINTS FOR DATA ACQUISITION,

DATA STORAGE, MAINTENANCE AND REQUIRED ANALYTICS.

LACK OF KNOWLEDGE ABOUT AVAILABLE DATA SOURCES AND LACK OF TOOLS TO SEARCH FOR AVAILABLE DATA SOURCES.

Majority of respondents believe that a portal of feedback from users, web mapping viewer and web mapping functions like data download and dashboard reporting will be beneficial in their business operations. These resources will help in higher usage of the datasets by FDOT offices as well as other agencies. The respondents are more comfortable with the data and communication tool to be hosted in their office or under the firewall of Agency for State Technology (AST). The primary reason is the sensitive and proprietary nature of many data sources. This approach is definitely necessary for the nature of the data sources, but is expected to be less cost-friendly.

Action Items:

- This survey has limited number of responses and was constrained to the FDOT Central Office. The survey and structured meetings should be conducted for a wider audience which includes District offices and other relevant agencies. Some of those agencies may include Department of Revenue, Department of Health and Department of Agriculture. A diverse group will help to understand the data needs, data availability and the perspectives of data usage better.
- The survey responses indicated that reception of standard technology is very positive. It is important that significant efforts are implemented to improve technology capabilities.
- The survey responses indicated additional datasets which are not included in the data inventory as well as data profiles. These additional datasets can be added in the products created in this task work order.
- A sustainable plan is needed to host, maintain and disseminate the datasets by storing them in their respective offices. ROADS project is expected to provide guidance on this topic, but every office should have a new or a revised plan for the longevity of these resources.