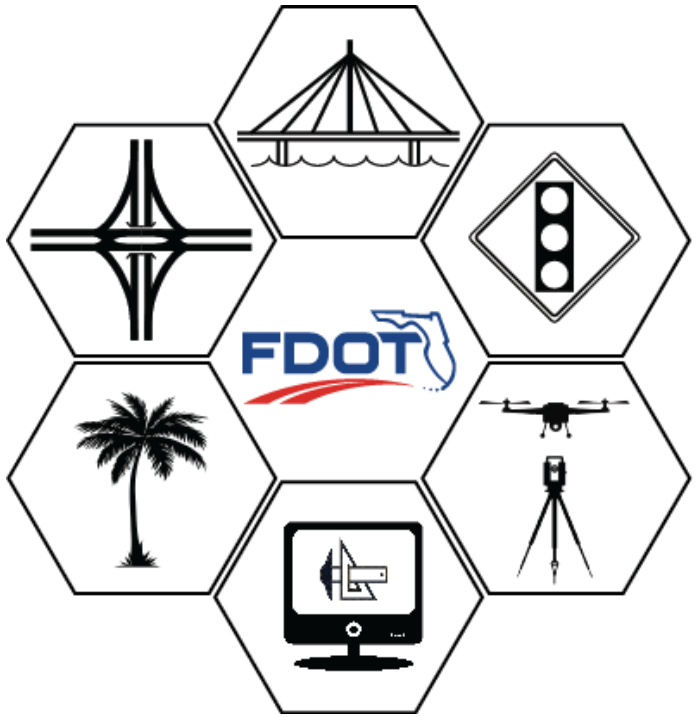


FDOT TRANSPORTATION SYMPOSIUM 2019

Freight and Operations

Marie Tucker and Jeff Frost

FDOT TSM&O Transportation Systems Management & Operations

A Multi-Agency Partnership CVO

FDOT MOTOR CARRIER SIZE AND WEIGHT

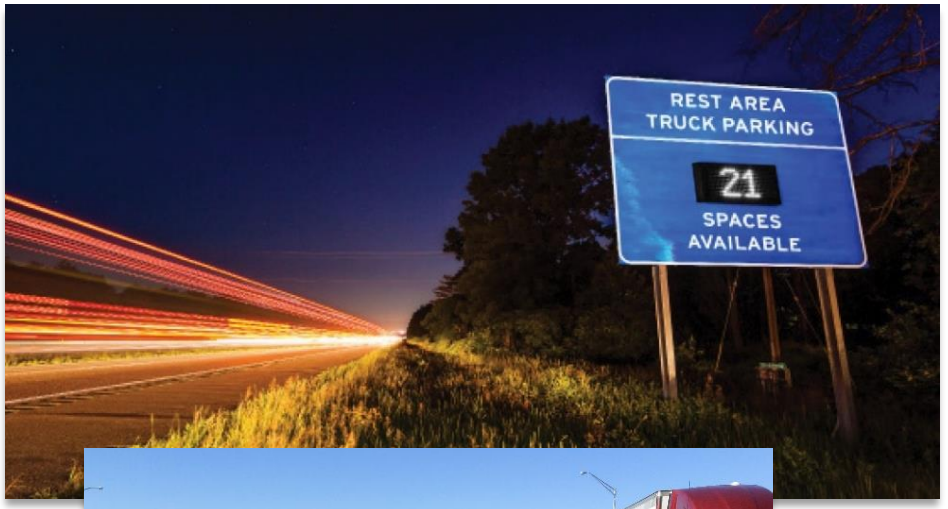
Presentation Overview

- Truck Parking Availability System (TPAS)
  - Research Projects
  - TPAS Deployment Locations
  - Project Schedule
  - TPAS Documents
  - TPAS Architecture
- Freight Operations
  - Asset Management
  - Fiber Optic Communication
  - Reporting application
  - Operations
  - Business Plan

Truck Parking Availability System (TPAS)

TPAS Supports

- Federal Motor Carrier Safety Administration (FMCSA) Hours-of-Service regulation
- Safe and convenient parking options
- Just-in-time delivery
- Advance planning for freight operation
- Reduced truck parking violations
- Electronic monitoring and dissemination of information



Florida International University (FIU) Research

Identified current supply and demand of public parking

- Identified needs to “balance” parking use
- Assess technology to improve parking management

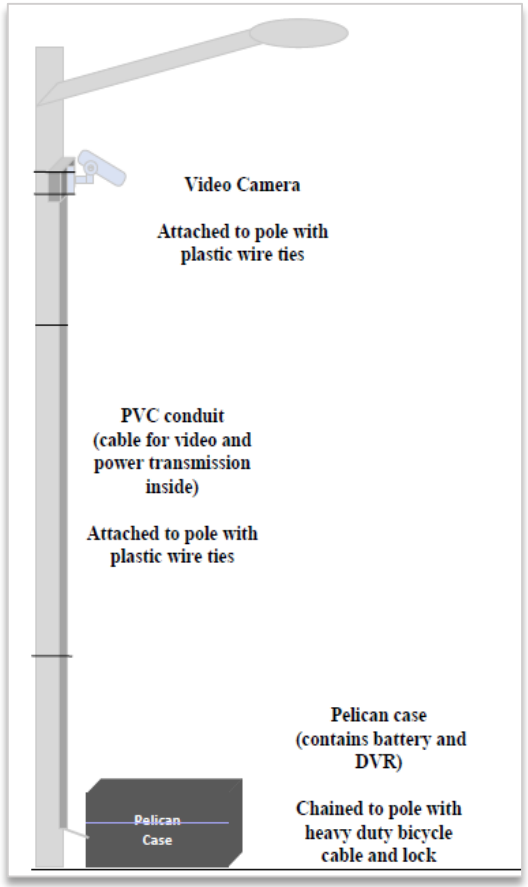
University of Florida (UF) Research

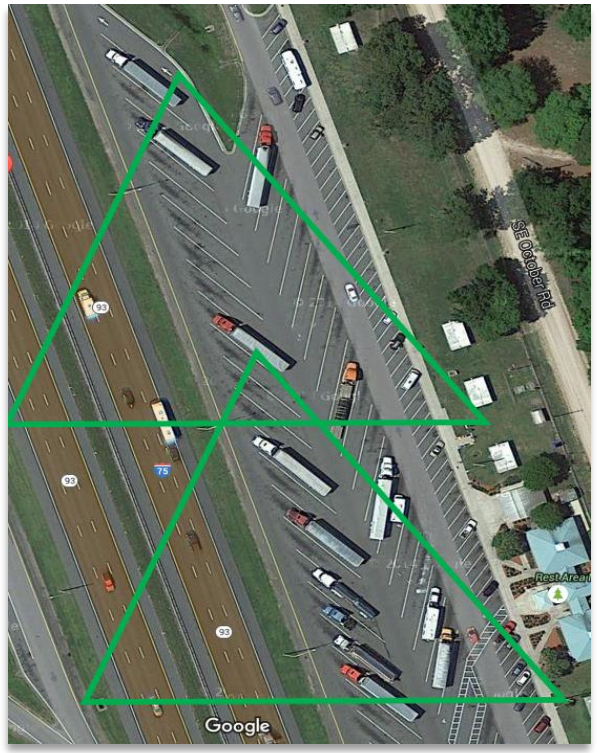
Evaluation of in-ground sensors to examine their capabilities

- Tested four different vendors

Ground-truth data through video logs

Three products listed on Innovative Products List (IPL)





Video Camera Mounting Details

University of Florida (UF) Research

Performance Accuracy Requirements

- Turnover Accuracy – 90%
- Occupancy Accuracy – 95%
- Detection system test conducted over two 15 hour (6:00 pm to 9:00 am) sessions

Developmental Specification 660

VEHICLE DETECTION SYSTEM.
(REV 12-20-16)

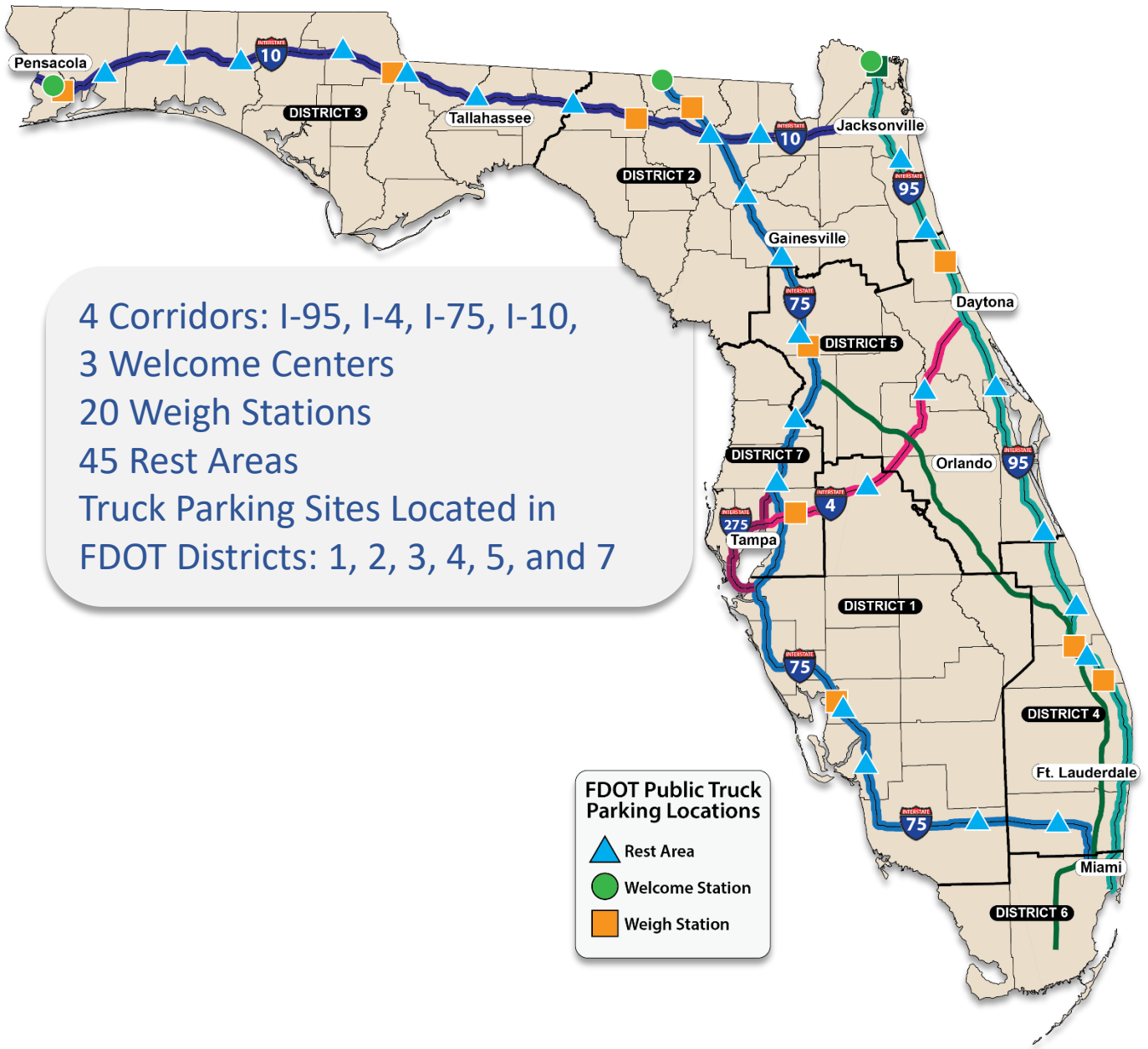
ARTICLE 660-2 is expanded by the following:

660-2.5 Truck Parking Detection System: Furnish and install a truck parking detection system in accordance with the details shown in the Plans. The detection system must be capable

TPAS Initial Locations

- 45 rest areas
- 20 weigh stations
- 3 welcome centers

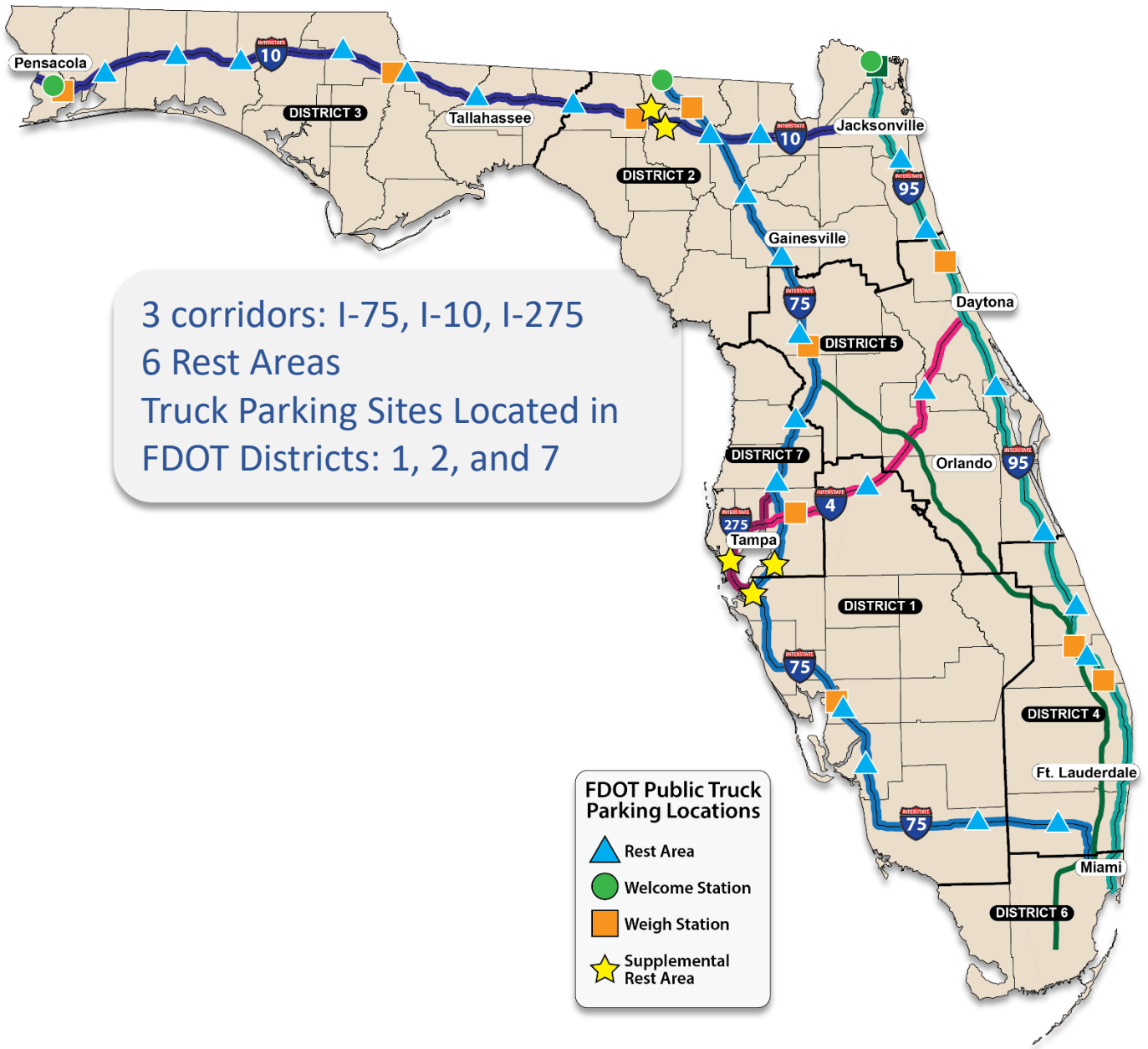
Number of Truck Parking Spaces Monitored	2,352
Wireless Detection System (WDS)	1,875
Microwave Vehicle Detection System (MVDS)	477



FDOT TRANSPORTATION SYMPOSIUM

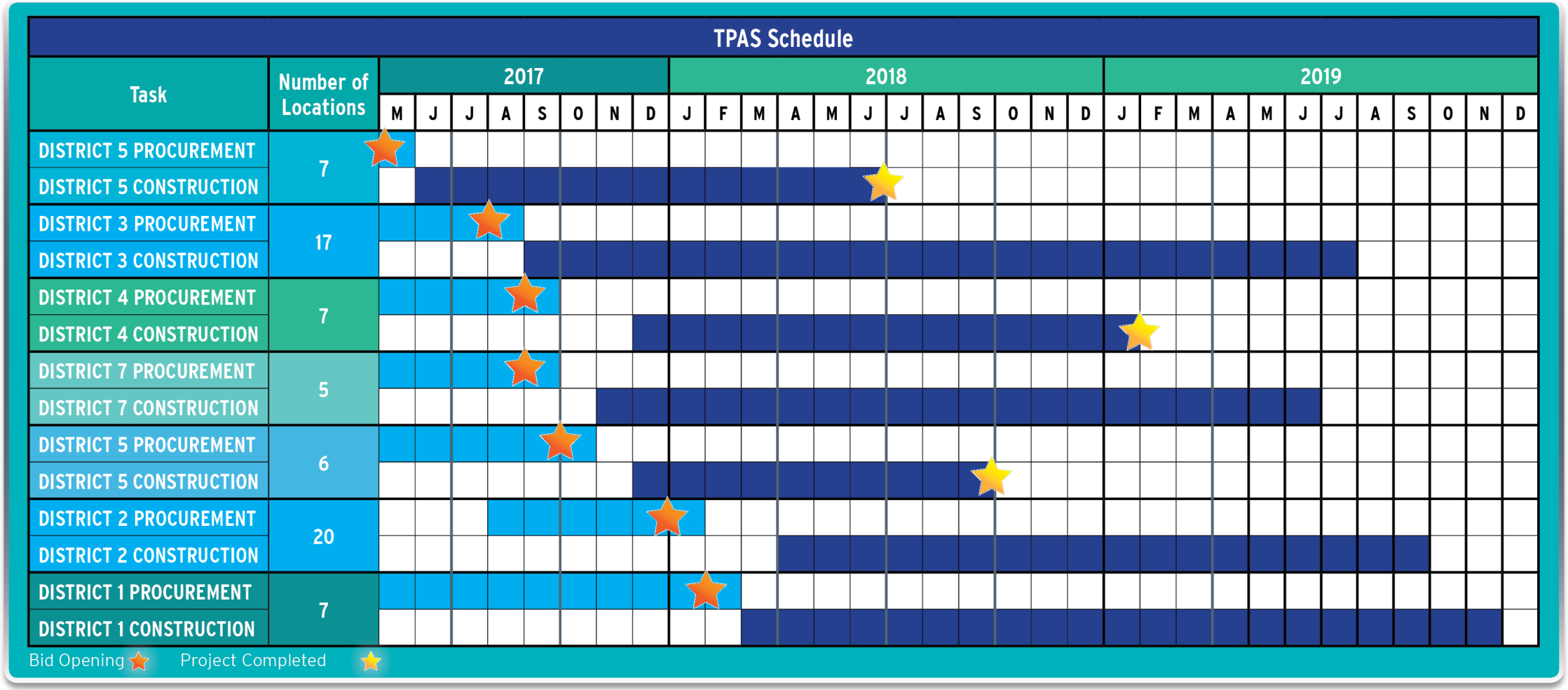
TPAS Supplemental Locations

- 6 Additional Rest Areas
  - I-10 EB Suwannee County
  - I-10 WB Columbia County
  - I-75 SB Hillsborough County
  - I-75 NB Hillsborough County
  - I-275 SB Pinellas County
  - I-275 NB Manatee County



FDOT TRANSPORTATION SYMPOSIUM

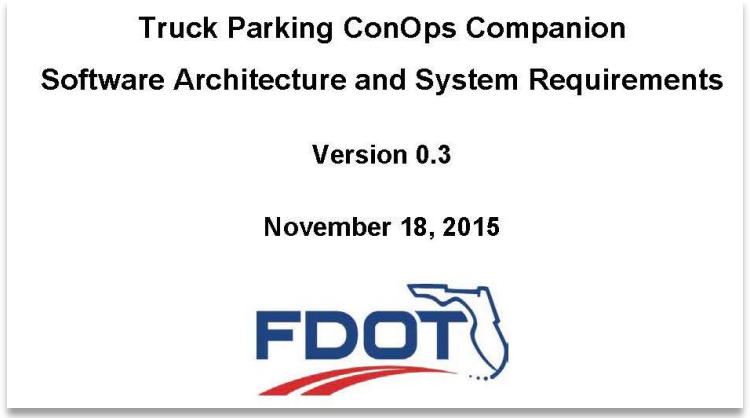
Project Schedule



TPAS System Engineering Documents

Deployment TPAS System

- Project Systems Engineering Management Plan (PSEMP)
- Concept of Operations
- Truck Parking ConOps Companion
- Requirement Verification Traceability Matrix (RTVM)
- TPAS Guidelines for RTMC Standard Operating Procedures (SOPs)



TPAS Concept Plans and Guide Sign

- Guide Sign Worksheets
  - Includes internal circulation sign

TPAS Supplemental Sponsorship Sign

- 6‘ X 4’ Size of the Supplemental Sponsorship Sign
- Supplemental Sign located right justified below TPAS Sign
- FDOT received FHWA Approval

TPAS Architecture

Data collection

- Through TPAS sensors

Data communications

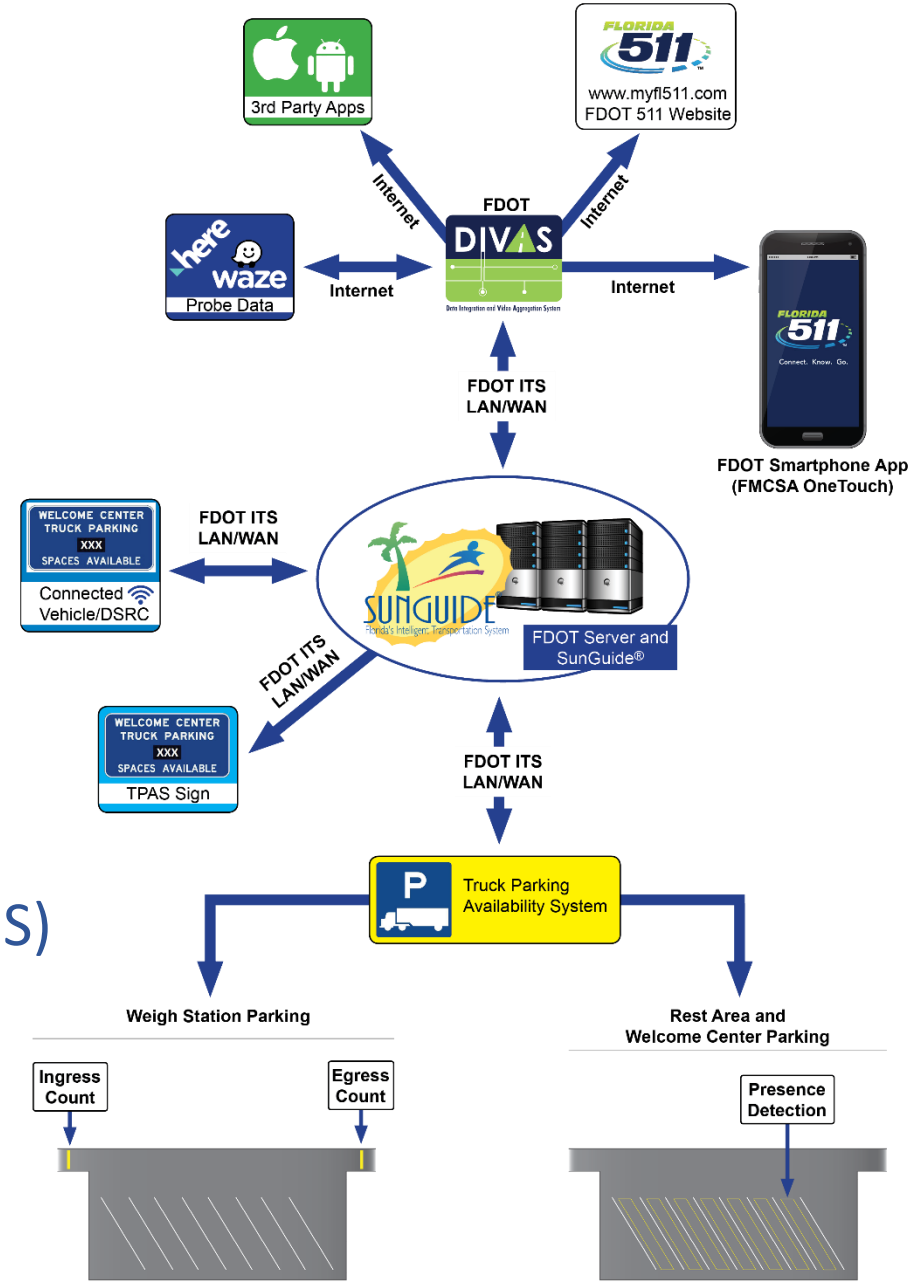
- Existing ITS SICN

Data collection, processing, and storage

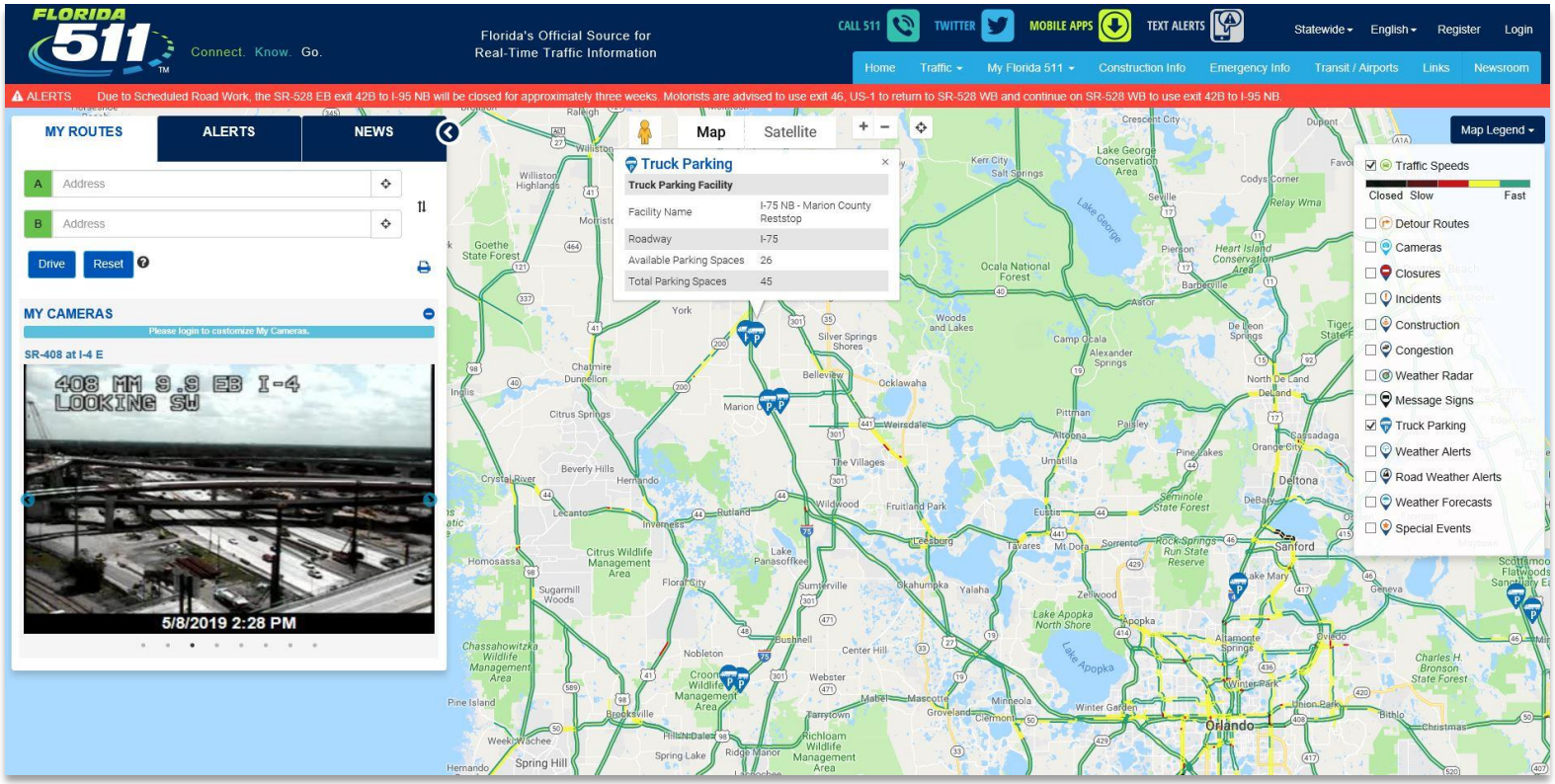
- RTMC using SunGuide® system

Data dissemination

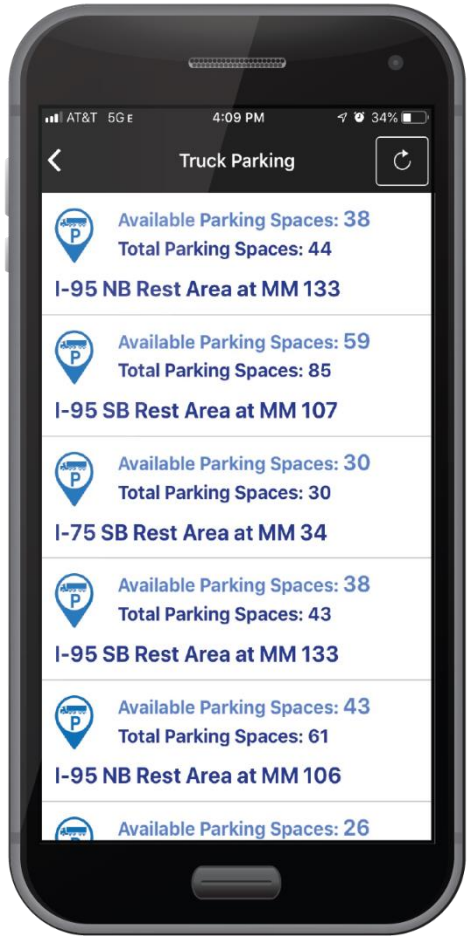
- Embedded roadside Dynamic Message Sign (DMS)
- Connected Vehicle - Future
- Data Integration and Video Aggregation System (DIVAS)
  - Florida 511, 3rd Party Apps, Waze



Information Dissemination - 511



FL511 Website Truck Parking Facility Map View



FL511 Mobile App Truck Parking Facilities List View

FDOT TRANSPORTATION SYMPOSIUM

Freight Operations

Commercial Vehicle Operations (CVO)
Motor Carrier Size and Weight (MCSAW)

- Facilities Asset Management
- Statewide Fiber Optic Communication
- Weight Inspector Reporting Application (WIRA)
- Planning consistency

Motor Carrier Size and Weight

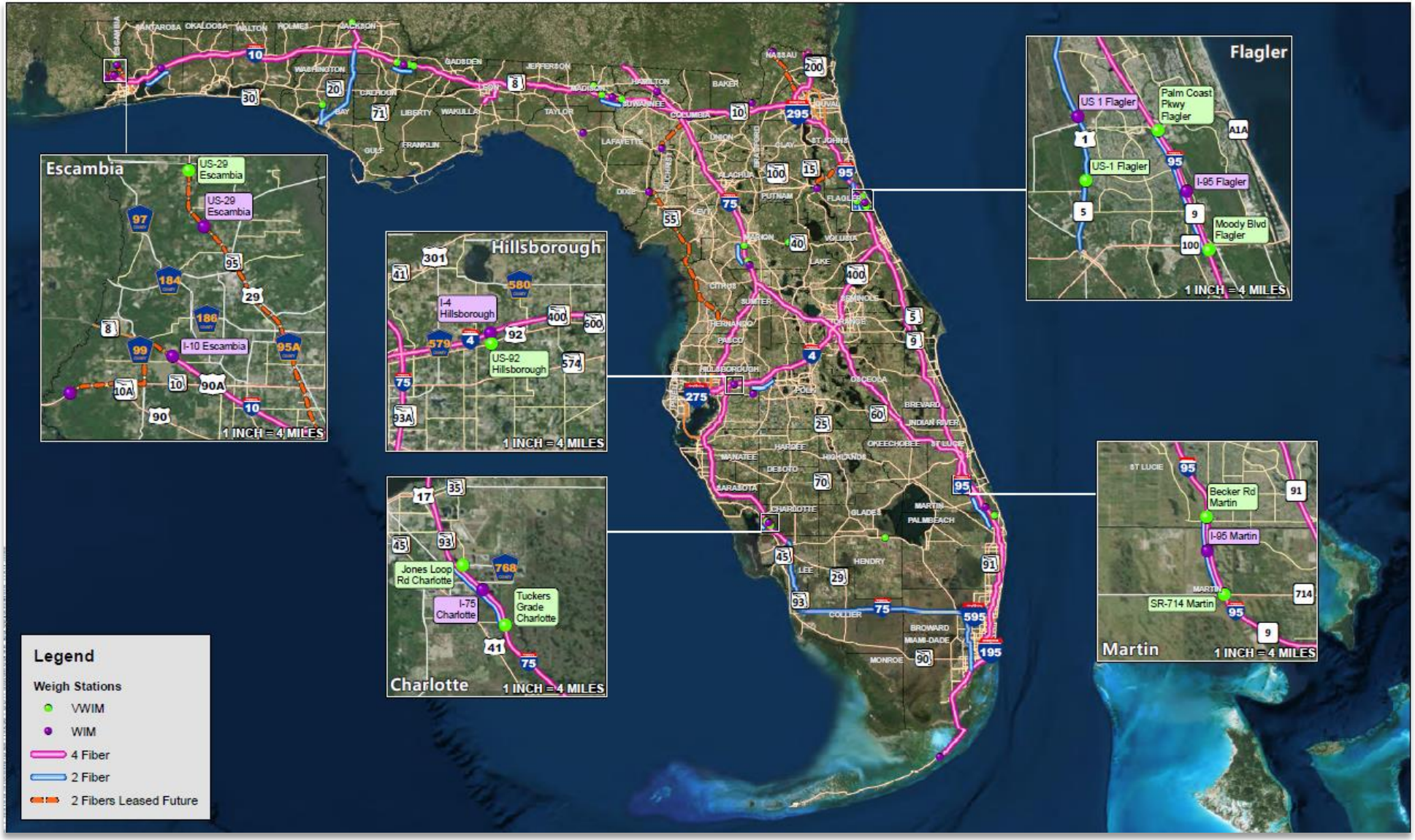
Strategic Vision for an Intelligent Weight Station Network

- Technology Deployments
  - Safety
  - Efficiency
  - Mobility
- Supports FDOT Strategies
  - Connected and Automated Vehicles (CAV)
  - TSM&O
  - Arterial Management
  - Managed Lanes
  - Intermodal Connectivity
    - Seaports
    - Airports
    - Rail

Facilities Asset Management

GIS based application for inventory and assessment

Statewide Fiber Optic Communication

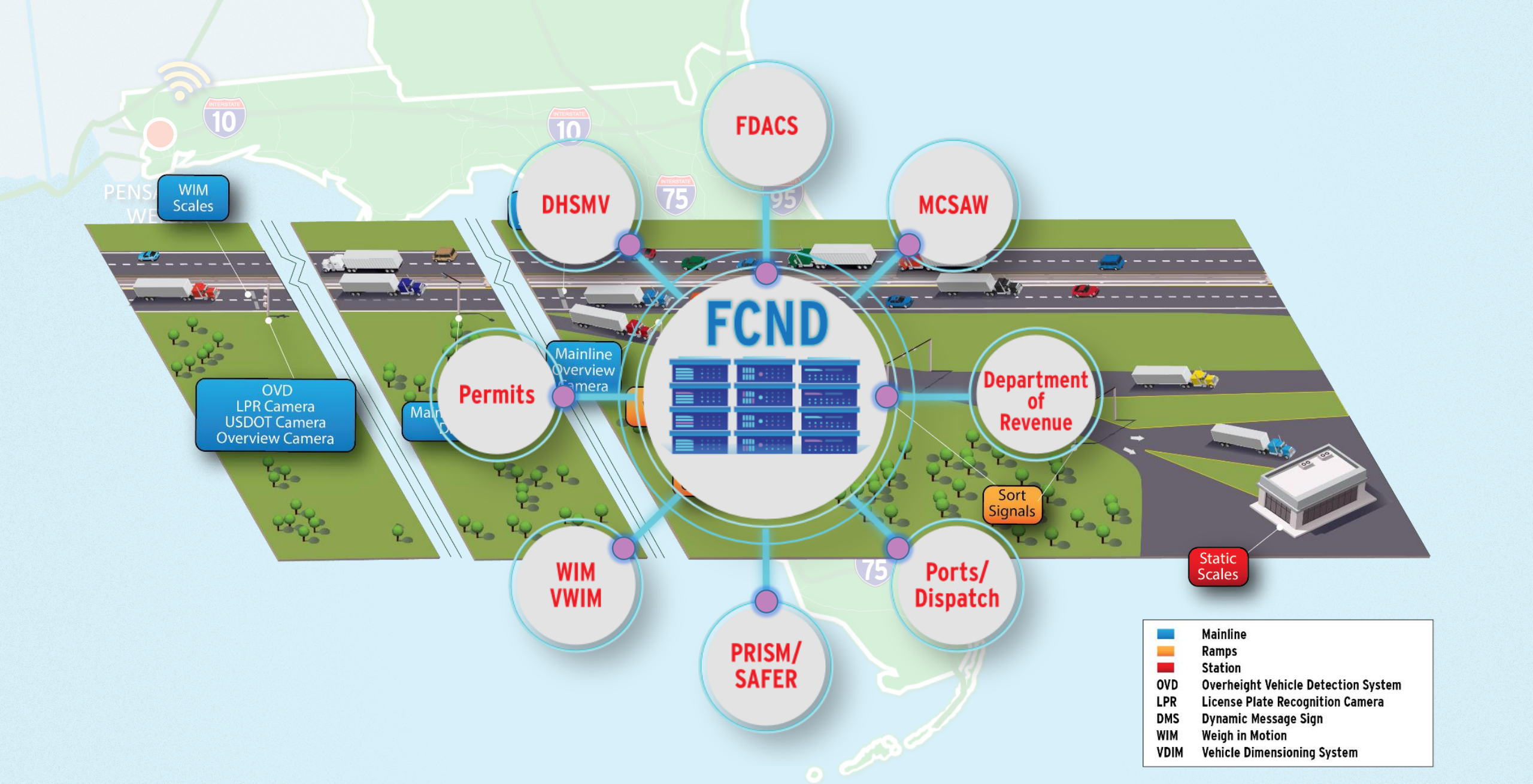


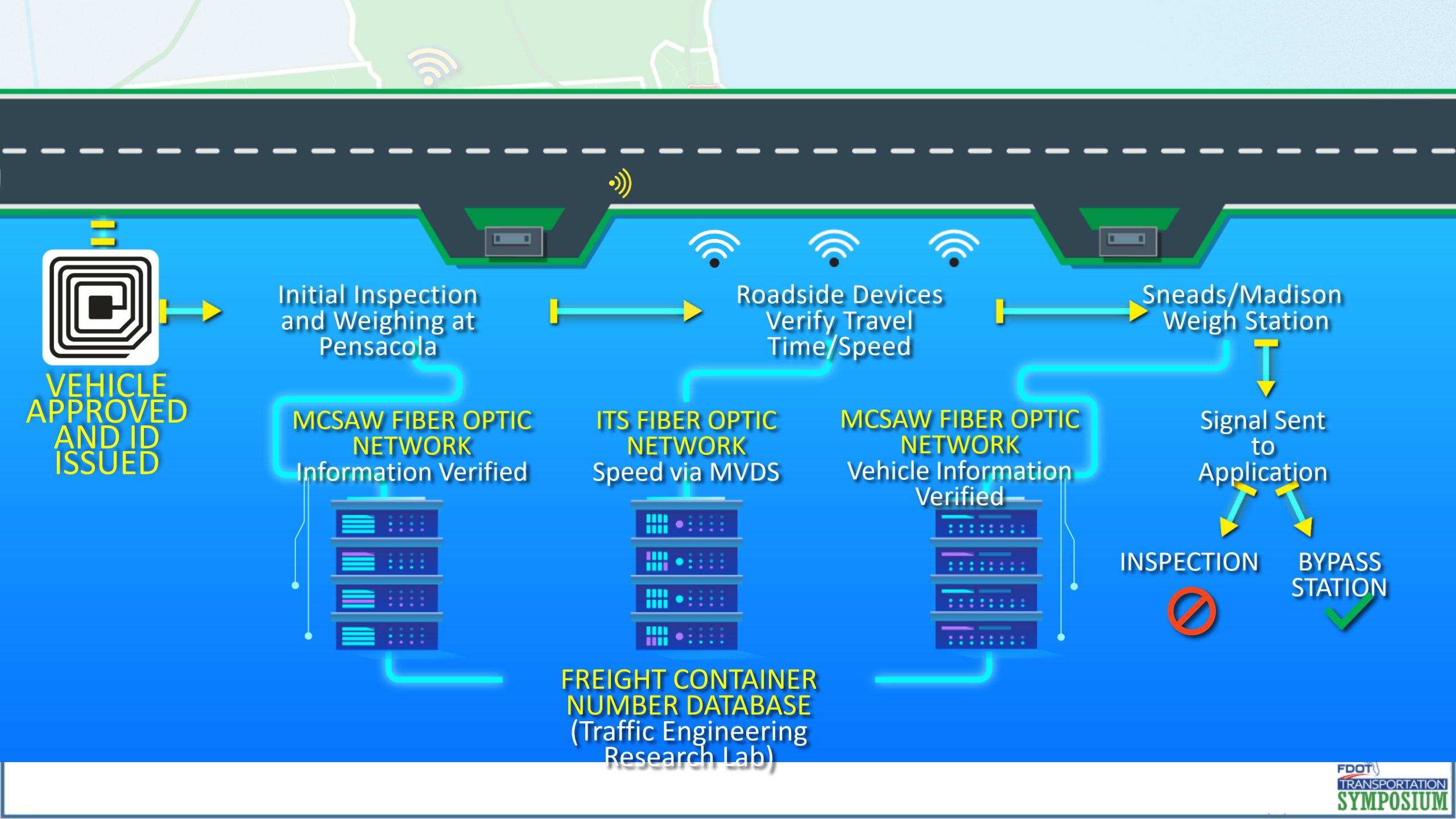
Weight Inspector Reporting Application (WIRA)

Planning Consistency

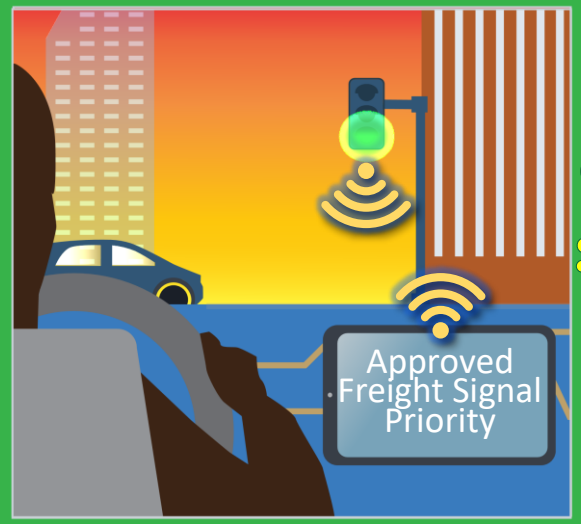
Integral Component of Mobility Management

- Transportation Systems Management & Operations (TSM&O)
- Connected and Automated Vehicles (CAV)
- Technology Solutions
- Arterial Management
- Managed Lanes
- Intermodal Connectivity
  - Seaports
  - Airports
  - Rail


WIM Scales
OVD
LPR Camera
USDOT Camera
Overview Camera
Mainline Overview Camera
FDACS
DHSMV
MCSAW
FCND
Permits
Department of Revenue
Sort Signals
Static Scales
WIM VWIM
Ports/ Dispatch
PRISM/ SAFER
Mainline
Ramps
Station
OVD Overheight Vehicle Detection System
LPR License Plate Recognition Camera
DMS Dynamic Message Sign
WIM Weigh in Motion
VDIM Vehicle Dimensioning System


VEHICLE APPROVED AND ID ISSUED
Initial Inspection and Weighing at Pensacola
MCSAW FIBER OPTIC NETWORK
Information Verified
ITS FIBER OPTIC NETWORK
Speed via MVDS
Roadside Devices Verify Travel Time/Speed
MCSAW FIBER OPTIC NETWORK
Vehicle Information Verified
Sneads/Madison Weigh Station
Signal Sent to Application
INSPECTION
BYPASS STATION
FREIGHT CONTAINER NUMBER DATABASE
(Traffic Engineering Research Lab)

PENSACOLA WEIGH STATION
SNEADS WEIGH STATION
SUWANNEE REST AREA
JACKSONVILLE
FL
INTERSTATE 10
INTERSTATE 95
INTERSTATE 75
INTERSTATE 4
INTERSTATE 275
LEGEND
Weigh Stations
WIM
VWIM
4 Fiber
2 Fiber
2 Fibers Leased Future



MAJOR

WAREHOUSING AND DISTRIBUTION FACILITIES

LEGEND

Major Warehousing and Distribution Facilities

Square footage

100,000+ 1,000,000+

FDOT

FDOT TRANSPORTATION SYMPOSIUM

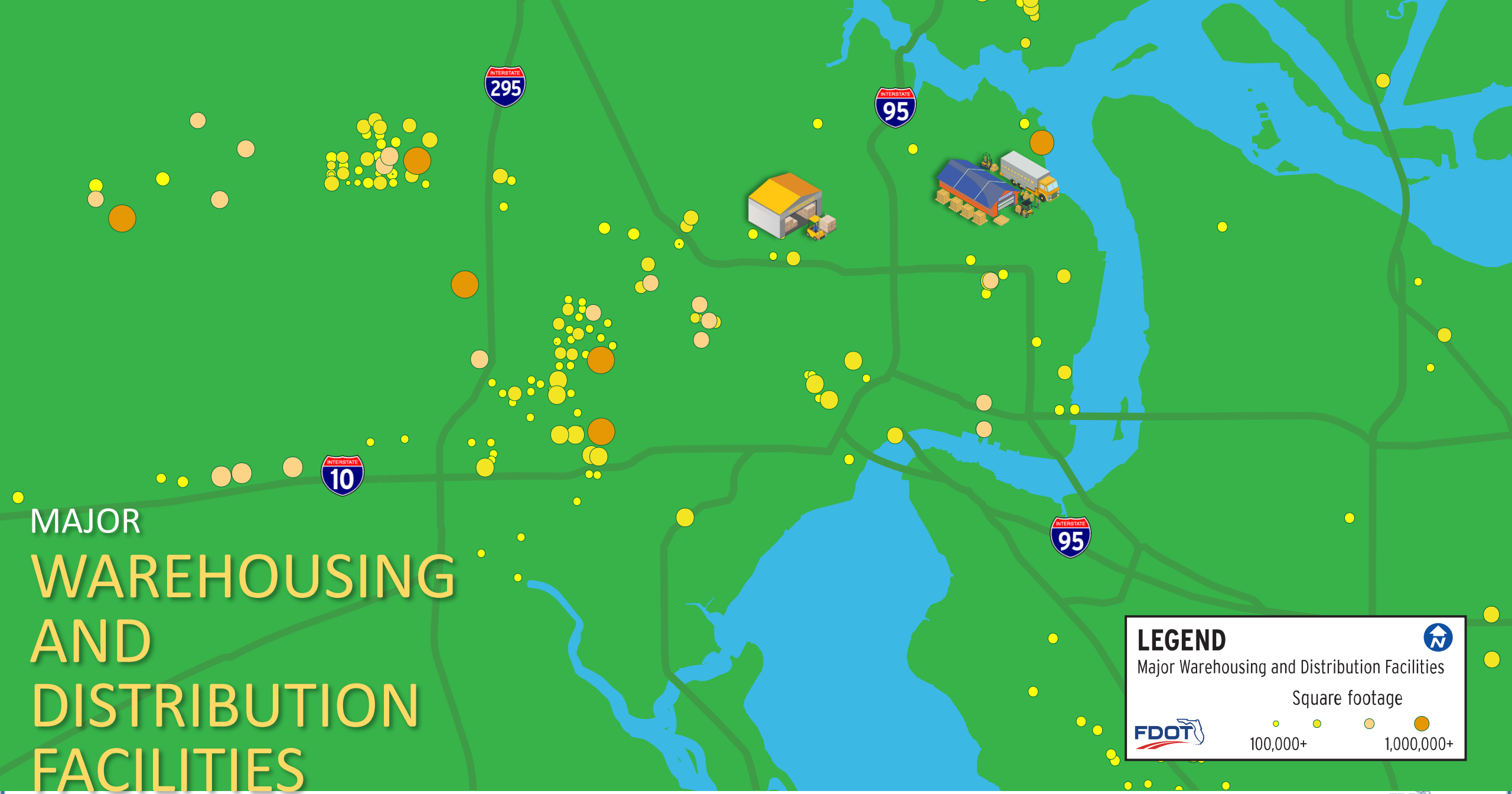
Freight Signal Priority

- Uses Connected Vehicle (CV) data to reduce stops and delays, decrease travel time, increase travel time reliability, and improve safety at intersections.
- Allows a freight vehicle to request priority at intersections.
- I-4 Florida's Regional Advanced Mobility Elements (FRAME) focuses on freight movement to/from Port Tampa Bay to regional freight distribution centers in the Lakeland area.
- I-75 FRAME supports freight mobility on corridors such as US 441, SR 40, and SR 200.

Picture Source: United States Department of Transportation's Intelligent Transportation Systems Joint Program Office

MAJOR

WAREHOUSING AND DISTRIBUTION FACILITIES



Strategic and Business Plans

- Strategic Goals
  - Safety, Efficiency, Mobility
- Tactics and Activities
- State of Good Repair
  - Asset management
- Planning and Deployment
  - Facilities Upgrades
  - Technology Deployment
  - Performance Measures
- Training and Outreach

Questions?

Thank you!

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Jeffery Frost

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Commercial Vehicle Operations

Program Manager

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