



FDOT's Compass for Transportation Technology

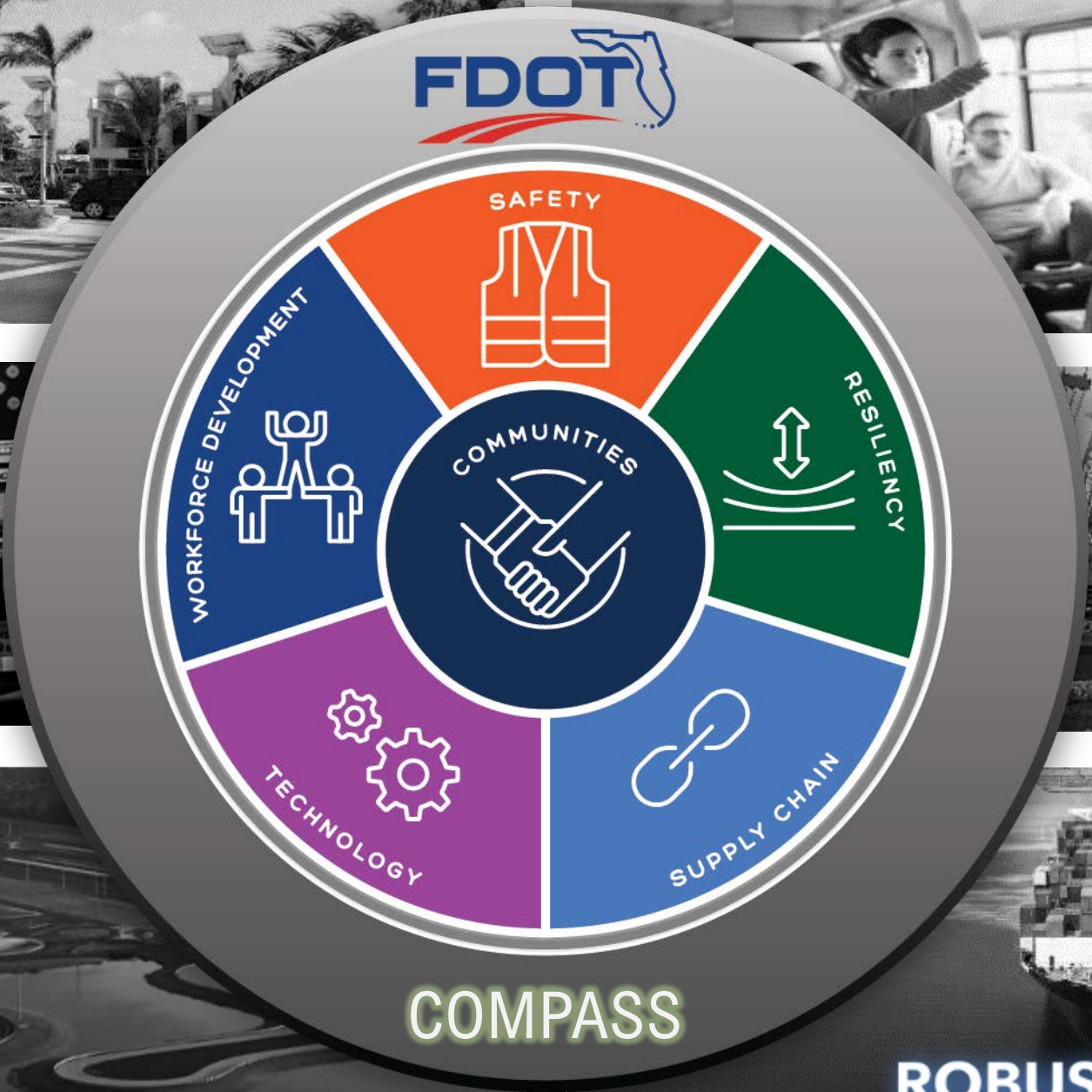
DRIVING TOMORROW'S INNOVATION

Trey Tillander, P.E.

Executive Director of Transportation Technology

September 5, 2024





FDOT

Moderator and Panelists

Trey Tillander, P.E.
Executive Director of
Transportation Technology



Loreen Bobo, P.E.
Safety Administrator, D5



Irene Cabral
Emergency Coordination
Officer



Katherine Chinault, CPM
TSM&O Development
Manager, D1



April Combs
Workforce Development
Program Manager

Program Pillars

Driving Tomorrow's Innovation

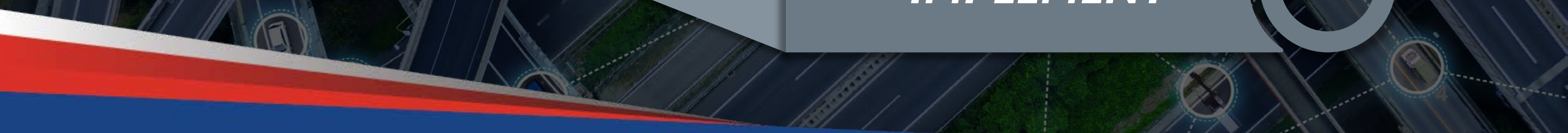
PROMOTE

INSPIRE

ATTRACT

TEST

IMPLEMENT



Program Pillars

PROMOTE



- Tell the FDOT Story
- Showcase Technology Use Cases

INSPIRE



ATTRACT



TEST



IMPLEMENT



Program Pillars

PROMOTE

INSPIRE

ATTRACT

TEST

IMPLEMENT



- Build Relationships
- Foster Partnerships
- Empower Communities

Program Pillars

PROMOTE

INSPIRE

ATTRACT

TEST

IMPLEMENT



- Support Industry Investment
- Engage the Best Talent

Program Pillars

PROMOTE

INSPIRE

ATTRACT

TEST

IMPLEMENT



- Create an Innovation Community
- Advance Technology Deployments

Program Pillars

PROMOTE

INSPIRE

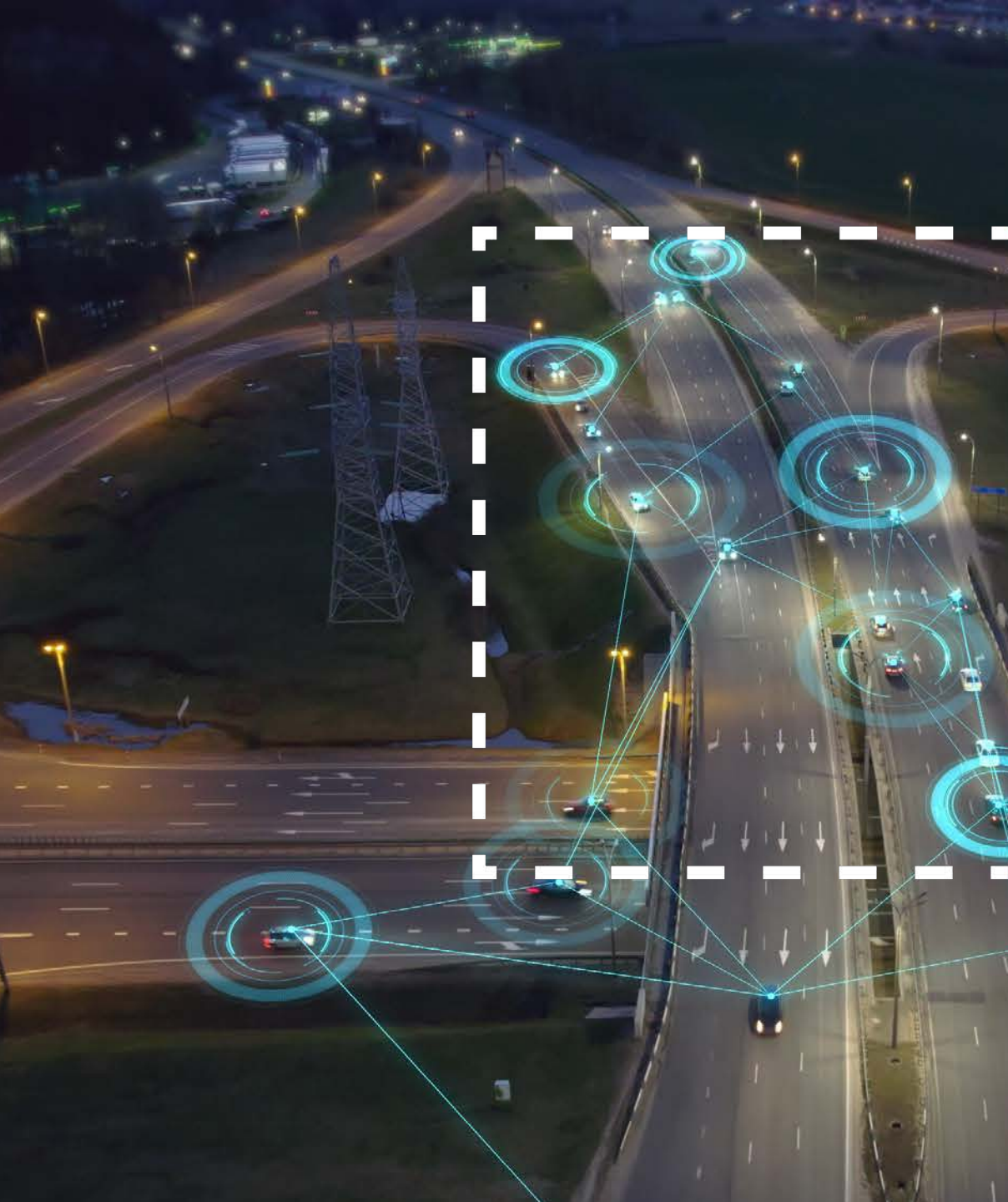
ATTRACT

TEST

IMPLEMENT



- Deploy Strategic Framework
- Mainstream Successful Technology Deployments



Loreen Bobo, P.E.

SAFETY



FDOT's Compass for Transportation Technology



***Loreen Bobo, P.E.
District Safety Administrator***

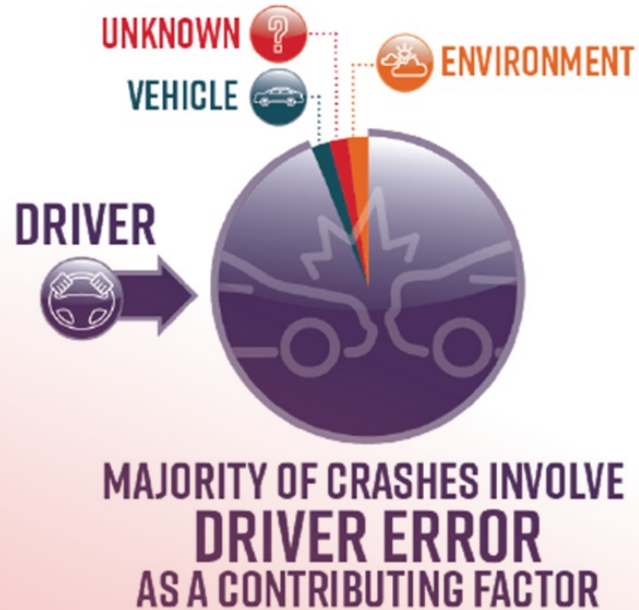
CENTRAL FLORIDA SAFETY STRATEGIC PLAN

Achieving **ZERO** serious injuries and fatalities
TOGETHER.



Why?

NATIONALLY...



Source: NHTSA

On Florida's Roads...

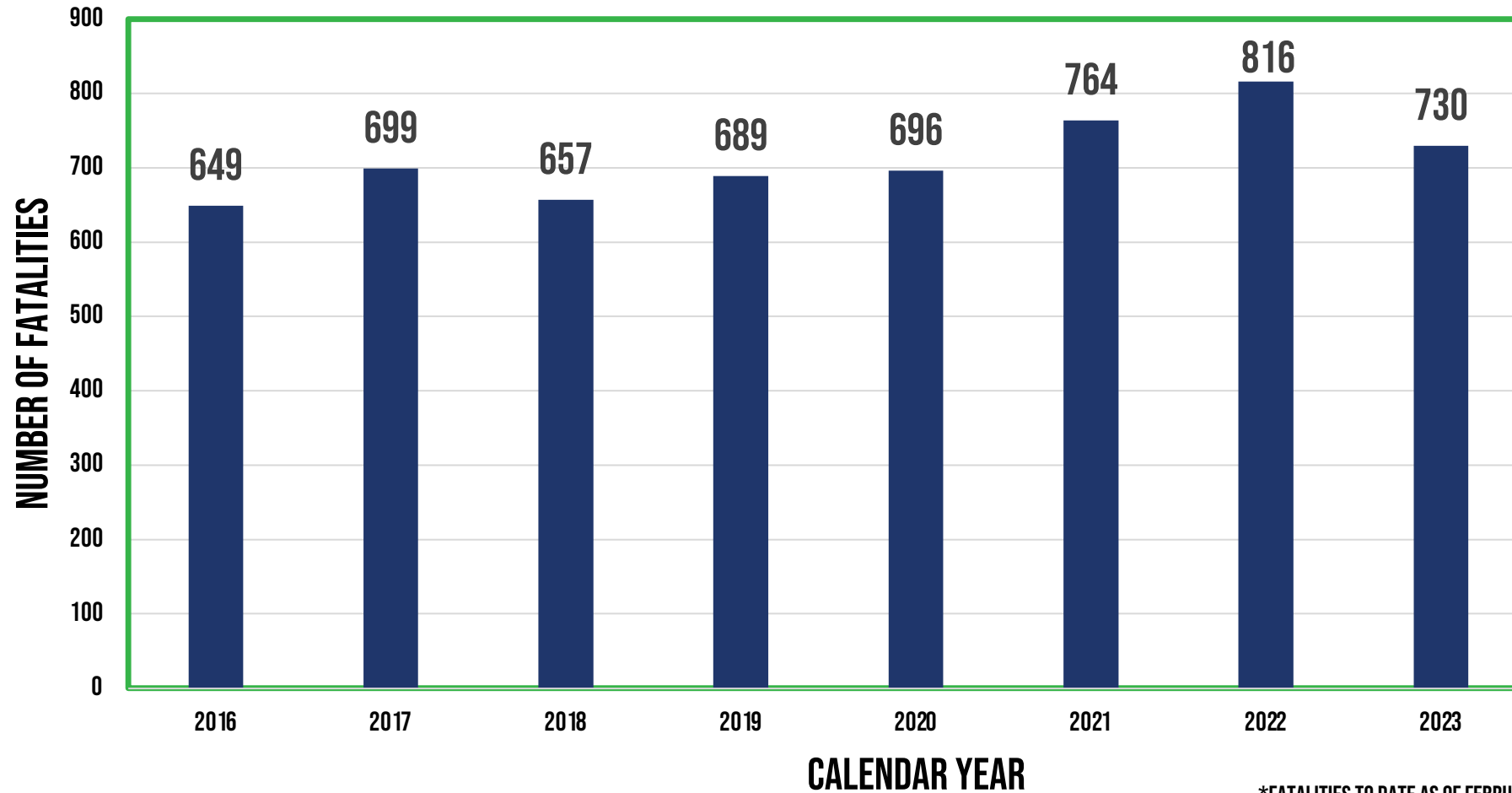


Source: Florida Strategic Highway Safety Plan, 2021



Daily Serious Injuries

DISTRICT 5 FATALITIES



*FATALITIES TO DATE AS OF FEBRUARY 29, 2024 (SOURCE: SIGNAL FOUR ANALYTICS)

Achieving **ZERO** serious injuries and fatalities.
Together.

Behavior

IN MOST CRASHES A CONTRIBUTING FACTOR IS BEHAVIOR



HOW WAS THE SAFETY
STRATEGIC PLAN DEVELOPED?

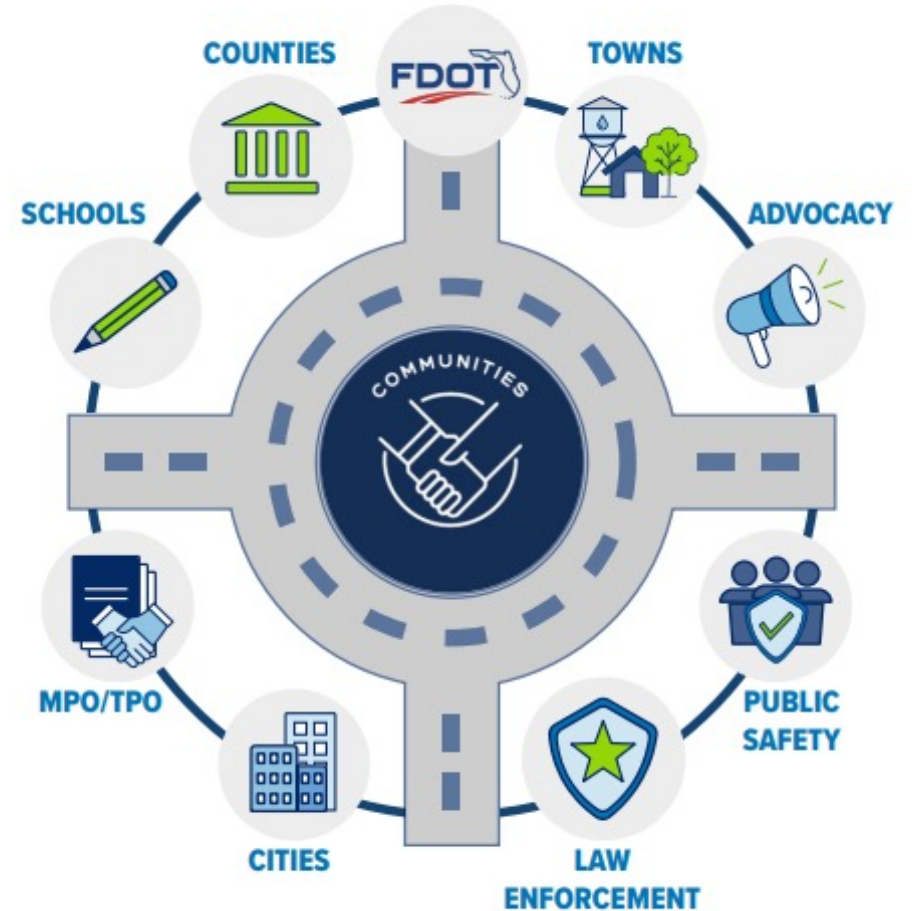
9 MONTH PROCESS

- **FDOT Workshop & Interviews - (Aug/Sept 2023)**
- **MPO/TPO Partner Workshops - (Jan/Feb 2024)**
- **Plan Development - (March/April 2024)**
- **Central Florida Safety Summit - (May 2024)**

WHAT IS THE SAFETY STRATEGIC PLAN?

COLLABORATIVE EFFORT & SHARED VISION

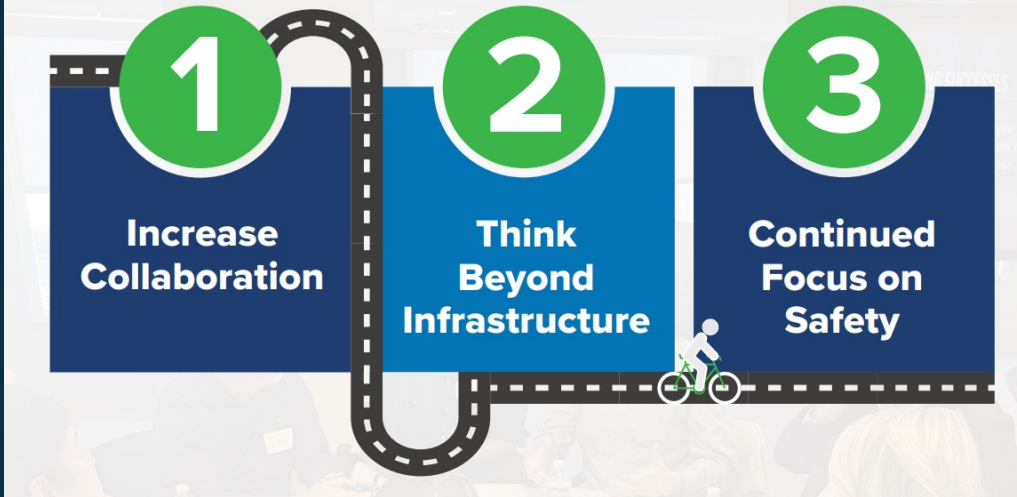
- **State** and **Local** Communities
- **Transportation, Public Safety, Schools** working towards same goals
- **Focus on Targeted Infrastructure** and thinking **Beyond Infrastructure** to change behaviors
- **Best Practices** and **Breakthrough Ideas**



Achieving **ZERO** serious injuries and fatalities.
Together.



The **Action Steps** are organized by three (3) core themes:



How can you help save lives?

Click on the
Central Florida Safety Strategic Plan



button

at fdot.gov/d5safety



CENTRAL FLORIDA SAFETY STRATEGIC PLAN

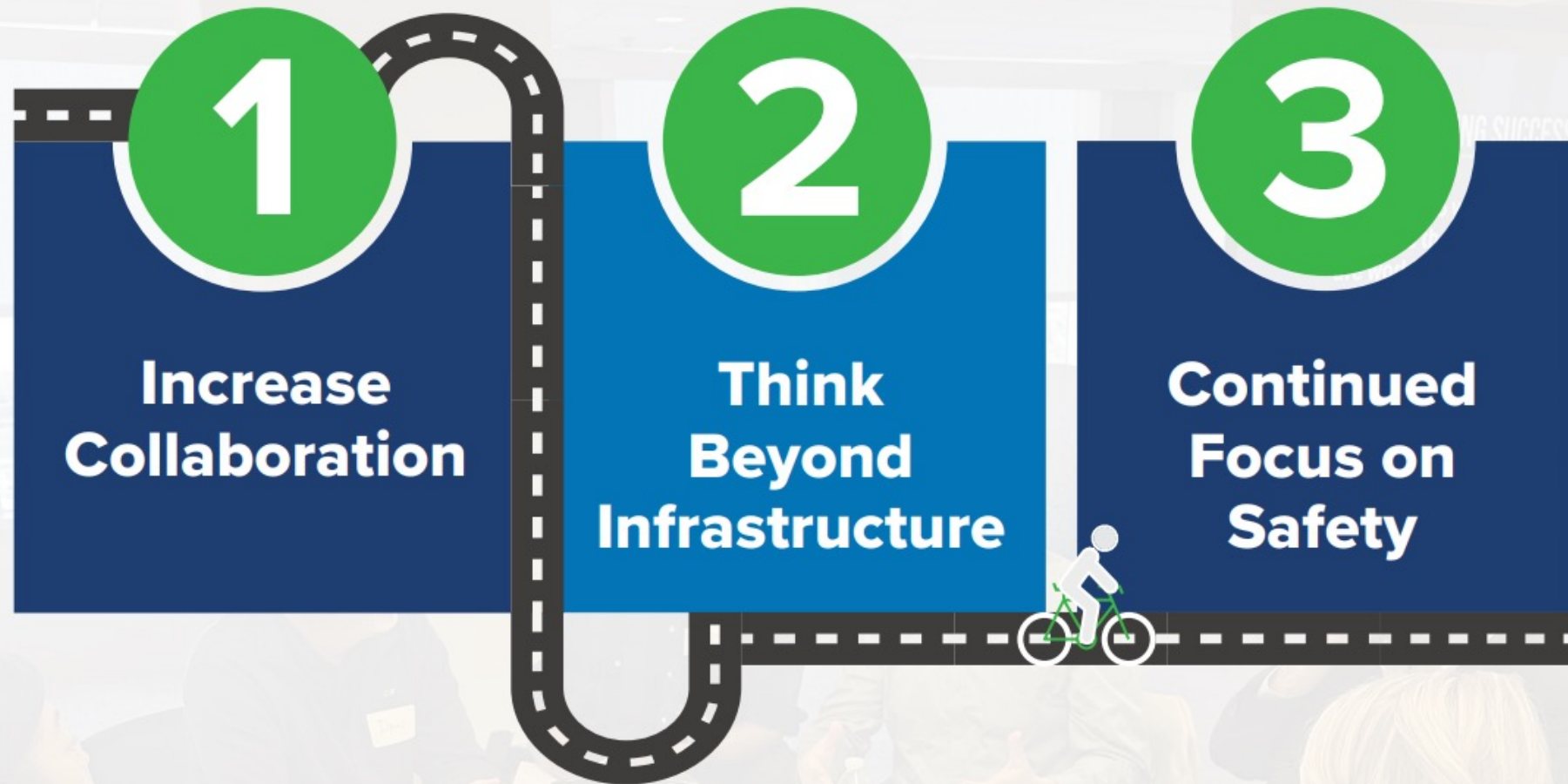
Achieving **ZERO** serious injuries and fatalities
TOGETHER



May 2024



The **Action Steps** are organized by three (3) core themes:



Achieving **ZERO** serious injuries and fatalities.
Together.



SAFETY PROJECT WINNER!

AMERICA'S transportation awards

Presented by AASHTO
americatransportationawards.org

SASHTO Region







PedSafe





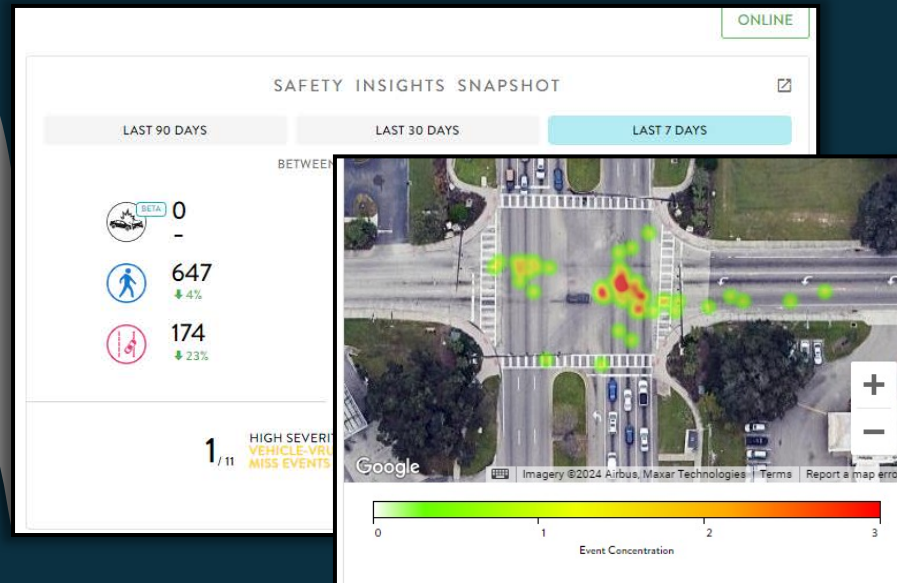
PedSafe

Improving safety, better serving pedestrians.

Measure Crossing Speed and Intent



Measure Stats and Adjust Timings



Improves Pedestrian Awareness
(call served)

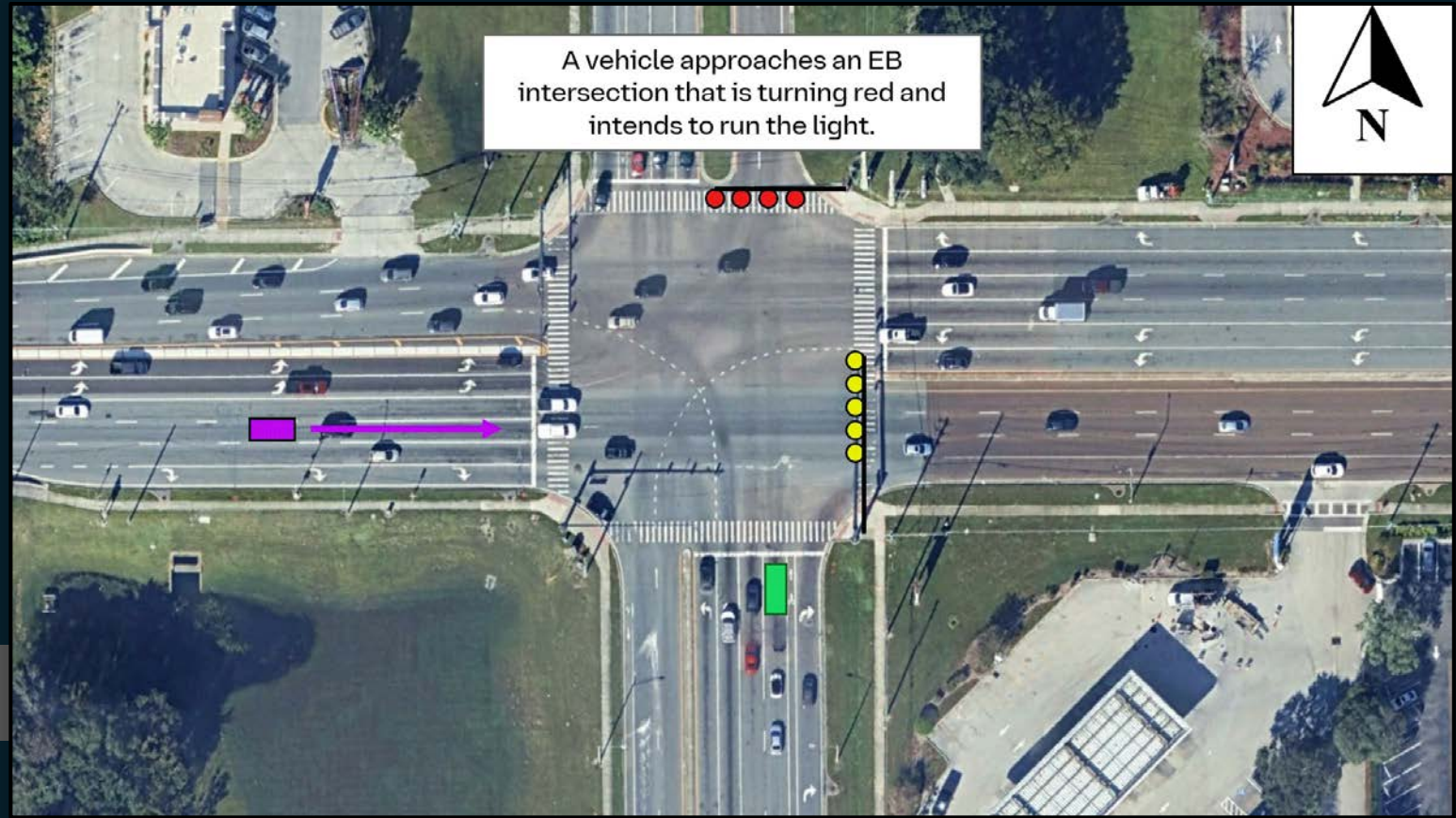
Countdown Timer Until
Pedestrian is Served





Dynamic All-Red

- Using intersection detection to prevent angle crashes
- Extends all red lights to allow a potential red-light-runner to clear

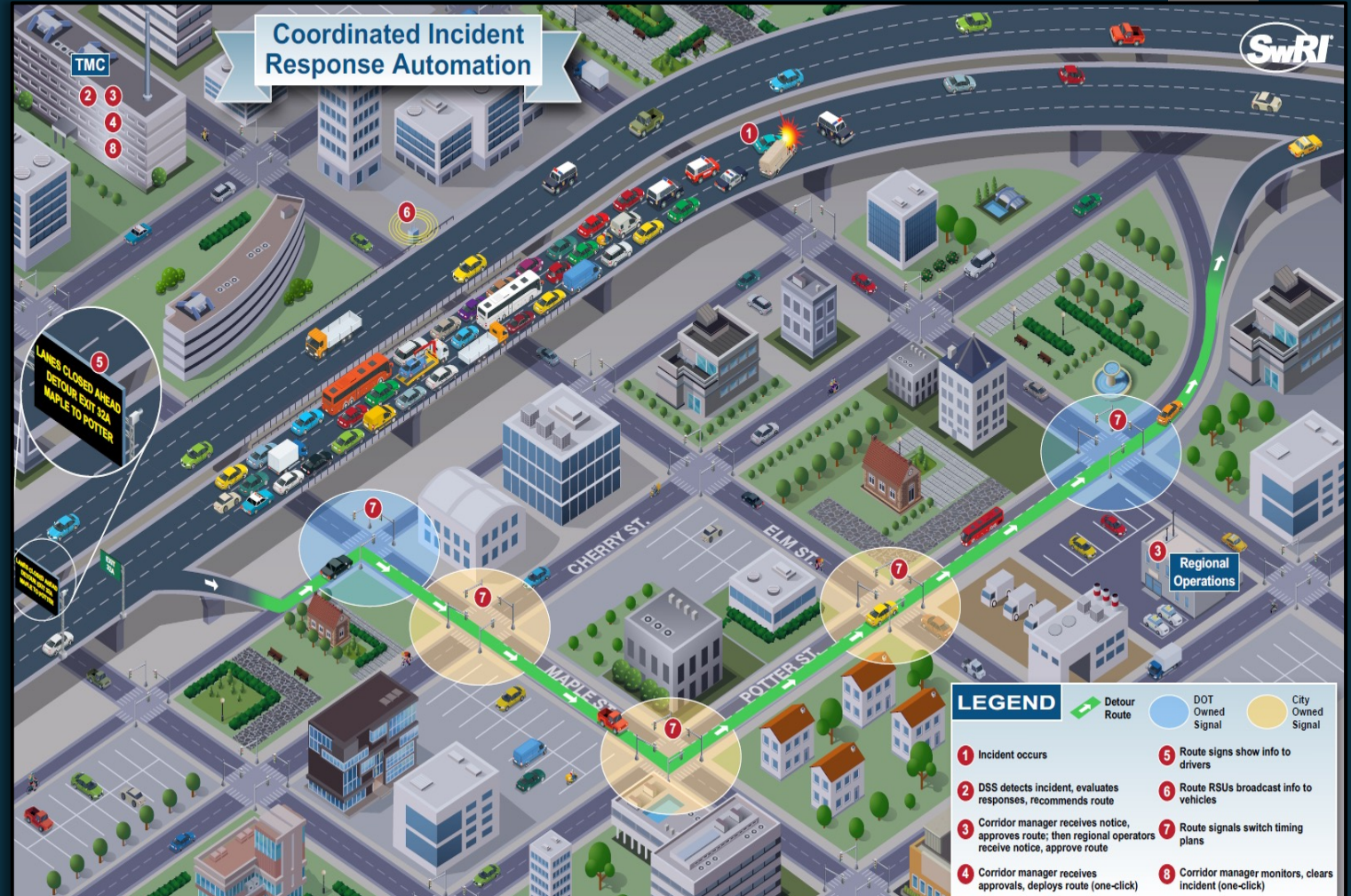




Integrated Corridor Management

Traditional Traffic Incident Management plus:

Signal timing changes to facilitate traffic patterns





Integrated Corridor Management

Traditional Traffic Incident Management plus:

- Construction with detour timings and construction timings
- Weather monitoring
 - Wind speed
 - Road surface temperature
 - Water level





Shortcut

- Real-time signal timing changes
- Event response
 - Flush ramps
 - Detour around crashes
 - Hurricane evacuation
 - Event management
- Easy to use web application
- Works with all controller vendors

The screenshot displays the 'Shortcut' web application interface. On the left, there is a 'Configuration Menu' with a list of options for signal timing changes and flush ramps. The main area shows a map of a road network with various signal timing configurations overlaid. The interface includes a 'Not Signed In' status bar and the 'AECOM' logo at the bottom.

Configuration Menu

Diversion NB 350 to 352
Diversion NB 350 to 354
Diversion NB 350 to 358
Diversion NB 352 to 354
Diversion NB 352 to 358
Diversion NB 354 to 358
Diversion SB 358 to 354
Diversion SB 358 to 352
Diversion SB 358 to 350
Diversion SB 354 to 352
Diversion SB 354 to 350
Diversion SB 352 to 350
Flush NB 358
Flush SB 358
Flush SB 341
Flush NB 341

Map Labels: Anthony, NE 70th St, NE 49th St, NE 35th St, Silver Springs, Silver Springs State Park, SE 58th Ave, SE Maricamp, SE 110th St, Belleview, Summerfield, S Highway 47, SE 36th Ave, SW 140th Ave, 484, 475, 441, 35, 484, Ross Prairie State Forest.

Map Features: Traffic lights, signal timing configurations, road names, and geographic markers.

Footer: AECOM

CALL TO ACTION

HOW CAN YOU SUPPORT THE CFL SAFETY STRATEGIC PLAN

YOUR ROLE WITHIN YOUR AGENCY/COMMUNITY

YOUR PERSONAL LIFE

HOW ELSE?

Achieving **ZERO** serious injuries and fatalities.
Together.

**TAKE A
BREAK**
Don't drive drowsy.



FLHSMV



Thank you!

Safety Starts with You!

Loreen Bobo, P.E.

District 5 Safety Administrator

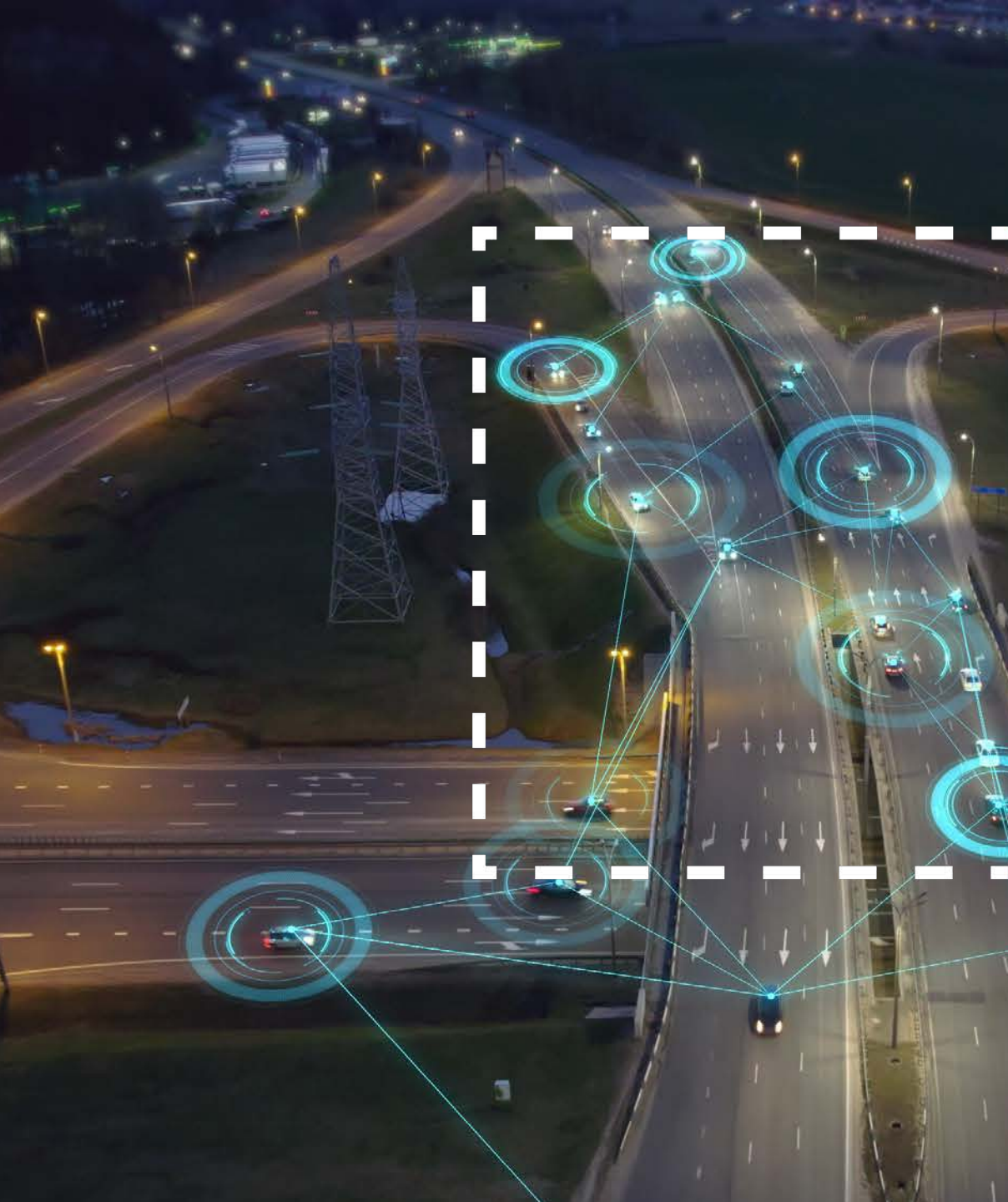
Loreen.bobo@dot.state.fl.us

d5-safetyideas@dot.state.fl.us



fdot.gov/D5Safety





Irene Cabral

RESILIENCY

Leveraging Technologies In Emergency Management



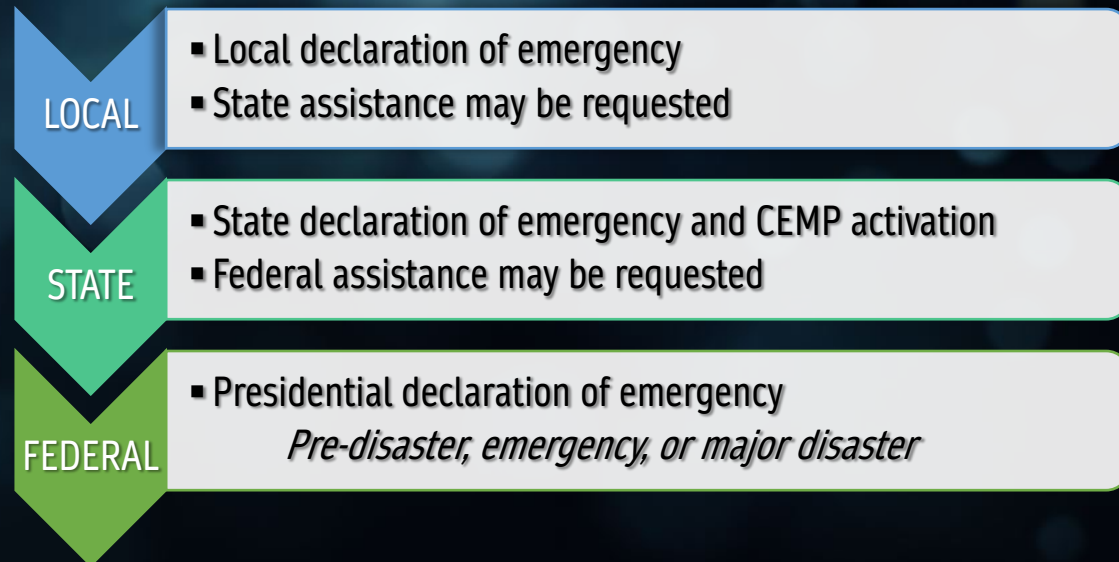
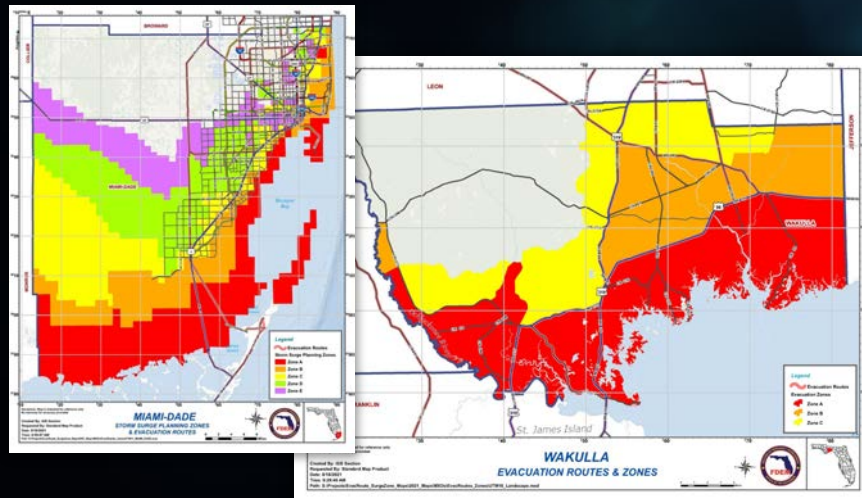
FDOT Emergency Management

- Staff of five FTEs including the agency-designated emergency coordination officer (as required per §252.365, Florida Statutes)
- Leads the agency's statewide efforts to prepare for, respond to, recover from, and mitigate against disasters and other emergencies affecting FDOT and Florida's intermodal transportation systems
- Delivers operational, logistical, planning, intel, meteorological, and financial services
- Coordinates between executive leadership, FDOT offices and districts, and other agencies
- Heads the ESF 1 emergency support function (Transportation) at the State Emergency Operations Center in Tallahassee
- Develops and supports technology tools including Everbridge, WebEOC, and Survey123, as well as plans such as Continuity of Operations (COOP) and Emergency Shoulder Use (ESU)
- Provides the agency and its local, state, and federal partners with situational awareness twenty-four hours a day



Disasters Are Local

- State policy for responding to disasters is to support local emergency response efforts (§252.311, Florida Statutes)
- Florida Division of Emergency Management (FDEM) is responsible for maintaining a comprehensive statewide emergency management program and plan (CEMP), and coordinates the efforts of local, state, and federal government, and private organizations with an emergency role
- Counties and local municipalities plan for their disaster response, evacuation process, and human services needs
 - For example, local EM agencies maintain "special needs" resident information in a registry hosted by FDEM, delineate evacuation zones and routes, and issue voluntary and mandatory evacuation orders
- FDOT supports local evacuations by preparing state roadways, monitoring traffic volumes, coordinating between local transit agencies, and implementing ESU plans as appropriate



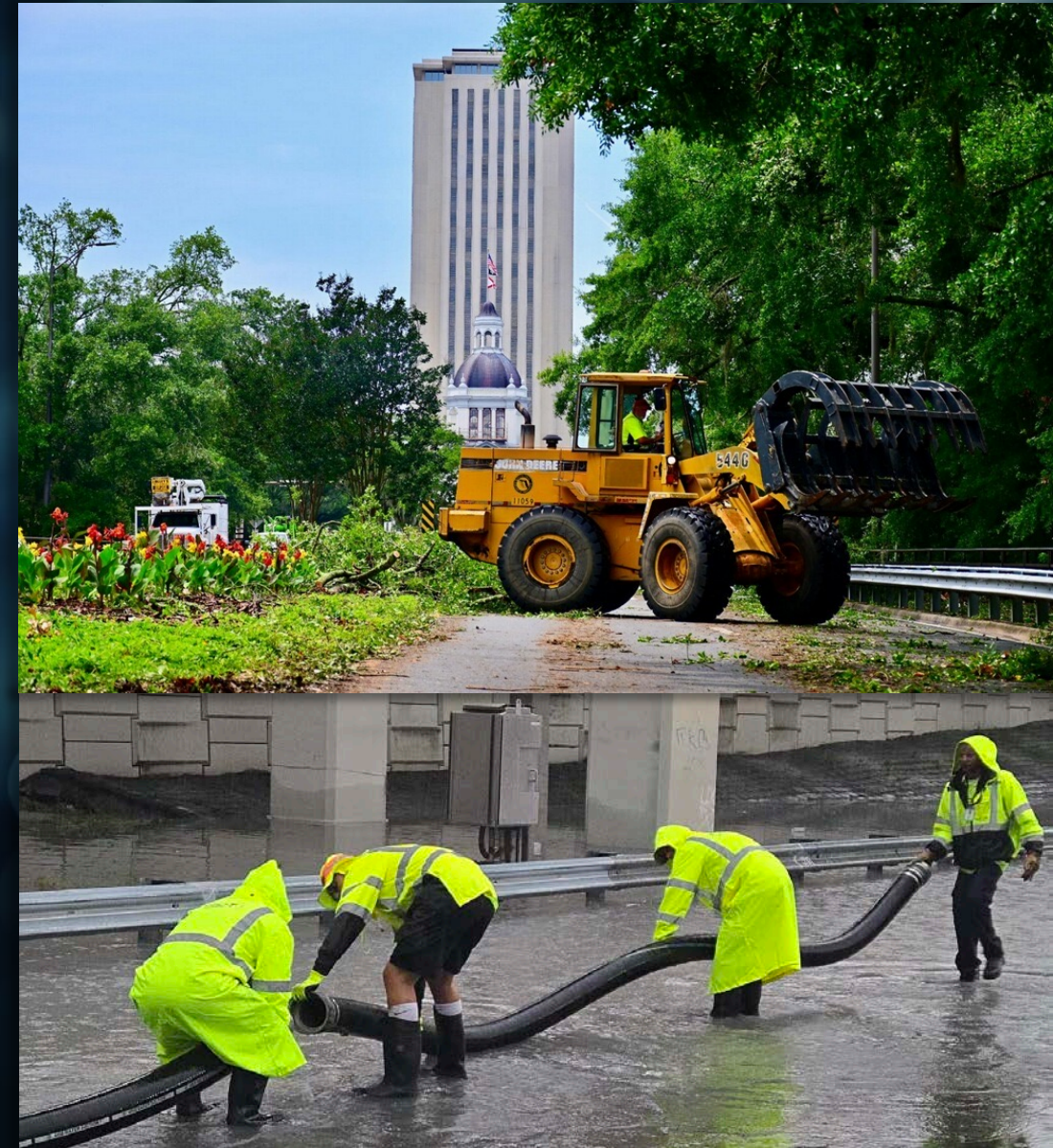
Not Just Hurricanes (2023)

- April rain event in Broward
 - Issued emergency orders and road use permit letters
 - Coordinated with Broward County Emergency Management, Fort Lauderdale–Hollywood International Airport, and the South Florida Water Management District
 - Coordinated with Port Everglades, Port Canaveral, and Port Tampa Bay regarding fuel terminals
 - Assisted municipalities with dewatering efforts
 - Broward Boulevard Tri-Rail Station "Park and Ride" lot used for a DEO private business resource center
- May building collapse (Davenport, Iowa)
 - Chief engineer deployed to provide technical support by way of the Emergency Management Assistance Compact
- October Israel evacuation support
 - Provided airport coordination and on-scene support
- December non-tropical low
 - Provided agency information briefings to EOG



Not Just Hurricanes (2024)

- May North Florida tornadoes
 - Performed damage assessment, roadway clearance, cut and toss, and debris removal operations, including off-system roadways in Suwannee and Taylor by request
 - Deployed generators to support temporary traffic signal restoration due to power outages
- June South Florida flooding
 - Performed preparatory activities including roadway sweeping, drainage clearing, and equipment staging
 - Pumped floodwater from roadways including Interstate 95, SR A1A, US 1, Pembroke Road, and the Kinney Tunnel
- July CrowdStrike IT disruption
 - Hosted internal coordination calls to discuss status reports and FDOT and modal operations impacted
- Daily event notifications, traffic incidents, and overpass strikes
 - Monitor and share statewide incident reports







FDOT
EMERGENCY MANAGEMENT







Live Dashboards: EM GIS Hub

FDOT Emergency Management GIS Hub



Statewide Damage Assessment Dashboard

This is a Operations Dashboard for Damage Assessment...



Real-Time Hourly Traffic Volumes

FDOT Hourly Polling - All Directions - (volume an...

This dashboard shows an hourly summary (most recent 2 days) ...



Bridge Inspection Dash

Bridge Inspection Status Dashboard

This dashboard contains a view of the Bridge Inspection Status..



eSTORM

eSTORM - Electronic Signals and Traffic...

This application contains the dashboards for Statewide and..



Bridge Inspection Status

FDOT Hurricane Bridge Inspection Application

Hurricane Event Bridge Inspection App



GEMS v2.0

GEMS v2.0

This is the Official FDOT GIS Emergency Management Syst...



EM Launchpad

D4 Emergency Management GIS Apps..

This Launch Pad will be a central place where District Four...



Bridge Inspections Completed

Completed Bridge Inspections

A Web app showing only completed Bridge Inspections..



WebEOC Link

Cards can single buttons or button groups with inline



Hurrevac Link

Cards can single buttons or button groups with inline



Emergency Shoulder Use Dashboard

Cards can single buttons or button groups with inline



FL511 Link

Cards can single buttons or button groups with inline

Live Dashboards: Damage Assessment

Damage Assessment Dashboard

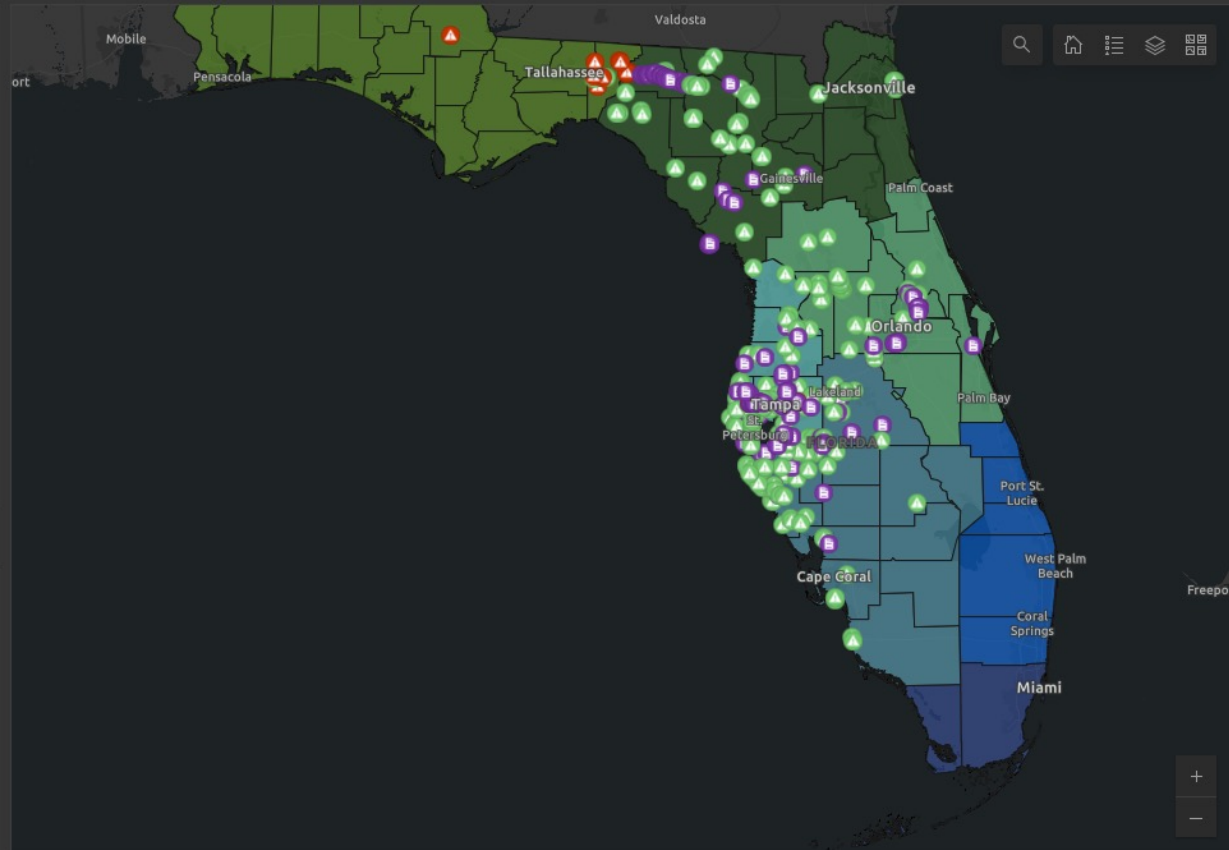
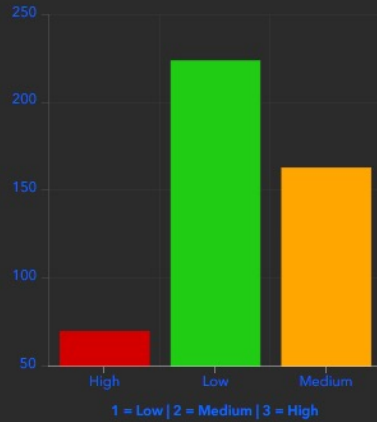
Date Selector
No date selected

Select by Object ID
ObjectID

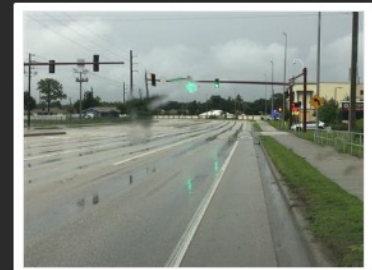
Damage Assessments in view

457/457

Severity



1 of 50
damage_assessment_971_Debby: 15

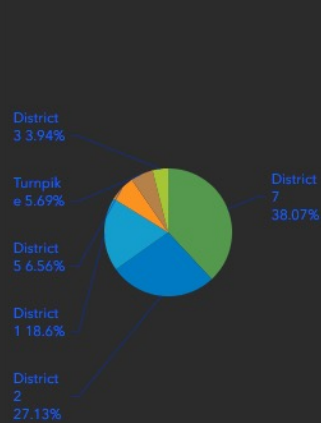


Last edited by mark.welsh_fdot9 on 05/08/2024, 12:09.

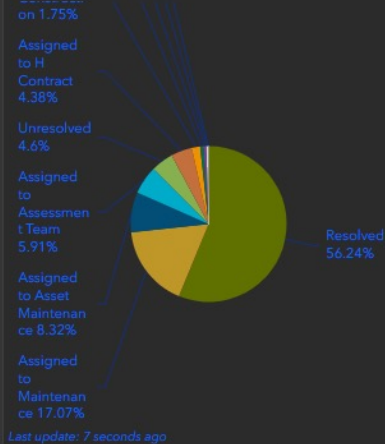
Count Legend

Severity Damage

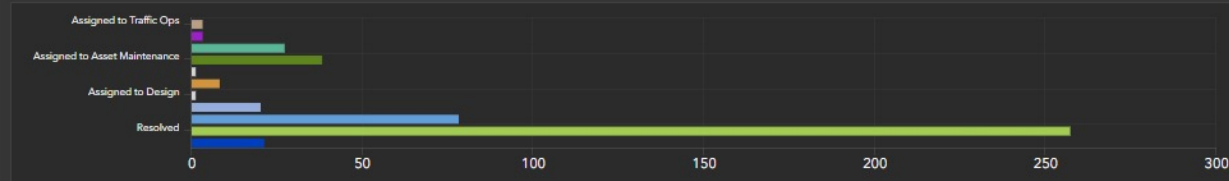
District



Status



FDEP, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS | Florida Department of Transportation Civil Integrated Management Data Systems Support 605 ... Powered by Esri



District Condition

Status Infrastructure

Status County

Live Dashboards: Bridge Inspection

Bridge Inspection Status Dashboard

Select by Status
Assessment Performed, Ins... 4

Select by Owner

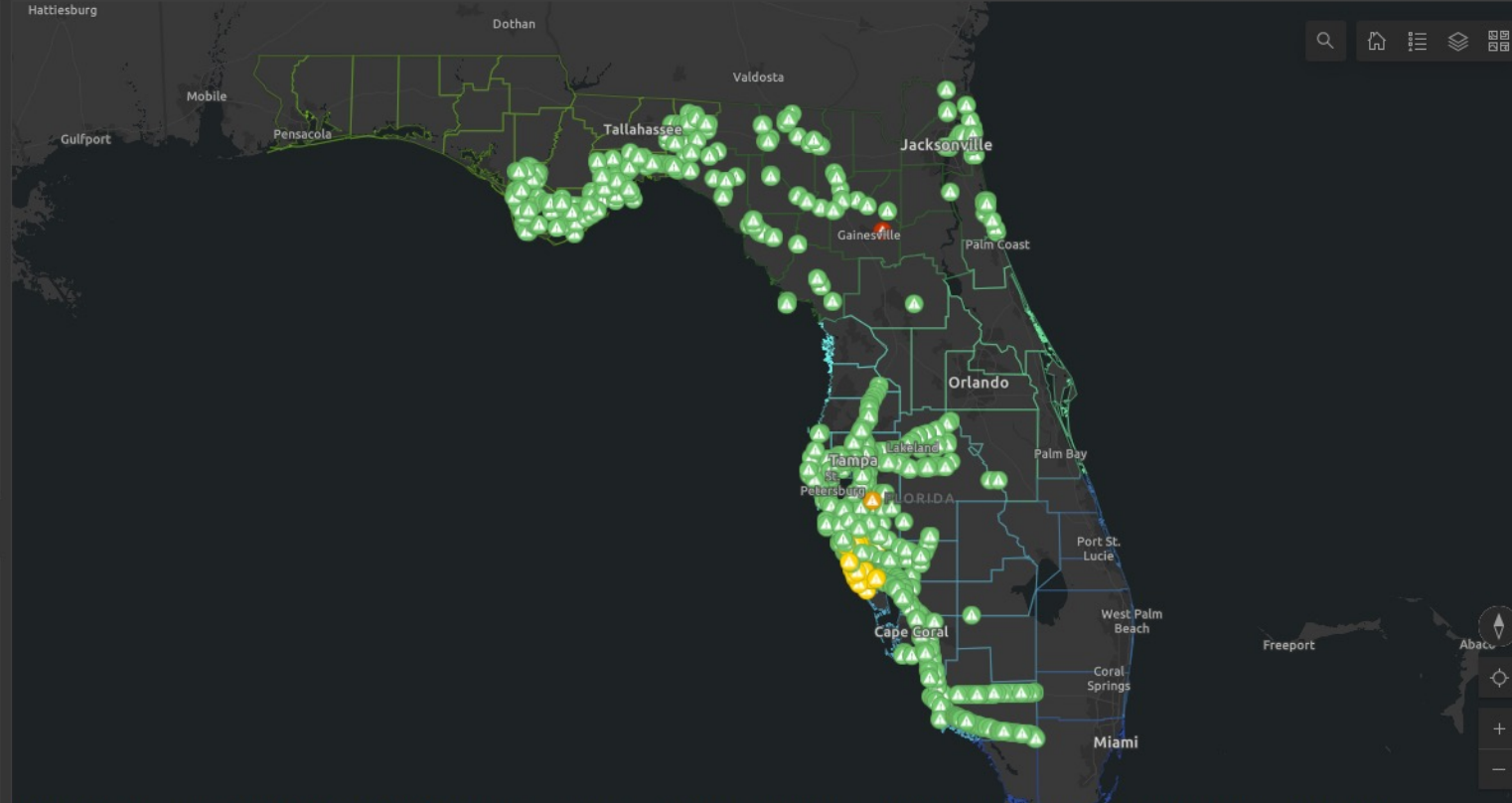
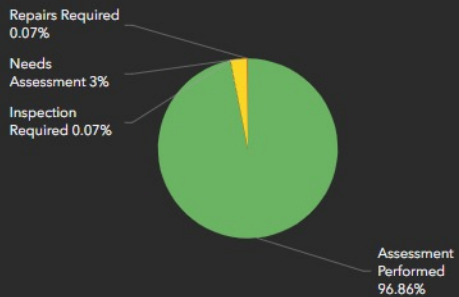
Select by District

Needs Assessment

43 / 12952

Needs

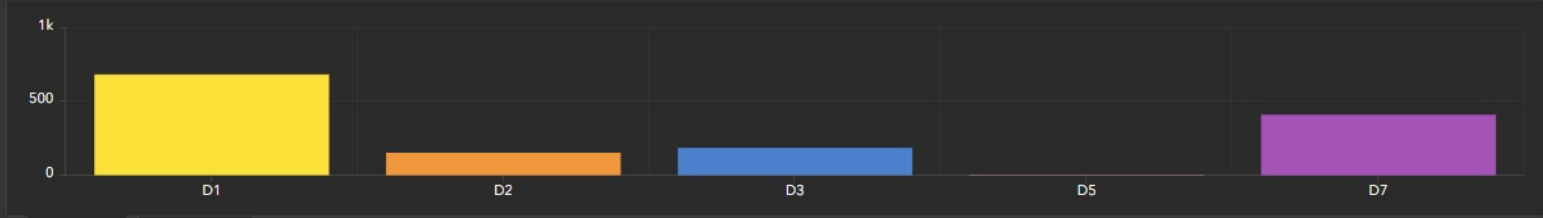
Status



Search...

- Alachua
- Baker
- Bay
- Bradford
- Brevard
- Broward
- Calhoun
- Charlotte
- Citrus
- Clay
- Collier
- Columbia
- DeSoto
- Dixie
- Duval
- Escambia
- Flagler
- Franklin
- Gadsden
- Gilchrist
- Glades
- Gulf
- Hamilton
- Hardee
- Hendry
- Hernando
- Highlands
- Hillsborough

FDEP, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS | Florida Department of Transportation Civil Integrated Management Data Systems Support 605 Suwannee Street Tallahassee, Florida 32399 Powered by Esri



District Counties

Live Dashboards: Signals, Cameras, and Signs

eSTORM | Welcome | **Statewide** | District 1 | District 2 | District 3 | District 4 | District 5 | District 6 | District 7 | Turnpike

Cabinets Flooded: All Yes No | Generators: ALL Yes No | Downed Structures: ALL Yes No | Device Type: ALL Signals CCTV DMS | Priority Signals: ALL On Off | County: All

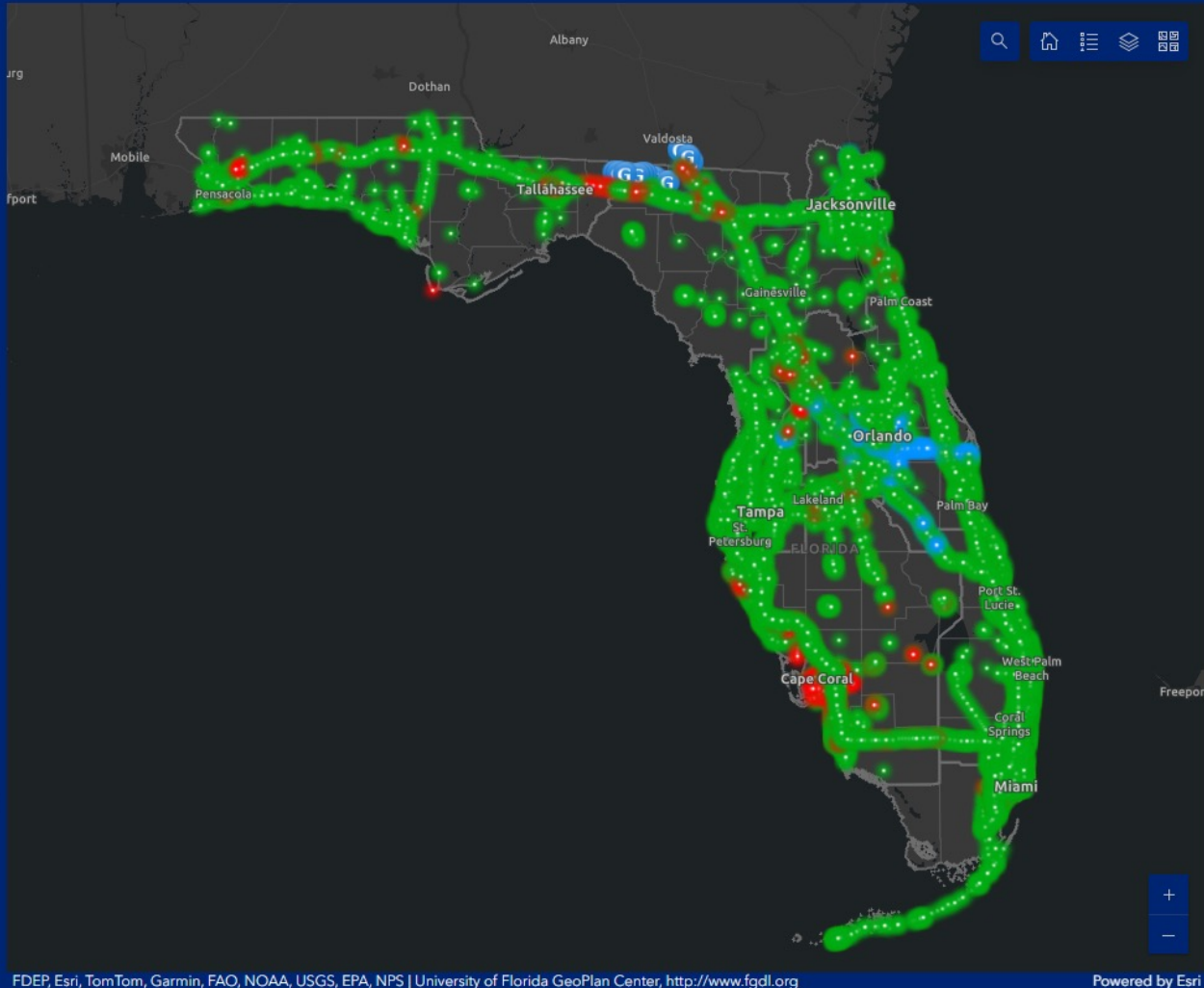
Total Devices
19,548

Operational
17,945

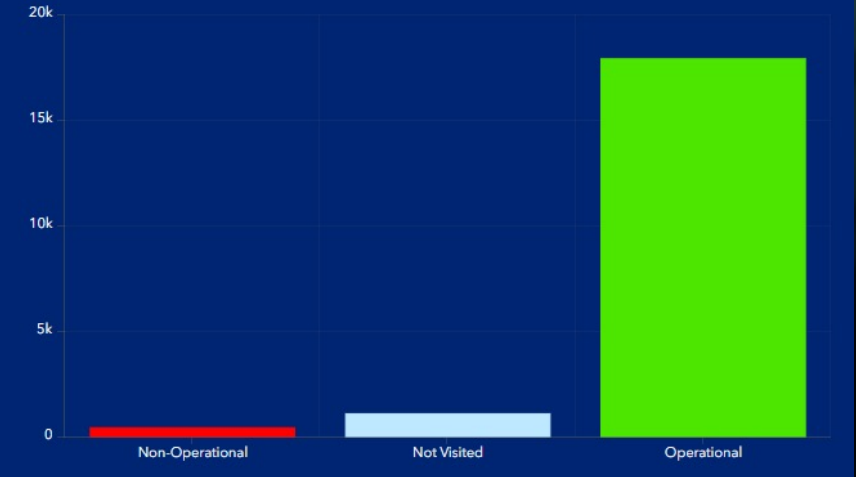
Flashing / NA
0

Not Operational
470

Not Visited
1,133



Device Status



Status	Count
Non-Operational	470
Not Visited	1,133
Operational	17,945

% Operational 91.80%	Cabinets Flooded 0
Downed Structures 0	Generators Deployed 16

FDEP, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS | University of Florida GeoPlan Center, <http://www.fgd1.org> | Powered by Esri

Live Video Streams



EM Trailer



ITS Trailer Camera 1



ITS Trailer Camera 2



ITS Trailer Lite Camera 1



ITS Trailer Lite Camera 2



SunTrax Trailer 1 Camera 1



SunTrax Trailer 1 Camera 2



SunTrax Trailer 2 Camera 1



SunTrax Trailer 2 Camera 2

Advance Teams



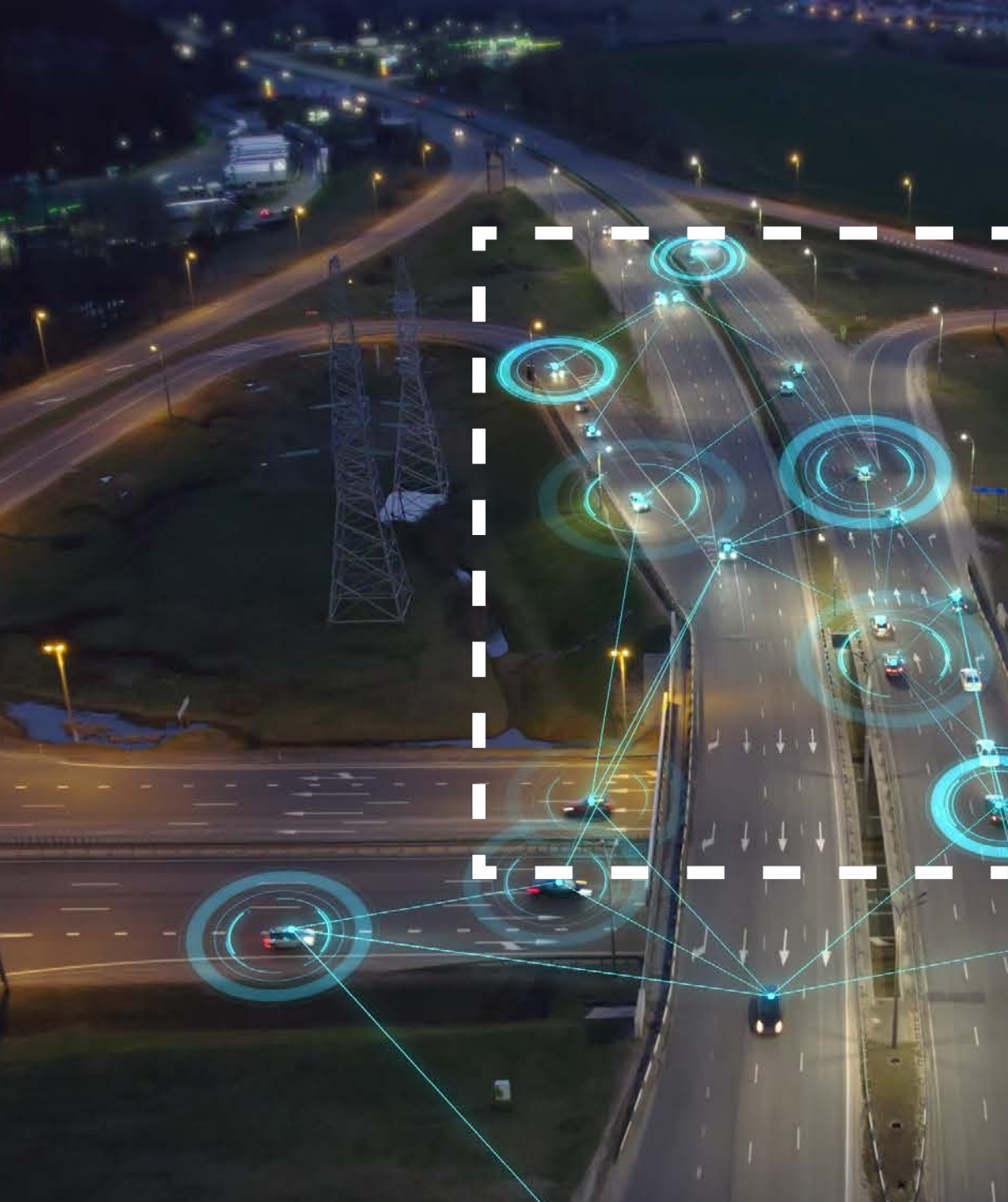
Road Rangers Pilot: Blink Mobile Charger





IRENE S. CABRAL
Emergency Coordination Officer

irene.cabral@dot.state.fl.us
850-414-5336



Kat Chinault, CPM

SUPPLY CHAIN

Overview

- FDOT's Role in the Supply Chain
- Statewide Freight Plan
- FRAME Projects
- Role of TPAS
- Freight Signal Priority
- CAV Connected Vehicles
- V2X Data Platform
- Workforce Development



FDOT's Role in the Supply Chain

Our Role

- Ensure efficient transportation infrastructure, connecting Florida's ports, highways, and railways to global markets.
- Facilitate the movement of goods, ensure smooth operations across various transportation modes.

Benefits of Technology in FDOT's Supply Chain Management:

- Increased Efficiency
- Improved Safety
- Sustainability
- Data-Driven Decision Making

Florida's Statewide Freight Plan

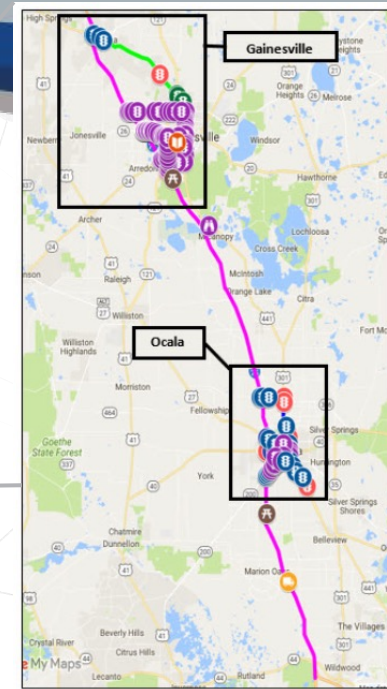
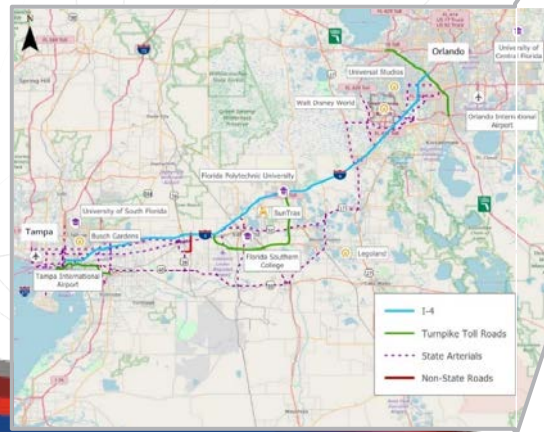
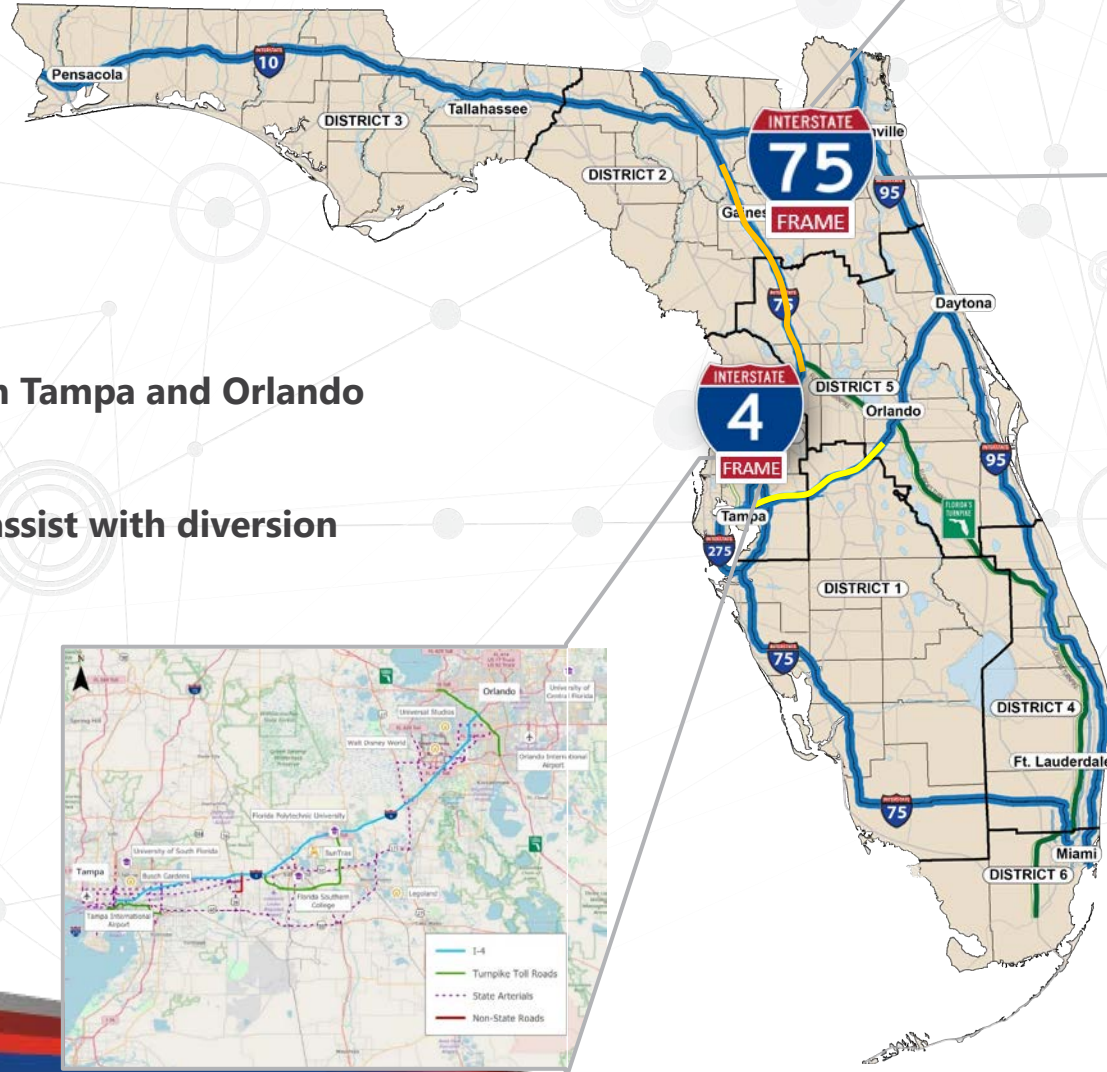
- A comprehensive plan that focuses on the movement of goods in, out, and around Florida
- Identifies freight transportation facilities critical to the state's economic growth
- Guides multimodal freight investments in the state
- Required to receive funding under the National Highway Freight Program



Florida's Regional Advanced Mobility Elements (FRAME)

I-4 FRAME

- Links CV projects between Tampa and Orlando (D7, D1, D5, FTE)
- Includes ATSPM
- Using blank out signs to assist with diversion routing



I-75 FRAME

- ICM
- ATSPM
- RSUs and OBUs
- CV applications deployed include:
 - SPaT
 - Preemption for Transit, Freight and Emergency Responders

TPAS – Parking Info Management

Provides:

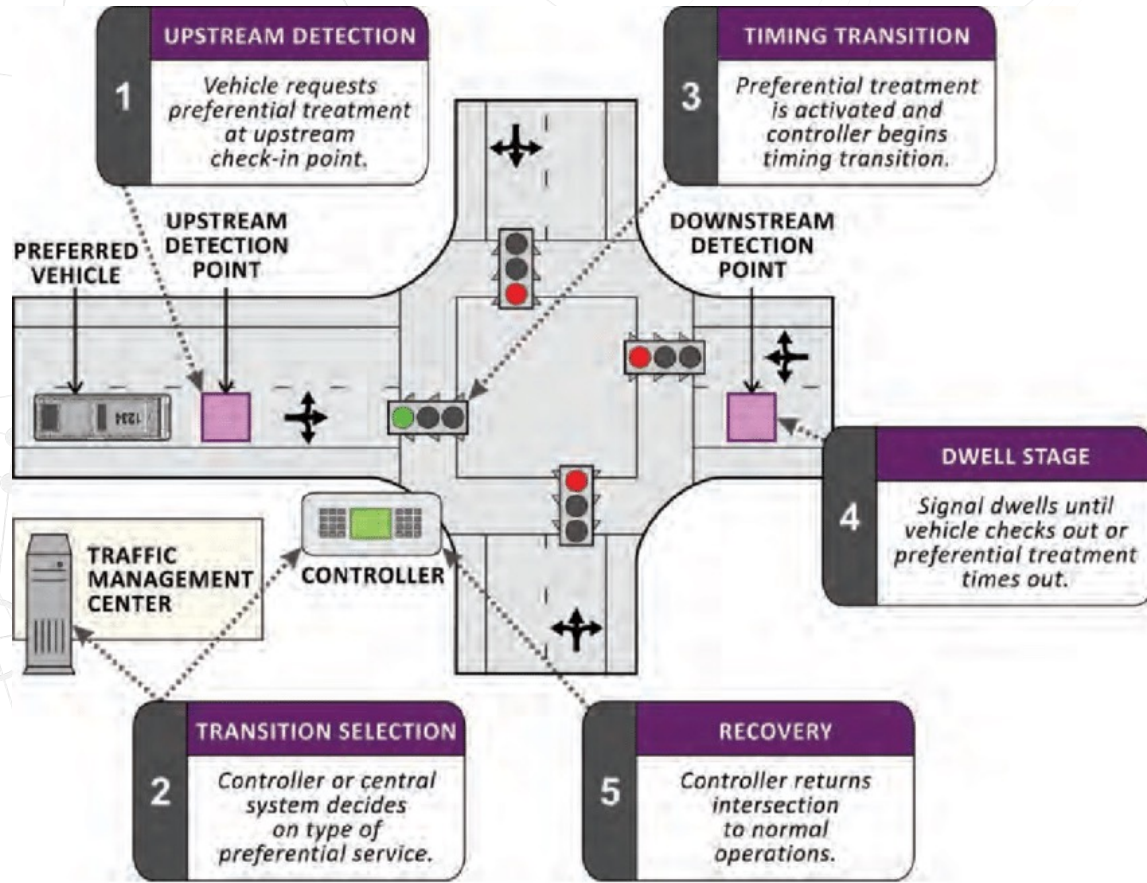
- Real-time information for truck drivers, dispatchers, and other stakeholders
- Automates RTMC verification and reporting

Which:

- Saves commercial truck drivers money
- Enables truck drivers to meet HOS



Freight Signal Priority



Source: Urbanik et al. (2015).

Provides

- The ability for extended green time to allow progression for trucks

Benefits

- Improved safety
- Reduced congestion
- Reduced road maintenance needs
- Reduced emissions

Freight and Supply Chain Related CAV/Technology Projects in Florida

Planning

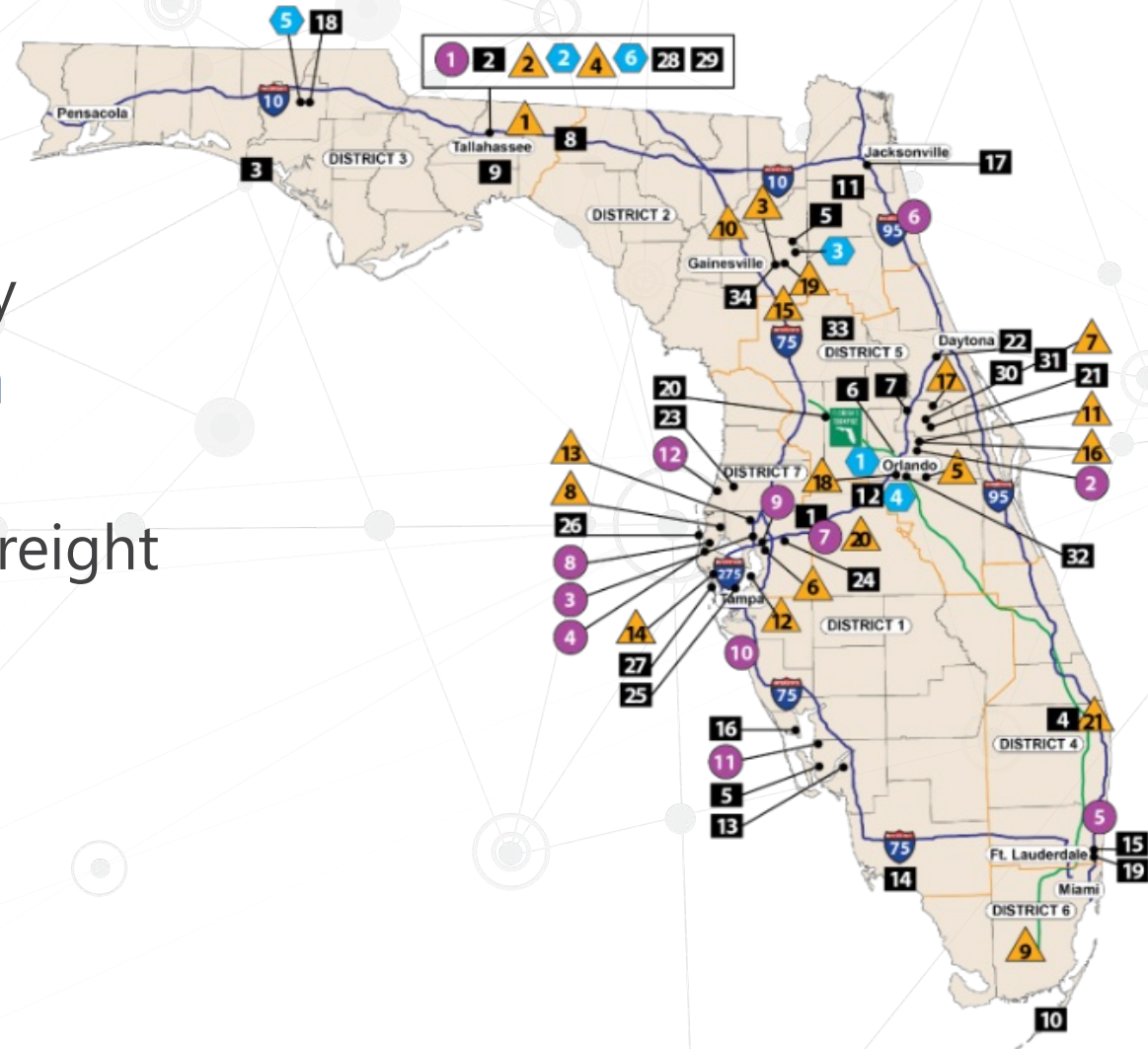
- SR-423 Freight Signal Priority

Design & Implementation

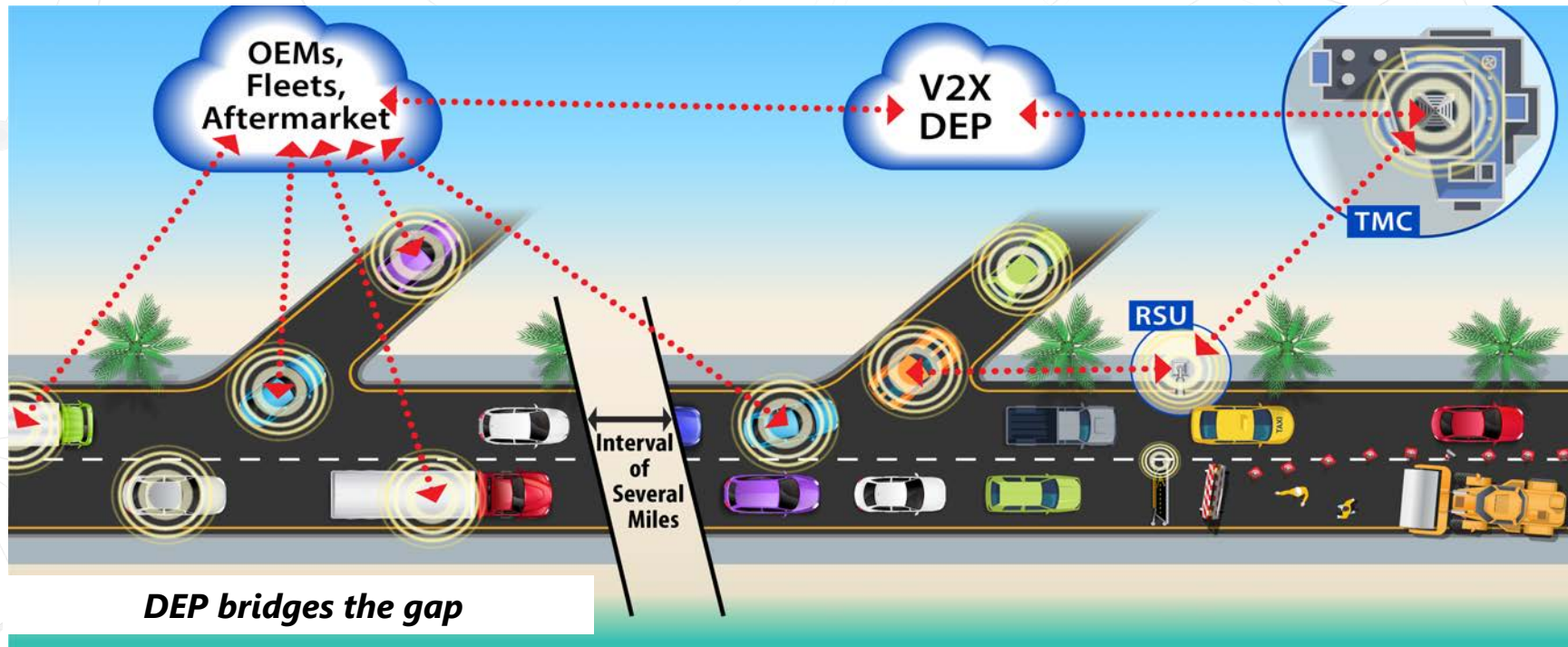
- I-4 FRAME
- SR-710/Beeline Hwy – CAV Freight
- US 41 FRAME

Operational

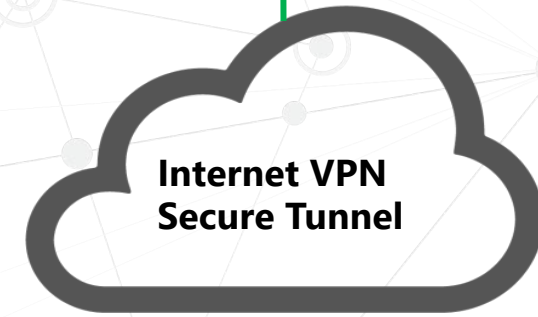
- I-75 FRAME



Vehicle-to-Everything Data Exchange Platform (V2X DEP)



V2X DEP
SPaT, MAP, & BSM Data forwarded to V2X DEP by CV Field Equipment



Impacting Driver Shortage

Demographics

- 84% of drivers are male
- 70% of drivers are over 40

Misconceptions

- Schedules
- Compensation

Barriers to entry



Thank you!

Katherine Chinault, CPM

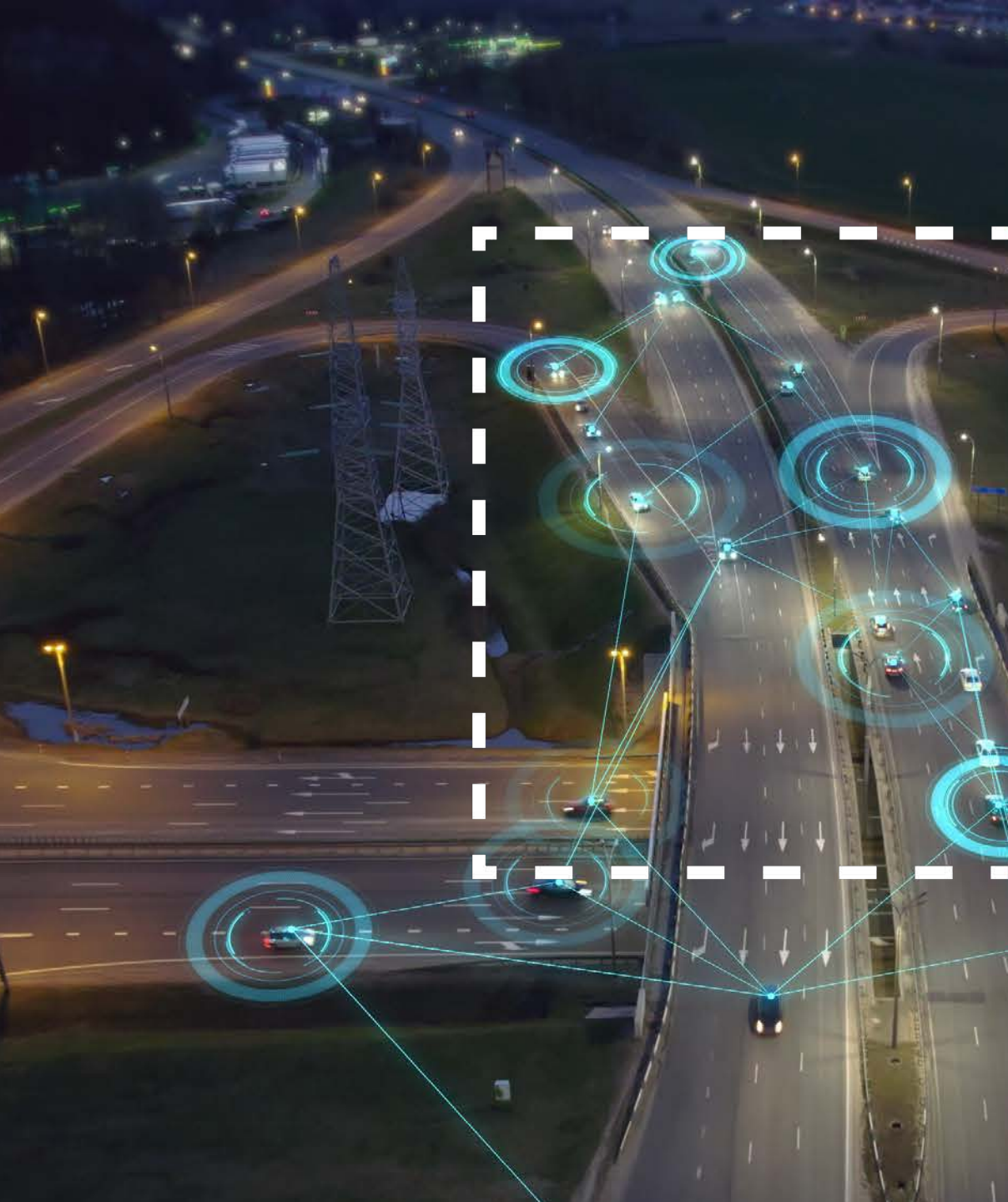
TSM&O Development Manager, D1

Office (863) 519-2511

Mobile (863) 899-9524

katherine.chinault@dot.state.fl.us





April Combs

W o r k f o r c e

Developing the Transportation Workforce of the Future



PROMOTE

- Tell our **STORY**
- Opportunities for **GROWTH**
- Join the **TEAM**
- See the **ACTION**



PARTNER

- **COLLABORATE** with industry leaders
- **COMMITTED** to your growth
- It takes a **FAMILY**



PURPOSE

- Assemble the strongest **WORKFORCE**
- Make a **DIFFERENCE**
- Sense of **PRIDE**



PASSION

- Build your **FUTURE**
- Build your **DREAM**
- Only limit is **YOU**



PROSPER

- Guarantee Florida's economic **SECURITY**
- Unparalleled **BENEFITS**

Developing the Next Generation

- Roadways Into Developing Elementary Students (RIDES)
- Middle and High School Focused Learning (TRAC)
- National and Statewide Bridge Challenge



Scan to learn more about STEM Outreach Solutions

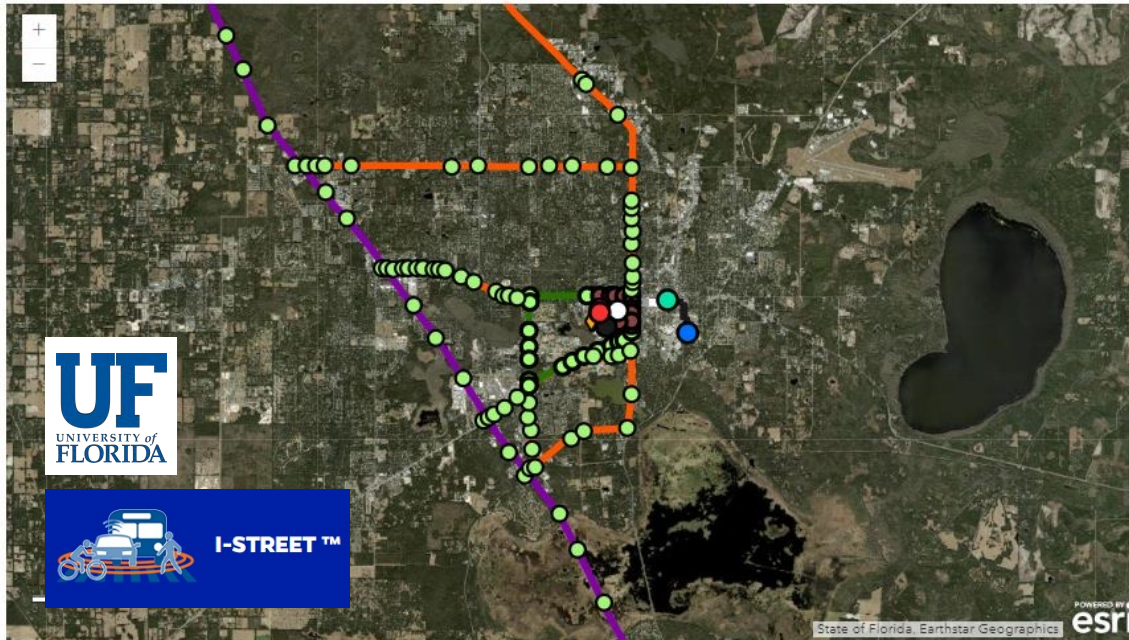


Targeting Trades



Partnerships with Universities

I-STREET: various projects at UF Transportation Institute



Legend			
Devices	Corridors	Projects	Autonomous Shuttle Phases
<ul style="list-style-type: none"> Intelligent Intersections (AVIAN Project) Road site unit (RSU) for V2I Traffic signals with pedestrian safety features (UF AID Project) Pedestrian Crossing 	<ul style="list-style-type: none"> I-75 Florida's Regional Adv. Mobility Elements (FRAME) I-75 FRAME Arterials Connected intersections (SPaT Trapezium Project) Pedestrian/bicyclist safety features (UF AID Ped/Bike pilot) 	<ul style="list-style-type: none"> Bike Rack Sensors Eye Tracker Gainesville Autonomous Shuttle MobilEYE Shield+ AV Research (NaviGator) 	<ul style="list-style-type: none"> Phase 1 Phase 2 Phase 3

2023 FPTA/FDOT/CUTR Professional Development Workshop & Transit Safety and Operations Summit



Engaging the Best Talent

SunTrax

PlugFest



An event poster for 'OMNIAIR FLORIDA PLUGFEST'. The background is an aerial view of a green field with some infrastructure. The text is overlaid on the image. At the top left is the 'OMNIAIR CONSORTIUM' logo. The main title 'OMNIAIR FLORIDA PLUGFEST' is in large white letters. Below it, 'CONNECTED MOBILITY WORKSHOP WEDNESDAY, MAY 3' is written in smaller white letters. A yellow banner at the bottom left says 'HOSTED BY'. Below this banner are the logos for 'FDOT', 'SUNTRAX', and 'UF Transportation Institute UNIVERSITY of FLORIDA'. On the bottom right is a circular logo for 'OMNIAIR PLUGFEST EST. 2017'.

Thank you!

April Combs

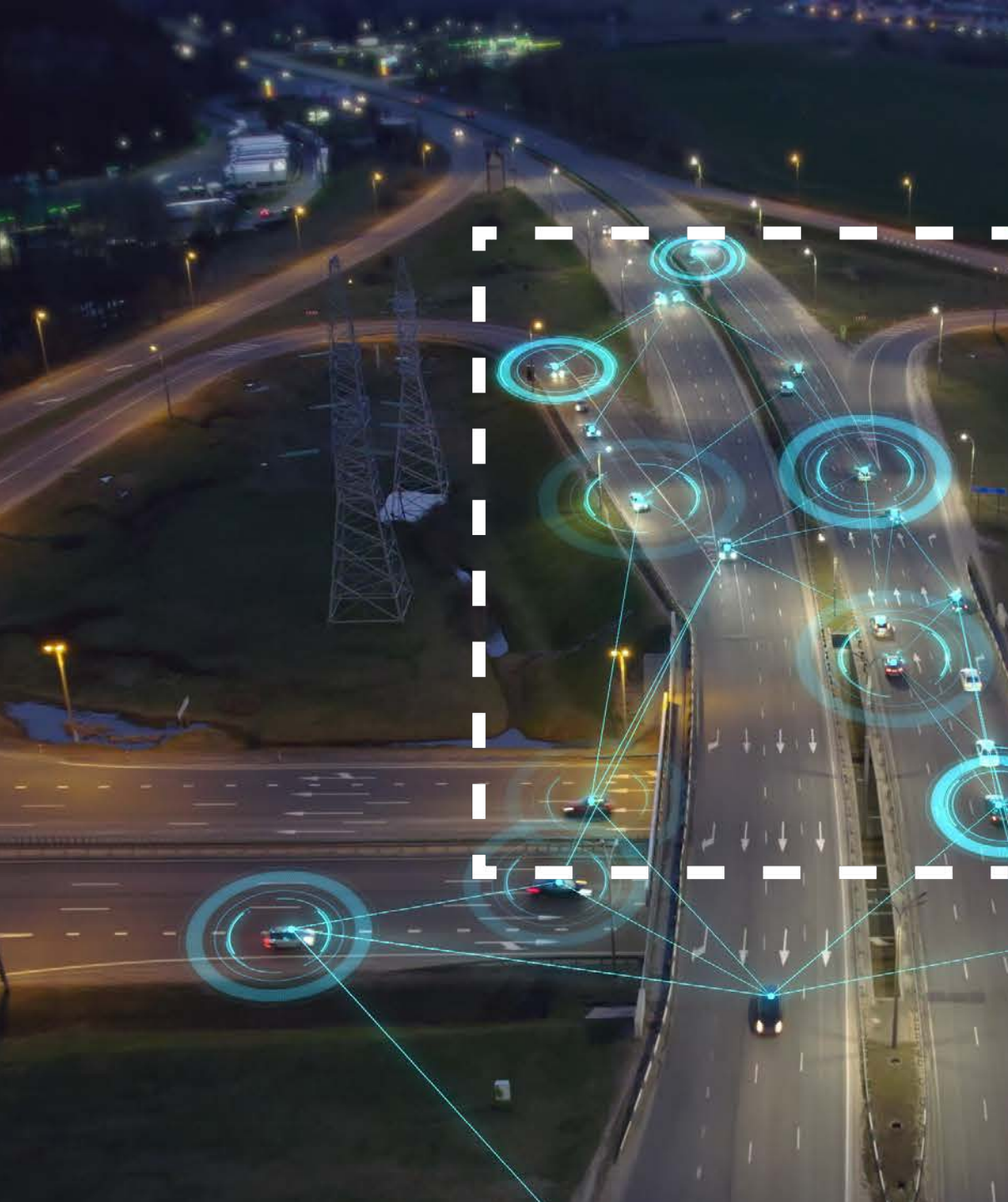
Workforce Development Program Manager

Florida Department of Transportation

605 Suwannee St. | Tallahassee, FL 32399

Office: (850) 414-4817





Question & Answer



Trey Tillander, P.E.
Executive Director of Transportation Technology
Florida Department of Transportation