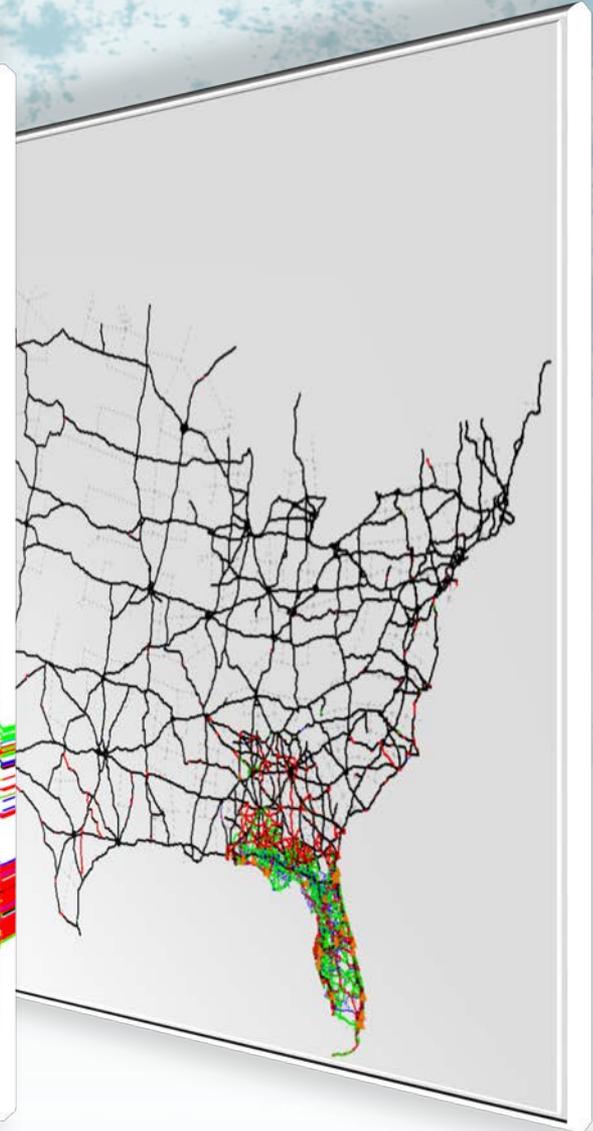
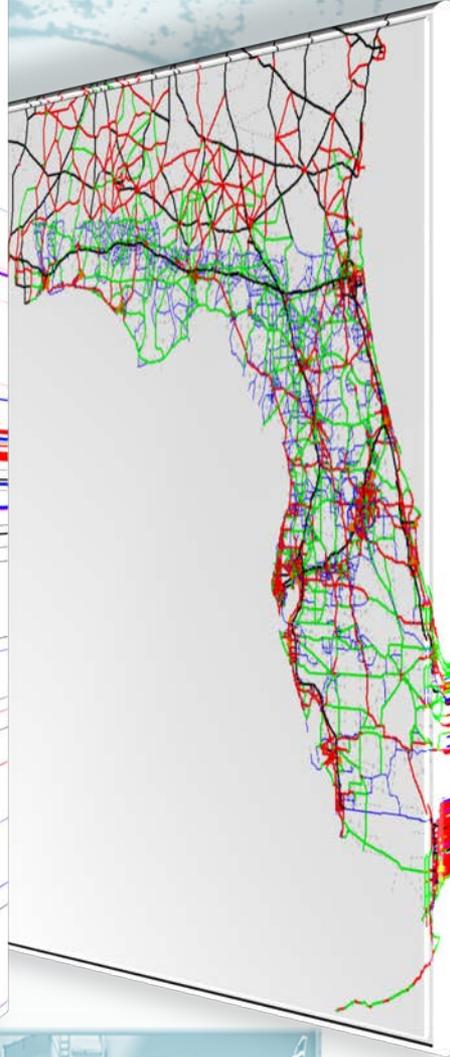
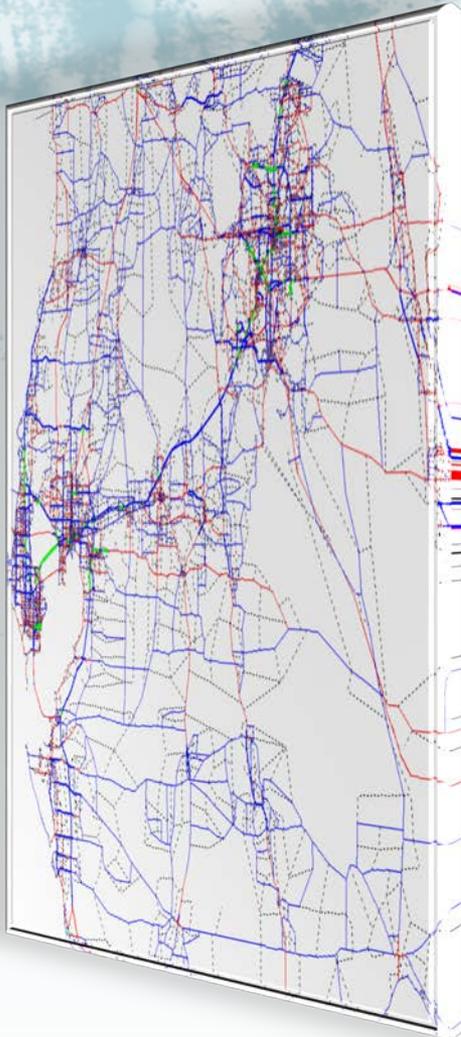


# Florida Statewide Model MPOAC



Thomas Hill  
January 27, 2017

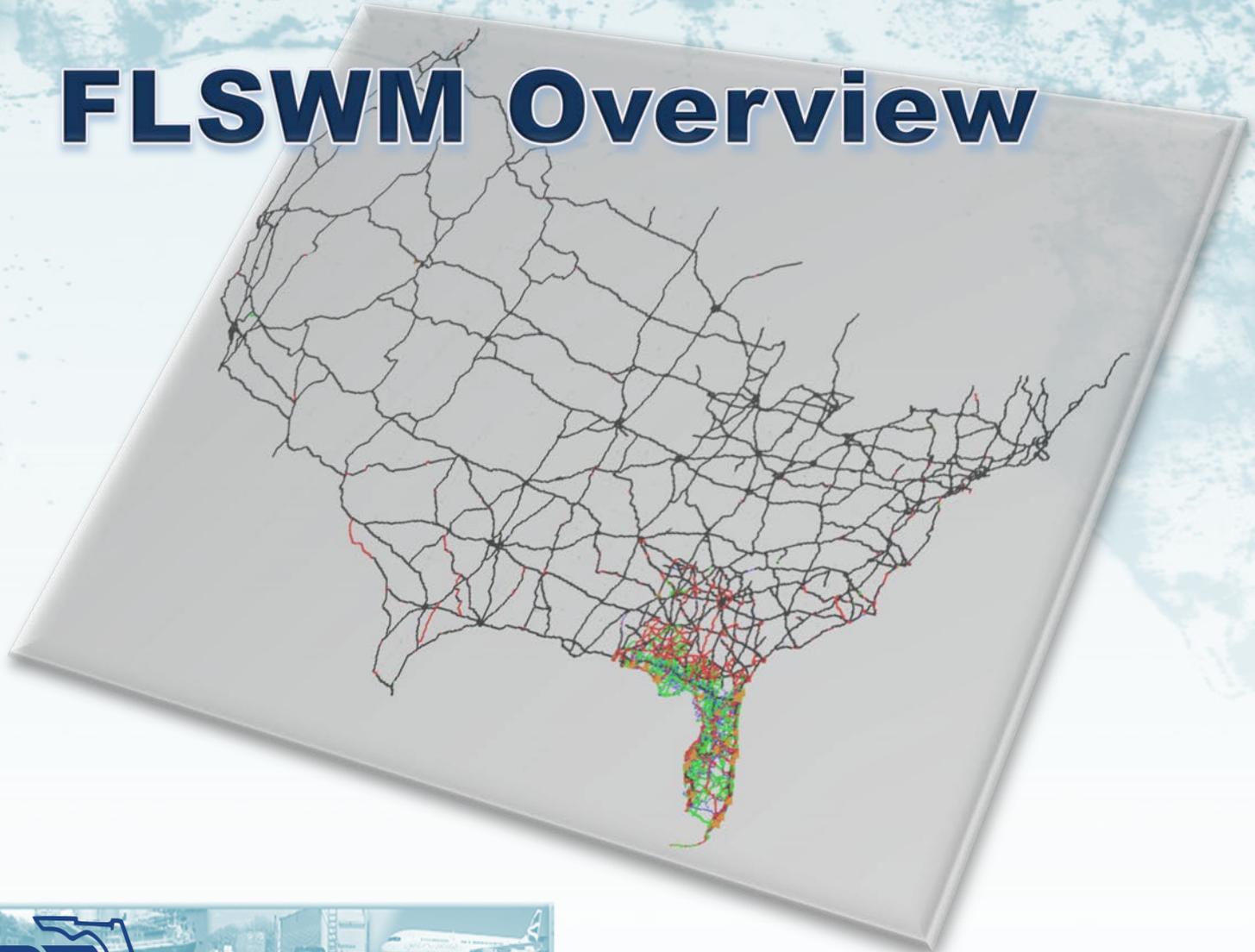
# Florida Statewide Model

- ✓ **FLSWM Overview**
- ✓ **FreightSIM**
- ✓ **Other Items Of Interest**



Florida Statewide Model

# FLSWM Overview



**FLORIDA STATEWIDE MODEL**

# Florida Statewide Model

## Statewide Model Uses

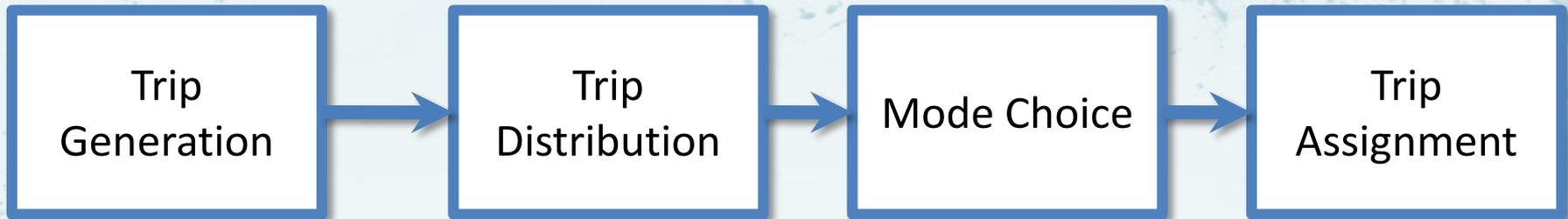
- Impact of Projects at Statewide Level
  - Corridor Improvements
  - Inter-City and Inter-Regional Trip Evaluation
- Sketch-Planning
- Evaluate Investment Scenarios
- Quantify economic impact
- Base Model for Sub-Area and Corridor Modeling



**FLORIDA STATEWIDE MODEL**

# Florida Statewide Model

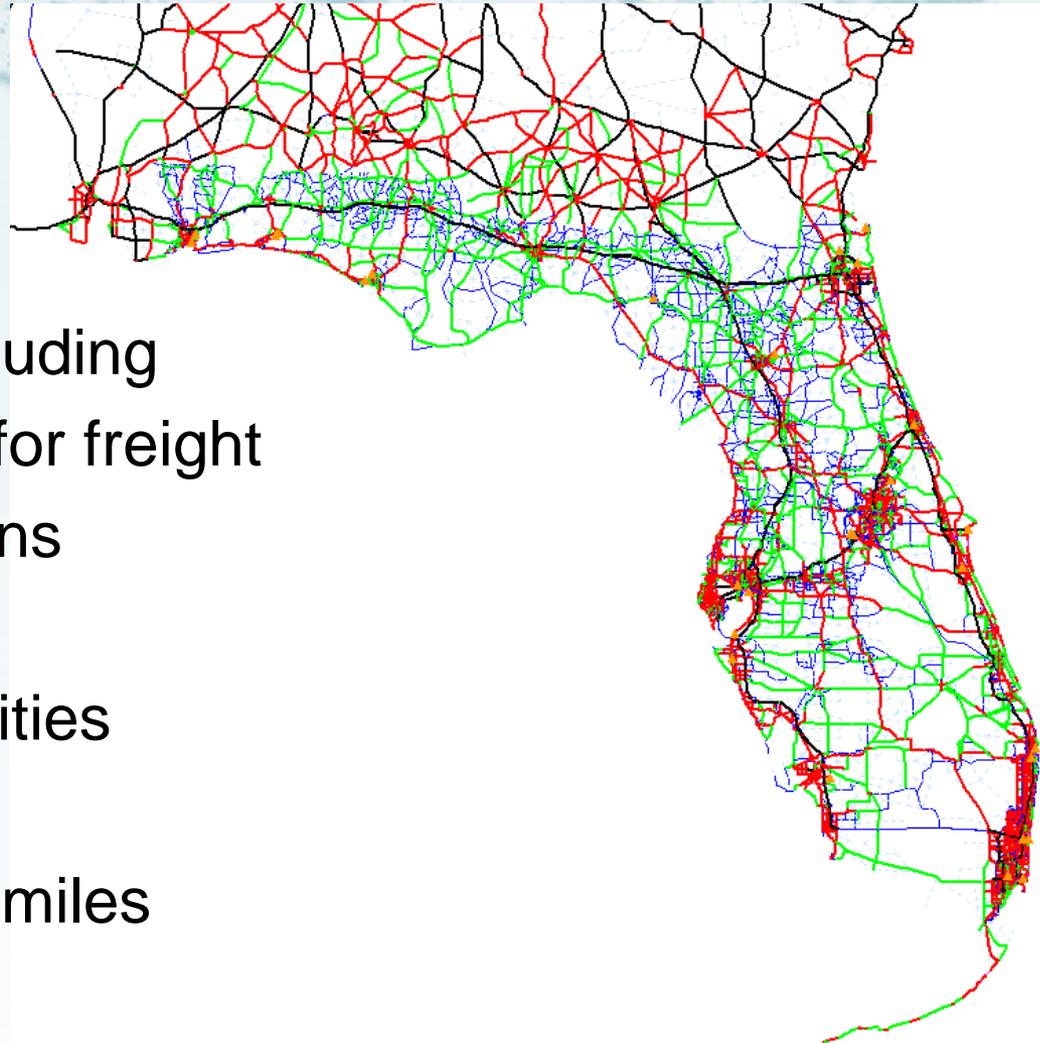
- Traditional four-step model on the passenger side



- Provides traffic analysis capability for all areas of the state
- Rural area forecasting capabilities where local models have not been developed
- Currently no plans to move the FLSWM to an Activity-based Model (ABM)

# Florida Statewide Model

- Zonal Structure
  - 8,518 Florida TAZs
  - 9,538 total TAZs including out-of-state zones for freight plus external stations
- Network
  - Includes all SIS facilities
  - Many local roads
  - Total of 68,900 lane miles



# Florida Statewide Model

**Total Lane miles: 352,784**

Outlying States: 237,800  
(67%)

Outlying GA&AL: 19,309  
(5%)

Border: 15,827 (4%)

Fringe: 10,979 (3%)

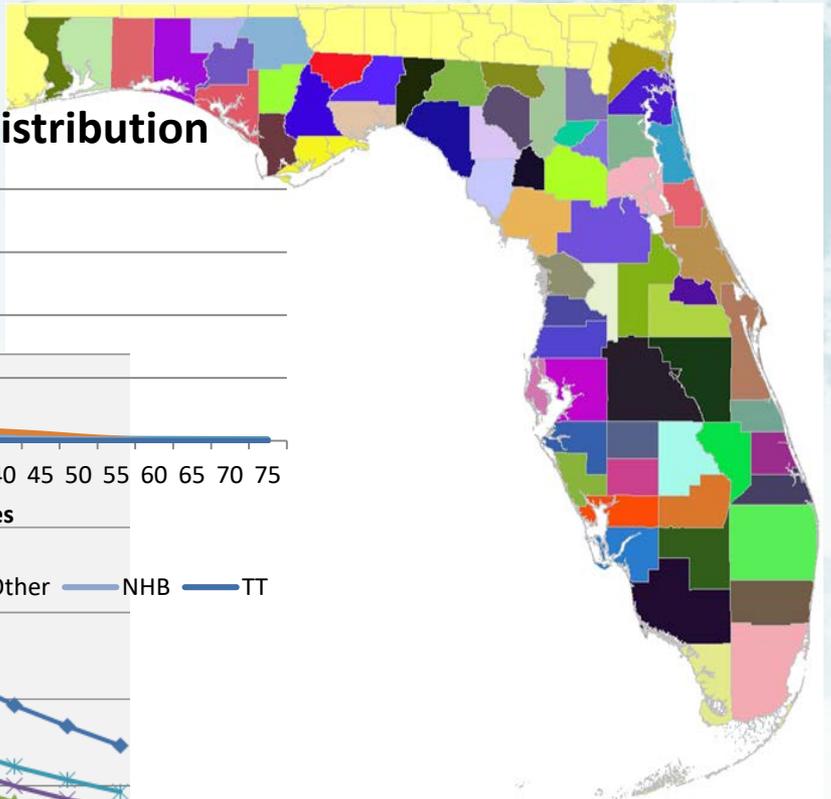
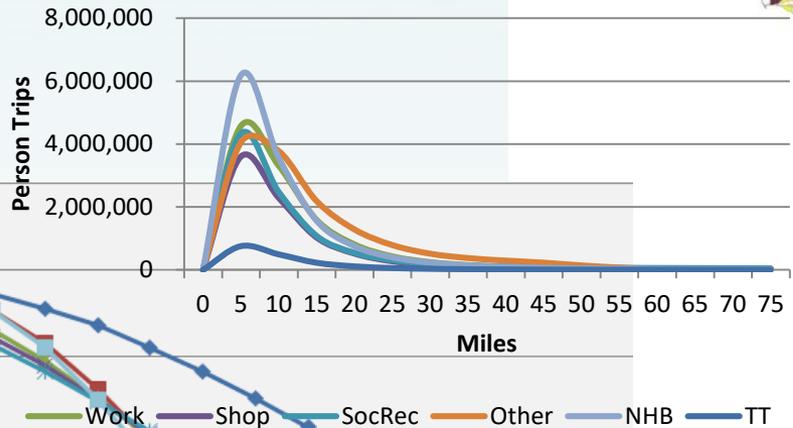
Florida: 68,869 (20%)

- GIS Network
- TrueShape Roadways
- Composition of:
  - MPO Network Links
  - TeleAtlas / NavTeq
  - NTAD NHPN

# Florida Statewide Model

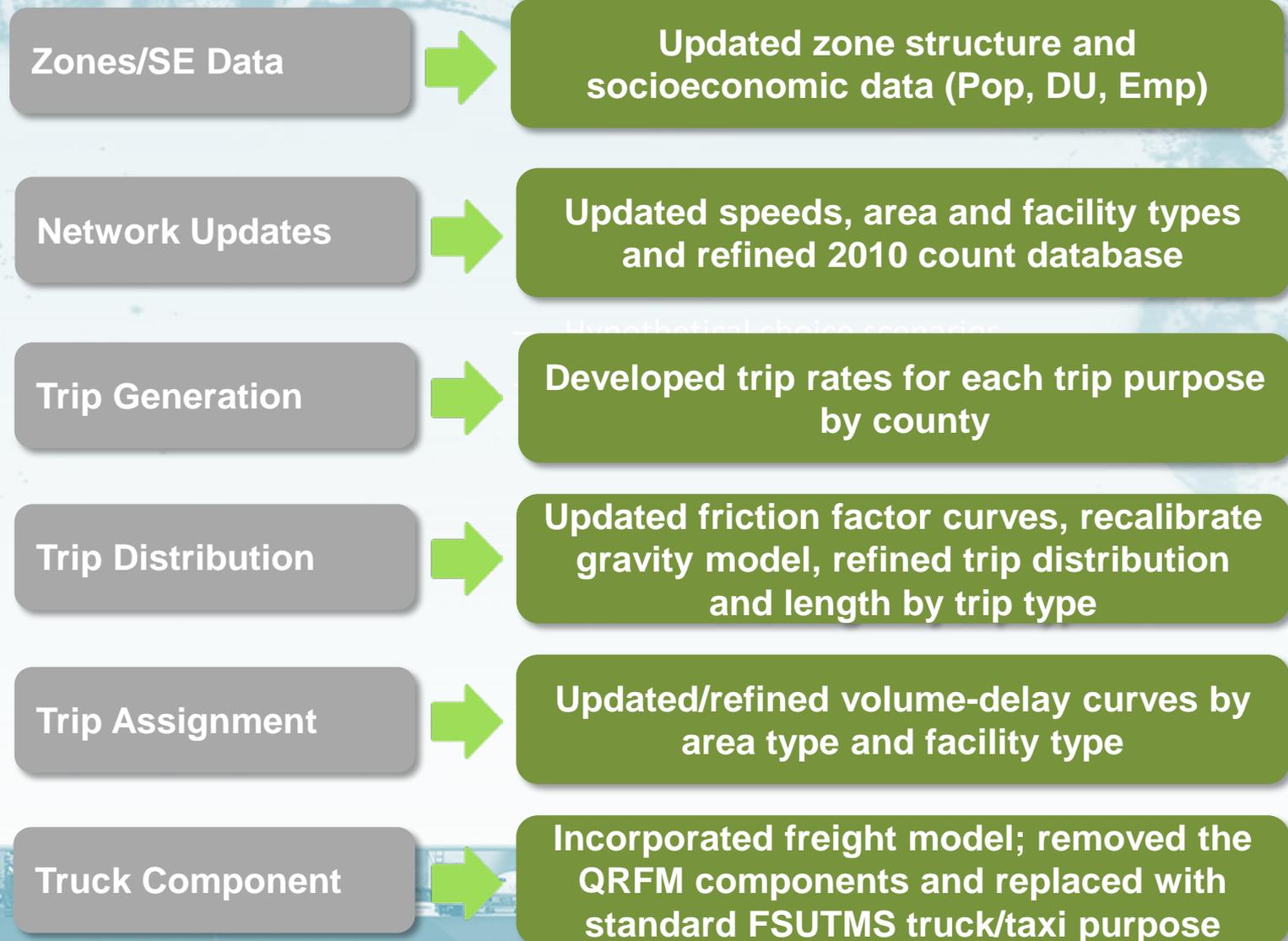
## Completed FLSWM Phase I Efforts

### FLSWM Trip Length Distribution



# Florida Statewide Model

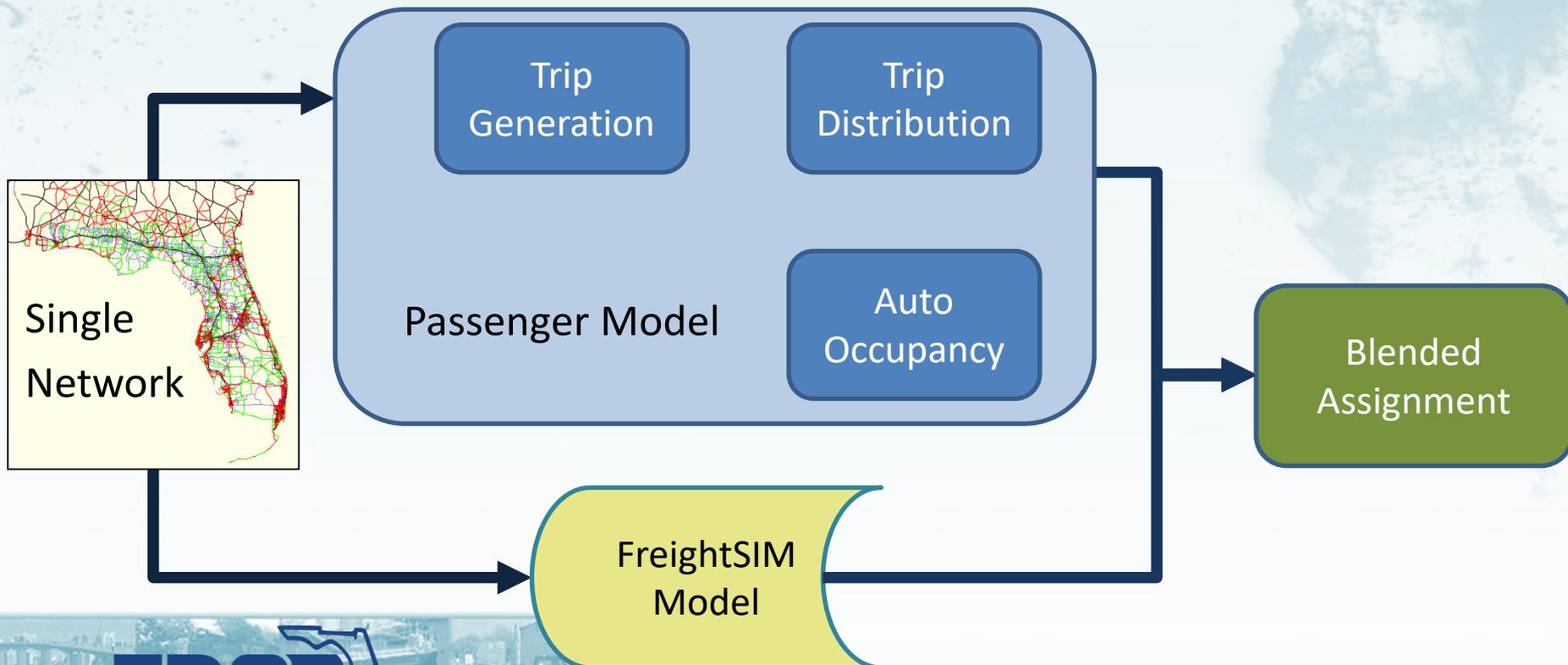
## Overview of FLSWM Updates – Phase I Efforts



# Florida Statewide Model

FLSWM is two models – a passenger model and a freight model. Both use the same network and are blended in final assignment.

## Single Network - Blended Assignment Methodology



# Florida Statewide Model FreightSIM

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



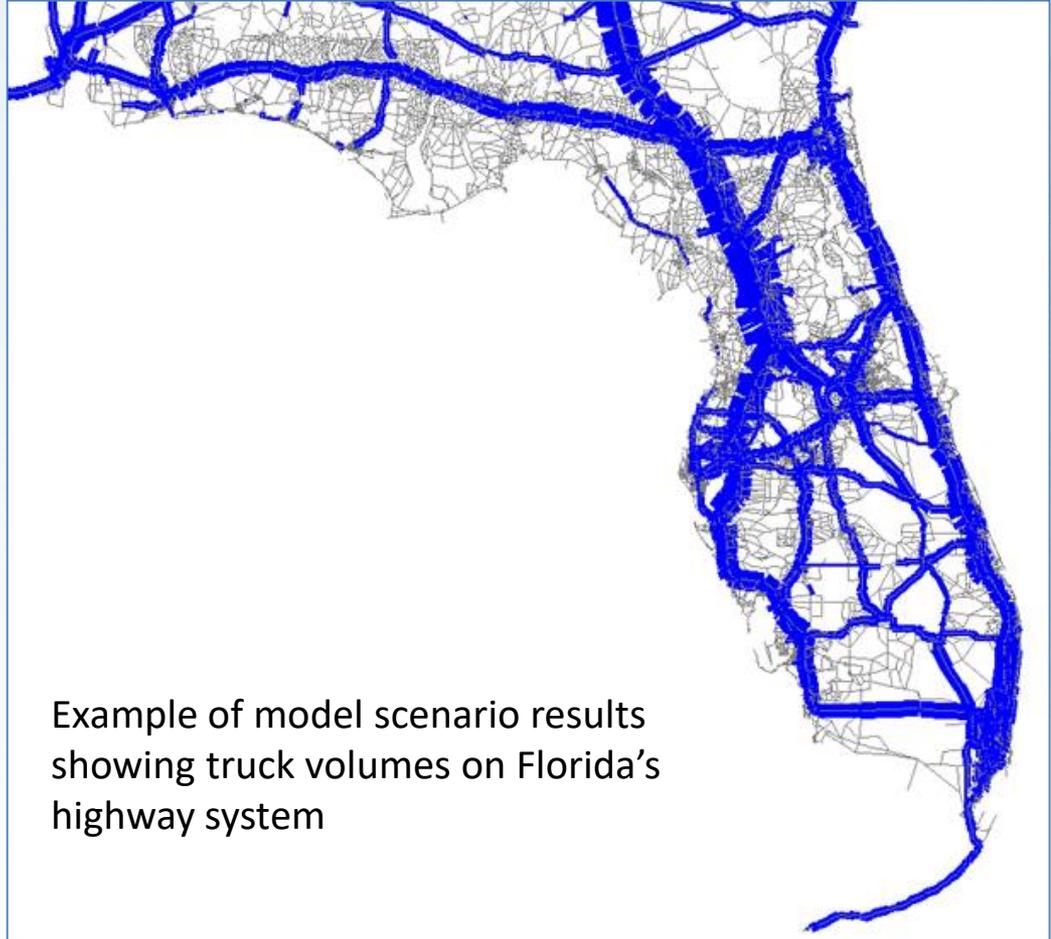
**FREIGHT MODEL UPDATE**

# Florida Statewide Model FreightSIM

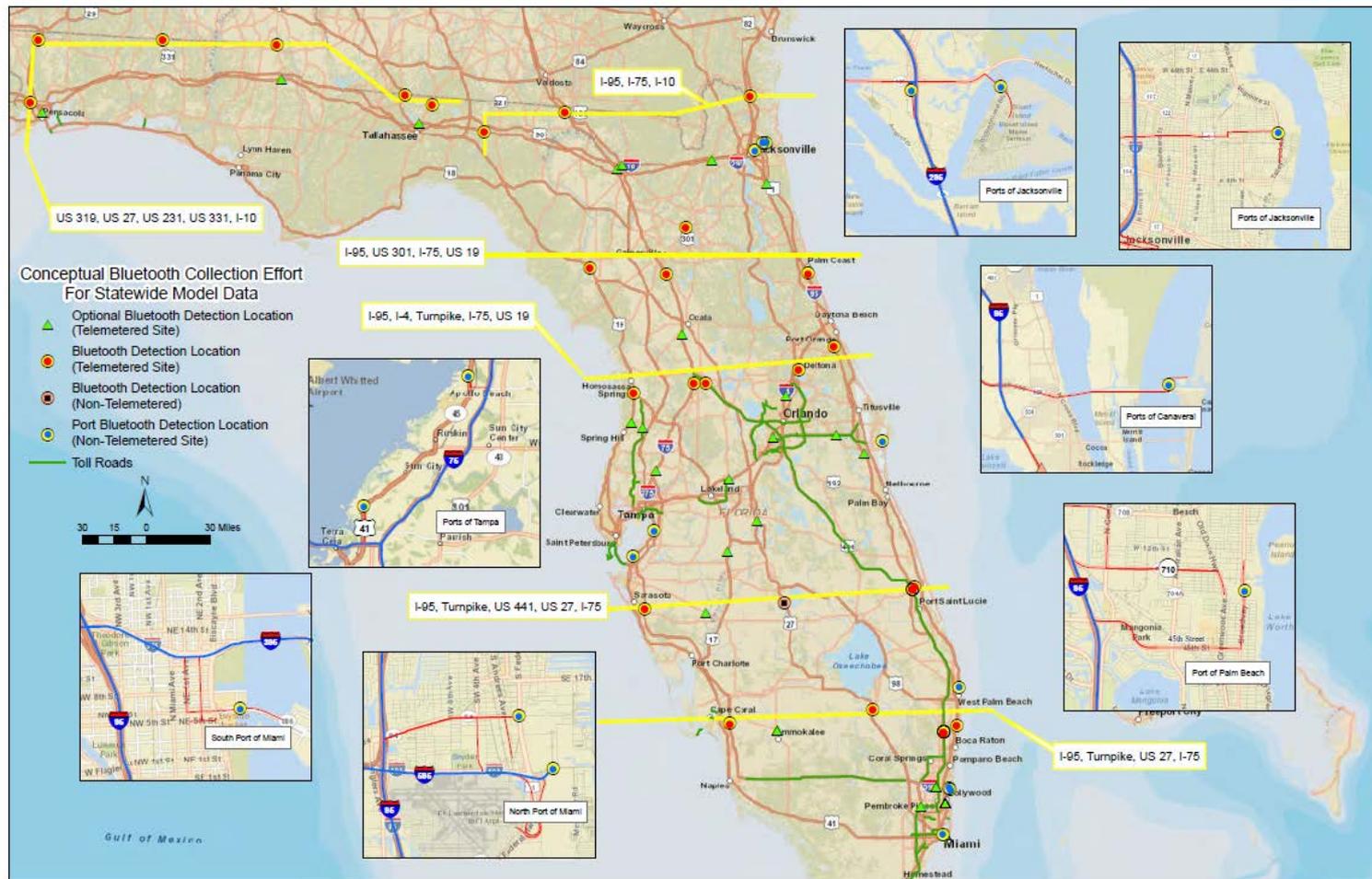
- FreightSIM produces numerous outputs describing freight system performance, including:
  - Shipment movements by mode (road, rail, water, air), with truck based shipments also converted to truck trips
  - Commodity and truck zone to zone trip tables
  - Loaded transportation networks, and derived measures, e.g. vehicle miles traveled by functional class and area type
- The results are sensitive to many policy inputs and change in the economy, including:
  - Infrastructure Investments (highway system, ports)
  - Tolls, user fees, or pricing
  - Growth in employment and productivity by industry

# Florida Statewide Model FreightSIM

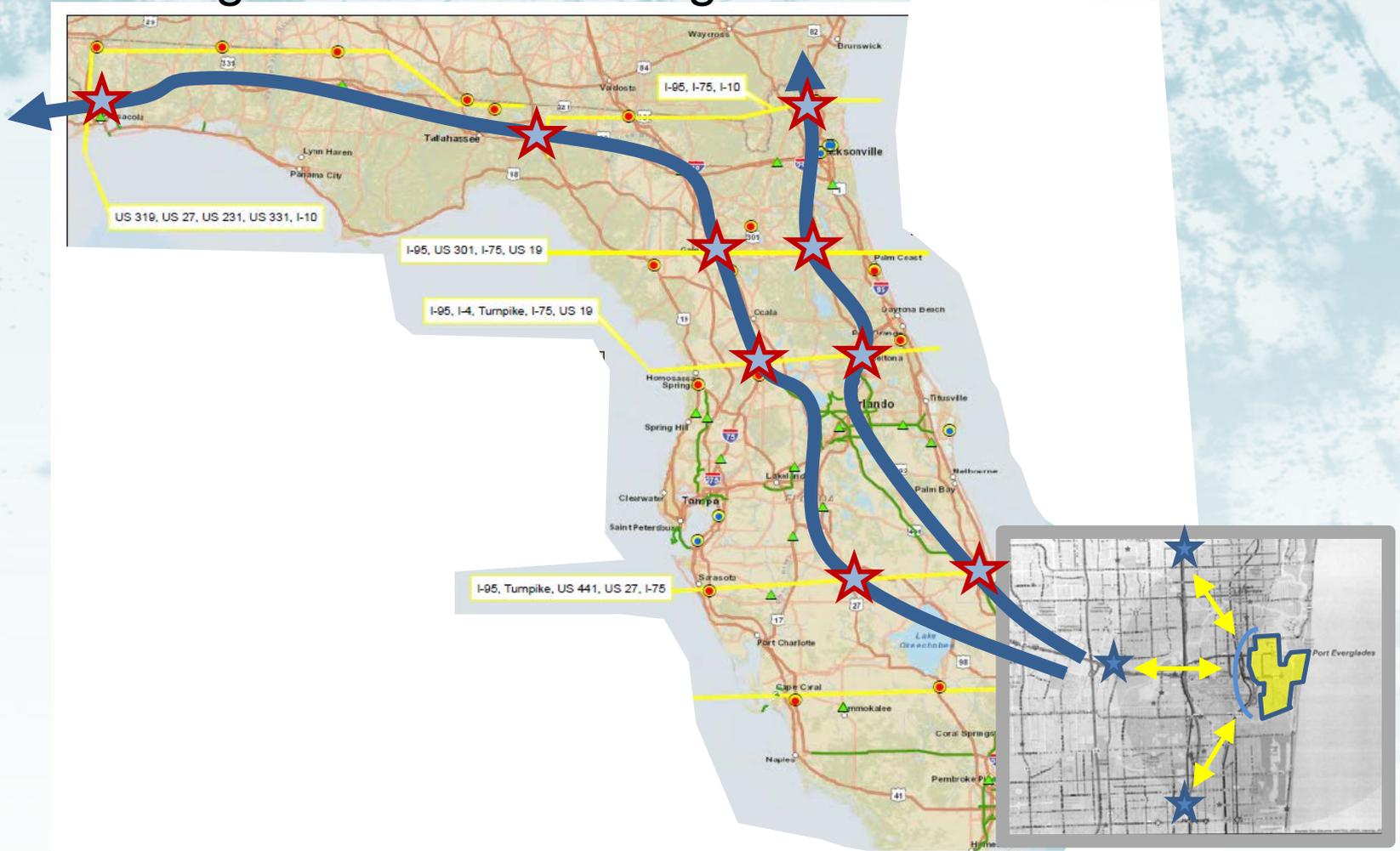
- FreightSIM is multimodal and captures import and export movements as well as domestic freight
- Freight flows through Florida's deep sea ports are represented, for example those through the Port of Jacksonville



# Florida Statewide Model Targeted Bluetooth Origin and Destination



# Florida Statewide Model Targeted Bluetooth Origin and Destination



# Interstate Crossings to Seaports

## PortMiami

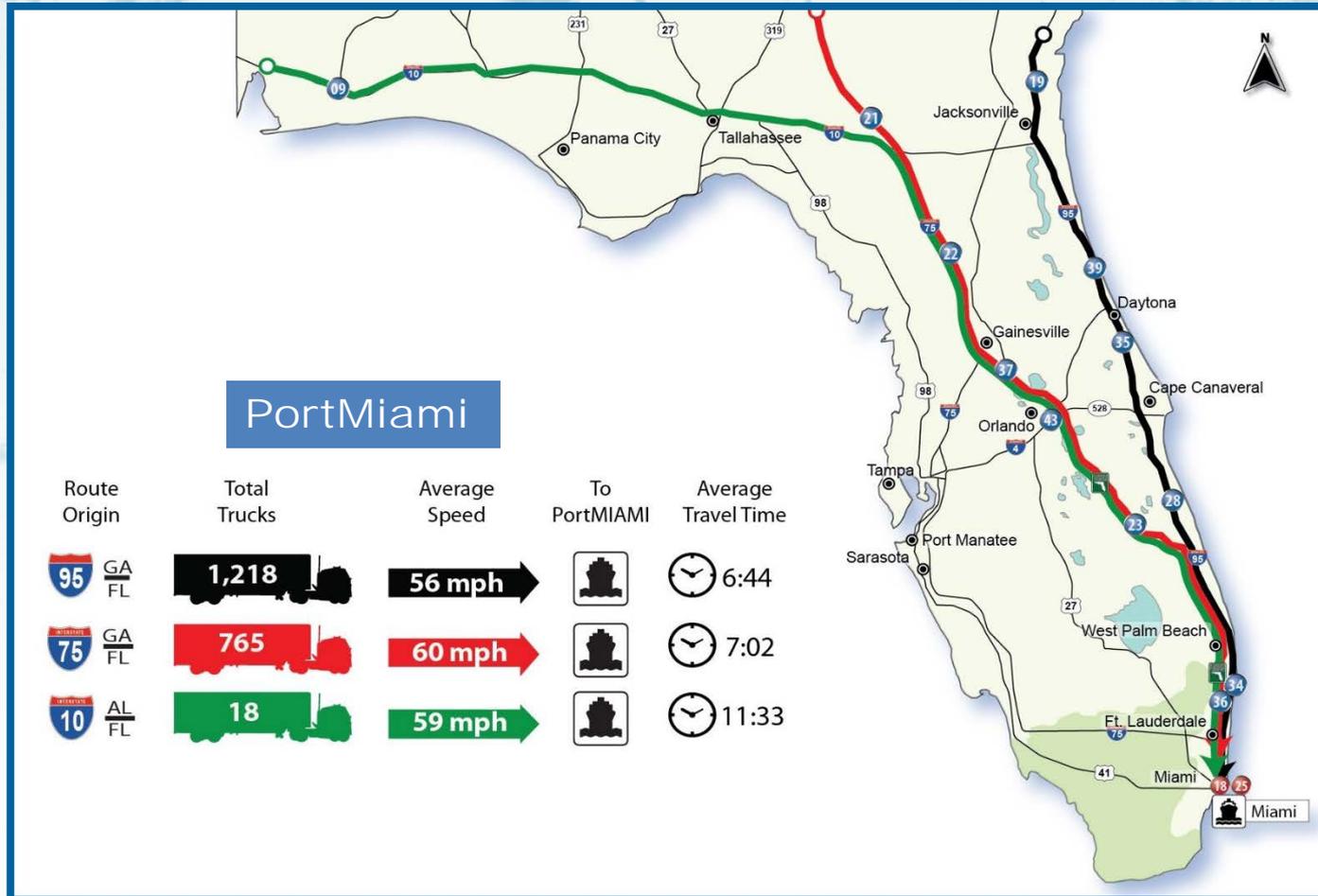
| From I-95 Stateline to PortMiami |          |          |                   | 85%tile      | Avg          |
|----------------------------------|----------|----------|-------------------|--------------|--------------|
| Detection Site(s)                | % Trucks | # Trucks | % Origin Dropoff* | Speed* (mph) | Time* (mins) |
| 19-I-95 Jax Bdr                  | 17.0%    | 141,261  | N/A               | N/A          | N/A          |
| 39-I-95 Palm Cst                 | 15.1%    | 59,274   | 58.0%             | 56           | 85           |
| 35-I-95 N Smyrna                 | 15.0%    | 25,628   | 23.8%             | 65           | 33           |
| 28-I-95 N SR 60                  | 11.9%    | 17,765   | 5.6%              | 64           | 94           |
| 34-I-95 Bynt Bch                 | 5.5%     | 7,450    | 7.3%              | 65           | 94           |
| Port of Miami                    |          | 1,218    | 4.4%              |              |              |
| 25-Tunnel                        | 100.0%   | 1,047    |                   | 34           | 98           |
| 18-Bridge                        | 100.0%   | 171      |                   | 31           | 107          |
| From I-95 Stateline to PortMiami |          |          |                   | 56           | 404          |

| From I-75 Stateline to PortMiami |          |          |                   | 85%tile      | Avg          |
|----------------------------------|----------|----------|-------------------|--------------|--------------|
| Detection Site(s)                | % Trucks | # Trucks | % Origin Dropoff* | Speed* (mph) | Time* (mins) |
| 21-I-75 at Border                | 26.9%    | 148,269  | N/A               | N/A          | N/A          |
| 22-I-75 Gainesville              | 9.7%     | 33,649   | 77.3%             | 67           | 85           |
| 37-TPK N Okmpka                  | 16.2%    | 17,765   | 10.7%             | 68           | 51           |
| 23-TPK Ft D Plaza                | 17.2%    | 6,166    | 7.8%              | 66           | 105          |
| 36-TPK Delray Bch                | 8.5%     | 2,569    | 2.4%              | 64           | 96           |
| Port of Miami                    |          | 765      | 1.2%              |              |              |
| 25-Tunnel                        | 100.0%   | 616      |                   | 37           | 85           |
| 18-Bridge                        | 100.0%   | 149      |                   | 25           | 126          |
| From I-75 Stateline to PortMiami |          |          |                   | 60           | 422          |

| From I-10 Stateline to PortMiami |          |          |                   | 85%tile      | Avg          |
|----------------------------------|----------|----------|-------------------|--------------|--------------|
| Detection Site(s)                | % Trucks | # Trucks | % Origin Dropoff* | Speed* (mph) | Time* (mins) |
| 09-I-10 Pensacola                | 14.4%    | 90,482   | N/A               | N/A          | N/A          |
| 22-I-75 Gainesville              | 9.7%     | 5,331    | 94.1%             | 59           | 356          |
| 37-TPK N Okmpka                  | 16.2%    | 3,735    | 1.8%              | 68           | 51           |
| 23-TPK Ft D Plaza                | 17.2%    | 1,519    | 2.4%              | 66           | 105          |
| 36-TPK Delray Bch                | 8.5%     | 676      | 0.9%              | 64           | 96           |
| Port of Miami                    |          | 18       | 0.7%              |              |              |
| 25-Tunnel                        | 100.0%   | 12       |                   | 37           | 85           |
| 18-Bridge                        | 100.0%   | 6        |                   | 25           | 126          |
| From I-10 Stateline to PortMiami |          |          |                   | 59           | 693          |

\* From previous to current location

# Interstate Crossings to Seaports



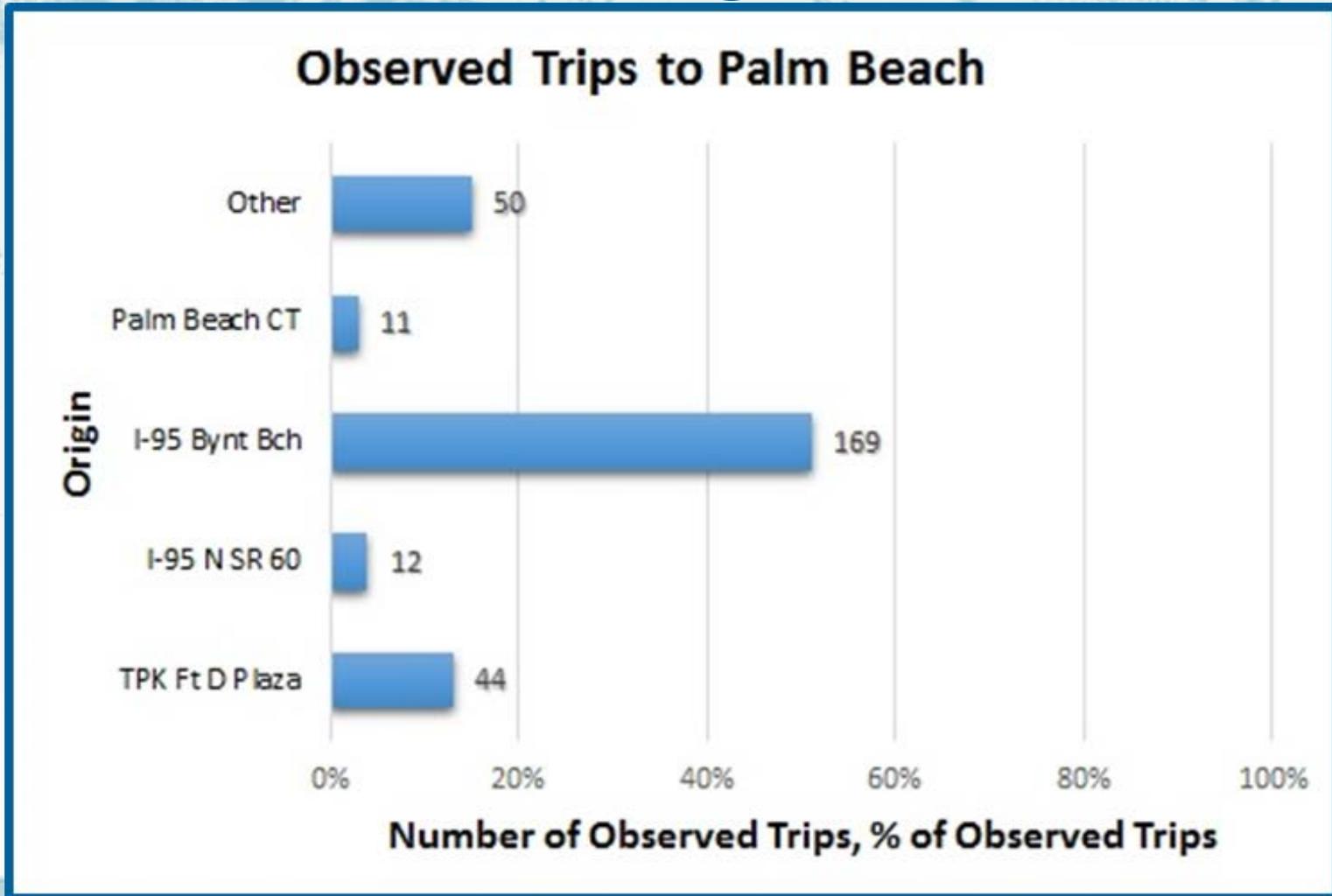
# Seaport to Seaport

## Observations

- Most significant activity occurred between ports in the same or adjacent regions
- Most notable interactions were between PortMiami and Port Everglades and Port Manatee and Port Tampa Bay
- Evidence of long distance interactions was most associated with JAXPORT



# Cruise Passenger Vehicles



# Resulting Data Set

- 35 Days of Data
- 45 Detection Locations

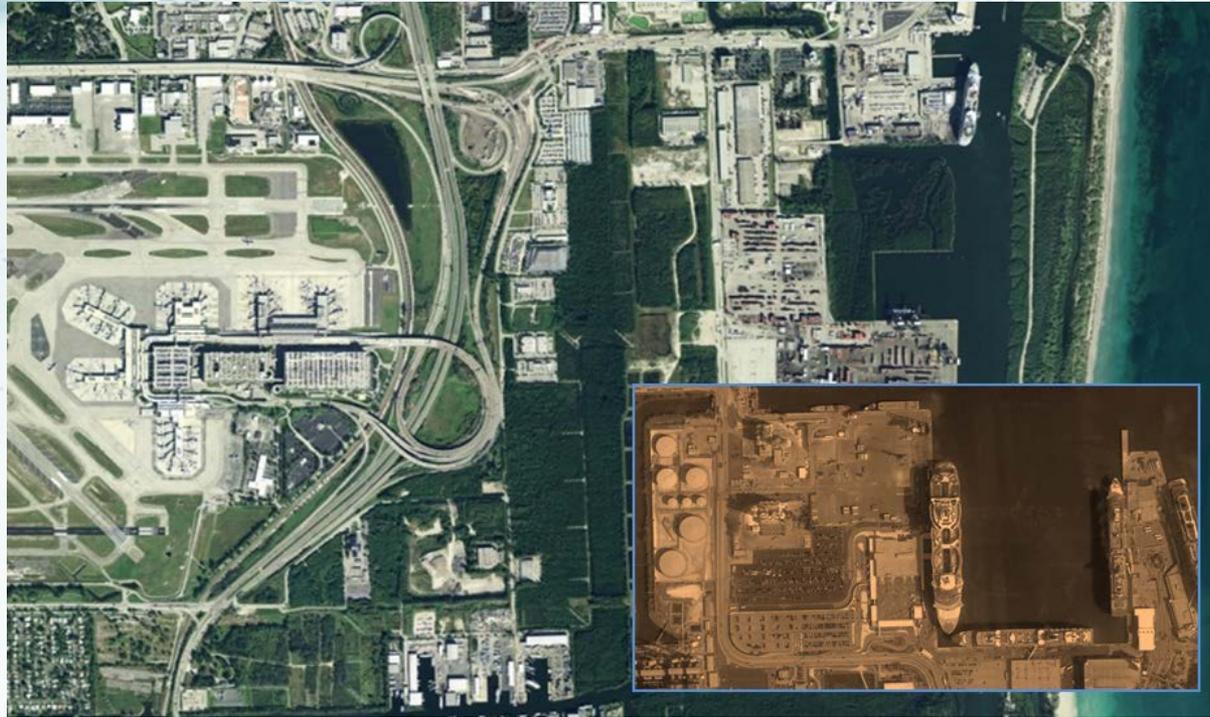
- 25 Million Records
- 4 Million Unique Vehicles

- Model Validation
- Multiple Comparative Transportation Analyses

- Speed, Travel Time, Origin/Destination for Regional, Inter-Regional & Interstate Studies

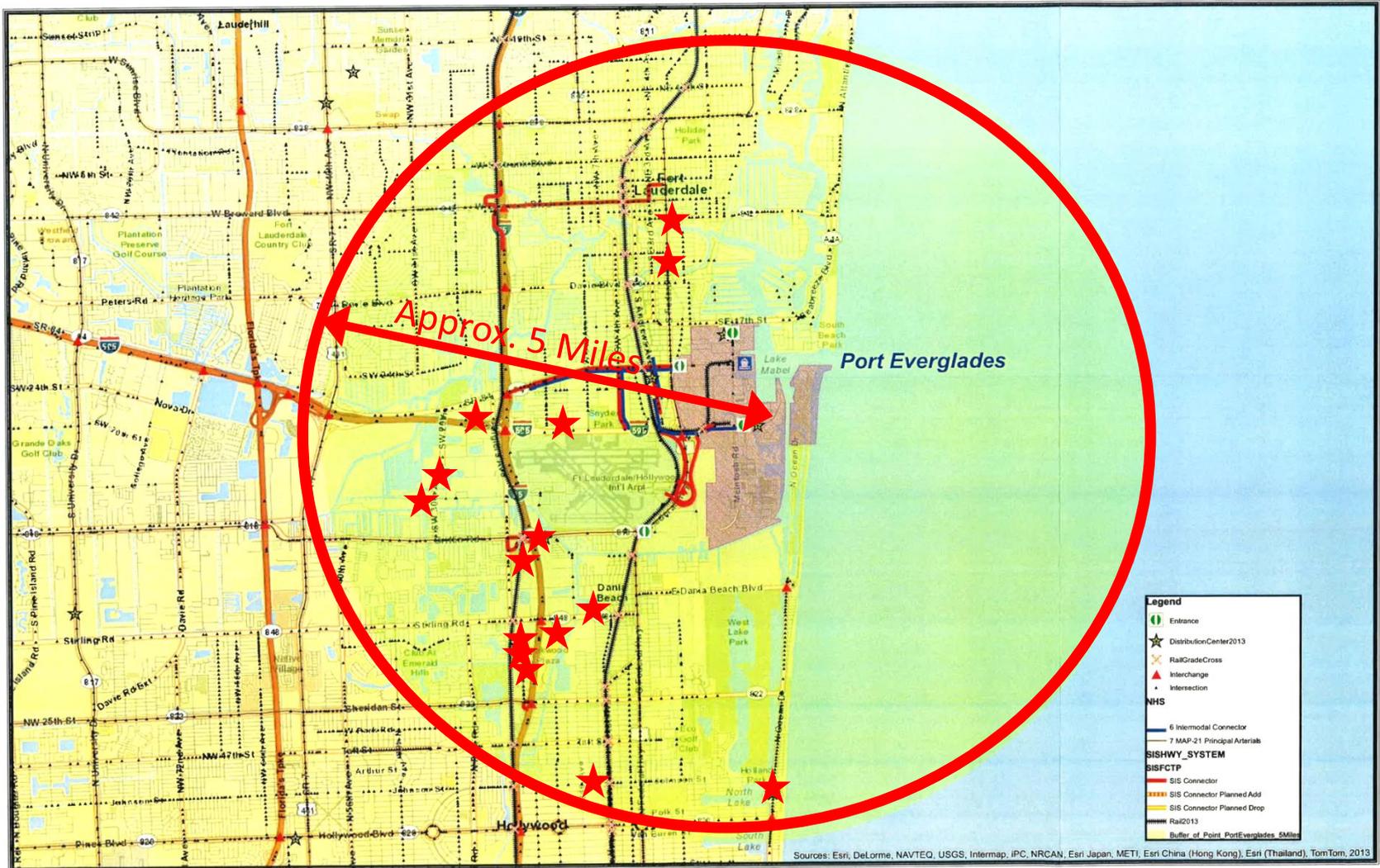
# Florida Statewide Model

## Port Everglades DTA and Microsimulation Models



# Florida Statewide Model

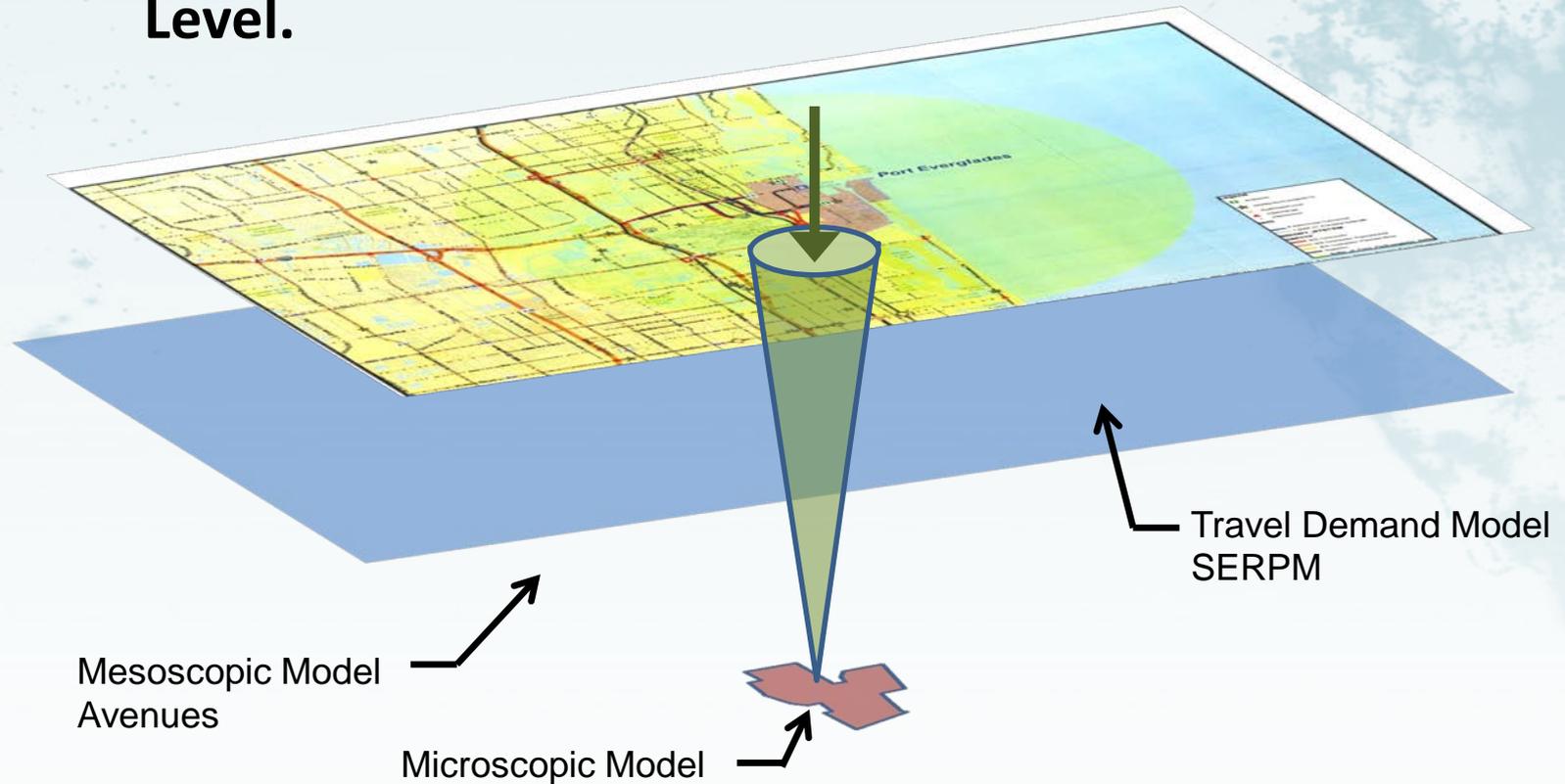
## Port Everglades DTA and Microsimulation Models



# Florida Statewide Model

## Port Everglades DTA and Microsimulation Models

**Multi Resolution Drill Down  
Ability to Scenario Plan at an Operational  
Level.**



# Florida Statewide Model

## Other Research Initiatives

- Tourist Data – Tourist Model
  - University of Florida, Department of Tourism
    - National Research Center for Tourism
- Contraflow vs. Hard Shoulder
- Urban Area Incident Evacuation
  - Research Funded
  - Soliciting for a researcher
- Economic Forecast using FreightSIM
  - Dr Peng, University of Florida, Department of Civil Engineering



**FLORIDA STATEWIDE MODEL**

# Florida Statewide Model

## Statewide Model Contact:

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