CENTRAL FLORIDA TSM&O CONSORTIUM MEETING SUMMARY

Meeting Date: April 3, 2025 (Thursday) **Time**: 10:00 AM – 12:00 PM

Subject: TSM&O Consortium Meeting

Meeting Location: FDOT District Five RTMC (4975 Wilson Rd., Sanford, FL 32771) and Teleconference

I. OVERVIEW

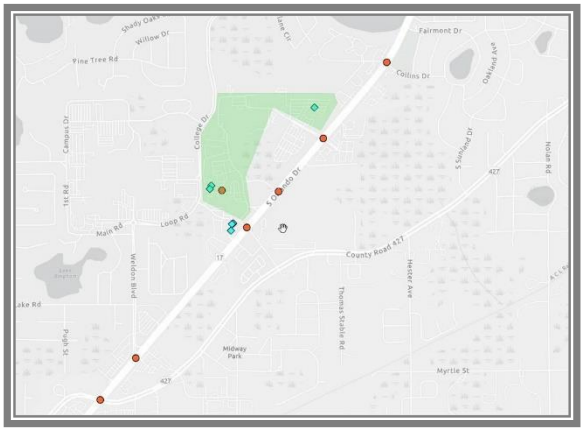
The purpose of this recurring meeting is to provide an opportunity for District Five FDOT staff and local/regional agency partners to collaborate on the state of the TSM&O Program and ongoing efforts in Central Florida. Jeremy Dilmore gave a short introduction and outlined the meeting agenda.

II. FDOT – SIGNAL SIREN

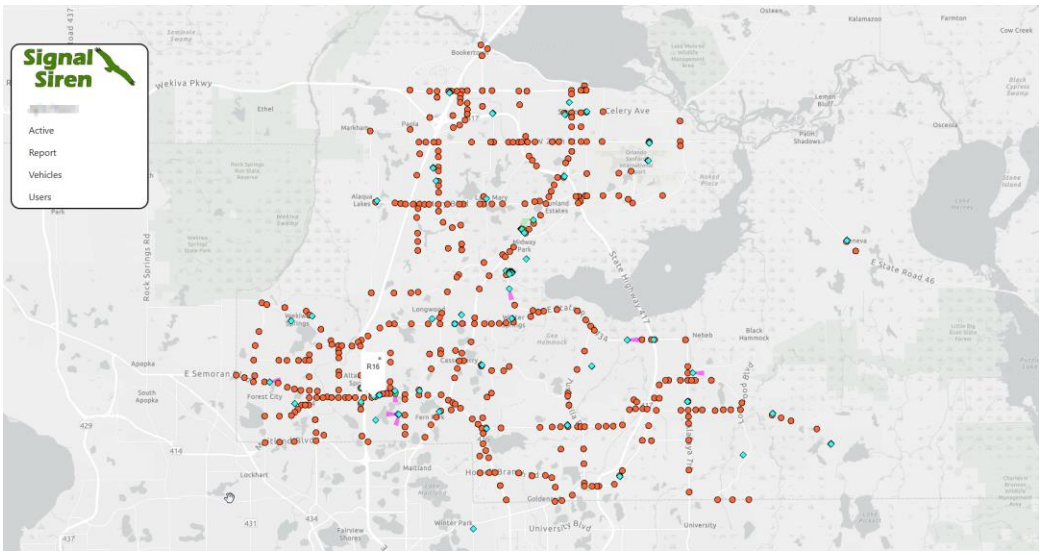
Aurelio Giovinazzo (AECOM) presented on District Five's pilot project enabling Emergency Vehicle Preemption (EVP) with existing traffic signal infrastructure and central software.

- Overview
  - Provides green lights on-demand for first responders based on status of their emergency lights
  - Currently configured for 421 signals and 160 vehicles (38 active trucks)
  - Operates entirely via Automated Vehicle Location (AVL) and District Five ATMS; no signal-side hardware needed
  - Testing signal controller and management dashboard for ongoing verification
- How it works
  - Vehicle position, heading, and speed are reported to central software every second
  - A "cone" of likely future positioning is calculated and used to determine signals in the vehicle's path
  - The signal approach is referenced via SIIA and a standard preemption request message is sent to the controller

    - Central software monitors vehicle position until the preemption can be rescinded
        - Controller will return to scheduled plan after the preemption is rescinded
- Seminole County Deployment
    - Use the vehicle's mobile router to provide sub-second GPS location data
        - Always on when vehicle is on
        - When vehicle is moving, virtual "cone" is turned on
    - API connection to FDOT District Five central server
        - Provides vehicle status (lights on / sirens on)
        - Central server monitoring for particular vehicle status
    - Input Relay monitored by central server
        - Monitor 12v output from light bar



- EVP deployment can be customizable to operation needs and limitations
    - Monitoring tools, operator notifications, dashboard enhancements, testing/non-activation zones
- Requirements
    - Vehicle connectivity via an AVL-enabled device
    - Intersection inventory completed in SIIA
        - Lat/Long at center of signalized intersection
        - ATSPM ID
        - IP address
        - SNMP port with community string
        - Approach lane geometry
        - Signal heads with phase per lane
    - Preemption database configured in signal controllers
    - Signal controller internal communication back to District Five



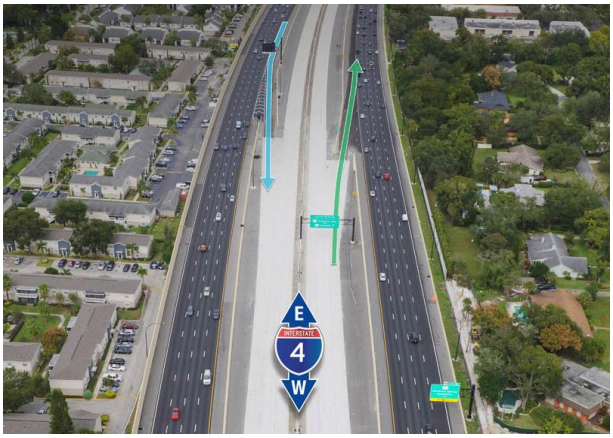
- Current status
    - During March 2025, there were 22,631 preempts requested, with an average duration of 29.3 seconds

III. INTEGRATED CORRIDOR MANAGEMENT (ICM) OPERATIONS

Aurelio Giovinazzo (AECOM) and Caitlyn West (Metric) led a presentation on the ICM operations at the District Five Regional Traffic Management Center (RTMC).

- RTMC
    - 44,994 sq. ft. state-of-the-art, hurricane-ready facility
    - FDOT co-located with FHP and FWC
    - Focused on using TSM&O strategies to improve safety and reduce congestion within the existing system
    - Traffic & Incident Management for 795 miles of state roadway
    - Staffed 24/7, 365 days a year
- ICM Operations - a holistic approach to managing congestion in the area; incidents are managed on both freeways and arterials
    - Active Traffic Management (freeway and arterial)
    - Traveler Information
    - Incident Management
    - Emergency Management
    - Two ICM Operations contracts in District Five
- Lauren Pearson is the RTMC Manager and oversees these two ICM Operations contracts
    - Metric Engineering handles operations for Brevard, Volusia, Flagler, Seminole, Orange, Osceola, and Lake County
    - AECOM handles operations for Sumter, Marion, and Lake County, including Turnpike
- SunGuide includes several subsystems to support traffic operations activities
    - Event Management
        - Allows users to track incidents within the SunGuide software
        - Users can create an EVENT detailing incident information, publish incident information to the FL511 system, create a predefined plan for DMS messaging, check responder status, and monitor incoming system alerts
        - Events are stored within the SunGuide database for future reporting purposes; reports are often run to conduct post-incident reviews
    - Transportation Sensor Subsystem (TSS)
        - Produces a TSS alarm whenever speeds or occupancy fall below a configured threshold
- Dynamic Message Signs (DMS)
    - Whenever certain types of incidents occur, the DMS throughout our network can be used to provide details regarding current road conditions. Examples include:
        - Incidents with lane blockage,
        - states of emergency, and
        - Silver / Purple / AMBER / Missing Child / LEO Alert activation
- Freeway Operations Communications

  - Notifications/Communicatinos are provided via FL511 and third-party data sharing platforms like Waze, Google Maps, and Apple
- Arterial Timings and Operations
  - Third parties can reach out for resources and assistance
  - Issues can be identified by resident calls
  - RTMC can typically visually monitor corridor performance remotely if FDOT has connectivity and CCTVs
  - Everything contributes to corridors that run more smoothly
- Managed Lanes
  - There are two types of ramps used to access I-4 Express
    - 14 slip ramps to merge in and out of the general use lanes and express lanes
    - 14 direct connect ramps that allow direct access from express lanes to surface streets



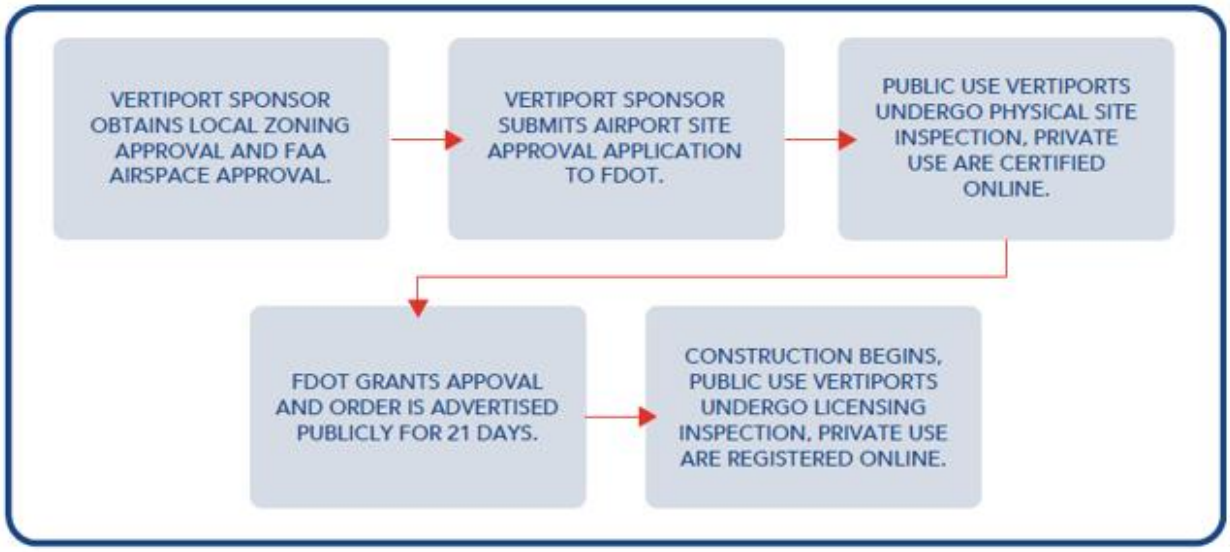
  - First responders have access to emergency access gates (EAG) to enter/exit express lanes
- Traffic Incident Management
  - Incident Management / Dispatch
    - Road Rangers – approximately 5,500 RR assists per month
    - Asset Management
    - Structures
    - Rapid Incident Scene Clearance (RISC)
    - Safe Tow
  - Special Events
  - Emergency Response and Support
- Wildlife Traffic Management
  - In 2024, there were 1,985 wildfires and 9,622 controlled burns within District Five
  - In 2025, there have been 51,455 acres burned across 1,096 wildfires
- Unmanned Aircraft Systems (UAS)
  - Drones are used to meet many transportation needs, including active crashes, structural/environmental issues, active construction, and emergency management

IV. ORLANDO ADVANCED AIR MOBILITY – UPDATE

Jacques Colon (City of Orlando) provided an update on the City of Orlando's Advanced Air Mobility (AAM) efforts.

- What is Advanced Air Mobility?
    - Electric Vertical Takeoff and Landing (eVTOL) vehicles, with passengers and cargo flying at low altitudes
    - Can fly roughly 150 miles on a single charge, depending on the technology, traveling as fast as 150mph to 200mph
    - Mature AAM network will consist of vertiports on rooftops or garages in urban settings, hospitals, airports, and other major multimodal transportation hubs in the Central Florida region.
- eVTOL vehicles look like traditional helicopters, but typically have multiple propellers; most eVTOL vehicles in development have a 200-mile range with up to 8 passengers
- Orlando's Mobility Strategy – Develop a plan to engage private sector eVTOL companies to connect activity centers within the Central Florida region (city taxi model) and connect Orlando to other cities within the southeast
    - Why is it important:
        - Cities and counties must be at the forefront of the AAM conversation
        - No one knows the City better than ourselves; no one is better positioned to understand potential impacts from AAM
        - AAM provides enhanced mobility and transportation alternatives
        - AAM is regional in nature and must be considered with regional partners
- Project Timeline
    - Phase One
        - Technical Memos on Regional Transportation and Environmental Challenges/Opportunities
        - Economic Impact Study of Geico garage location
        - NASA Community Planning Annex
        - Stakeholder Outreach and Regional Visioning
    - Phase Two
        - Zoning and Regulations Review
        - Agency Coordination
    - Phase Three
        - Travel Demand Model
        - Vertiport Target Locations
        - Additional Stakeholder Outreach
- Economic impacts (Phase 1)
    - There will be positive economic benefits (employment, taxes, GDP, etc.) but it is too early for the City to invest in infrastructure without a partner
    - Currently, the potential costs ($30M capital cost; $0.6-1M in parking revenue loss) outweigh the direct fiscal impacts to the City ($4.3M tax revenue over a 20-year period, estimated by IMPLAN)

  - To move forward, City should negotiate an agreement with an AAM operator
    - This agreement would help the City understand the anticipated ROI before making capital investments
- Zoning and Regulations Review
  - FDOT has provided a list of Recommended Best Practices for AAM
    - Assign a lead staff member for AAM
    - Review FDOT state of AAM
    - Review zoning ordinances
    - Map out aeronautical use facilities
    - Identify compatible land uses
    - Establish a benchmark for existing ambient noise levels
    - Establish waste, hazmat, and pollution prevention requirements
    - Establish AAM policies that put the community first
    - Update Zoning ordinances
  - Currently, Orlando's zoning allows for vertiports as a conditional use in certain zoning areas, but no zoning areas permit vertiports outright
  - FDOT's Airport Site Approval Process (summarized)



- Key Questions remaining
  - How do we project possible demand and preferred vertiport locations?
  - Who owns and operates vertiports?
  - How do we ensure safe operations and integrations into existing airspace and ground transportation networks?
  - What happens when we move out of the regulatory phase?
  - How do we regulate, measure, enforce external impacts (e.g., noise/visual pollution)?
  - How does approval of a vertiport affect property rights?
  - What type of information/data sharing will be required?

V. DRONE DELIVERIES IN CENTRAL FLORIDA

Jacques Colon (City of Orlando) gave a brief presentation on drone delivery services in Central Florida following a Draft Environmental Assessment.

- What was applied for?
  - FAA provided notice that Wing Aviation is seeking approval to conduct drone deliveries in Central Florida through the dissemination of a Draft Environmental Assessment (EA)
  - Wing is planning to operate drone deliveries from four Walmart stores in Metro Orlando
  - Deliveries of up to 5lbs will take place within 6 miles of each store
  - All deliveries will be automated without a human operator; drones would not need to land at any point
  - Feedback to the EA was due to the FAA on January 20, 2025

- Package Delivery Process
  1. Customer places order and selects drone delivery
  2. Staff at store prepare item for delivery, bringing it to the loading area at the "nest"
  3. Drone is sent a predetermined route and gets clearance from Wing's system to start operations
  4. Drone lifts vertically to 23ft about ground level and waits until package is loaded to end of tether
  5. Package is reeled into the drone and the vehicle begins trip to delivery location. While in route, drone will climb to cruising altitude of 150-300ft and will travel around 59mph
  6. Drone flies predetermined route
  7. As drone approaches delivery location, it will descend to 23ft at location
  8. Drone will lower package at the customer's property via the tether. Once package is on the ground the drone will release package and reel in tether.
  9. Drone repeats the trip and altitude adjustments to return to the nest of the next delivery
- Drone nest is typically located in parking lot, close to other delivery service area
  - Fenced area with a shipping container for drone storage
- Regulatory framework
  - Federal

        - Federal government has sole approval powers for the aircraft certification as well as the certification of the company as an "air carrier"
            - Under current FAA rules, the expansion of drone deliveries into Central Florida is a major federal action requiring the approval of an EA
    - State
        - Drone operations are governed by Section 330.41 of Florida Statutes
        - State has all authority to regulate the operation of unmanned aircraft systems; local agencies "may not withhold issuance of a business tax receipt, development permit, or other use approval to a drone delivery service or enact or enforce an ordinance or resolution that prohibits a drone delivery service's operation based on the location of its drone port."
        - In general, local jurisdictions can only enact or enforce local ordinances relating to nuisances, voyeurism, harassment, reckless endangerment, or property damage
- Remaining questions
    - Public outreach before operations
    - Emergency procedures
    - Company point of contact
    - FAA remote ID requirements
    - Package dropoff locations
- Next Steps – Wing Aviation is waiting for FAA response to EA with a goal to start operations in Central Florida in second half of 2025

VI. FLASH AWARD

Kevin Marquez (FDOT) gave a brief presentation of FDOT's FLASH Award to Lake County Traffic Operations team members.

- This is District Five TSM&O's recognition program for outstanding maintaining agency response to traffic signal emergencies
- Focuses on showcasing specific efforts throughout the District
- Discuss processes, best practices, lessons learned, etc.
- State Road 50 at East Avenue
- Emergency Response Details
    - February 25, 2025 at 2:52am – Lake County Traffic Operations signal on-call personnel received call about crash at subject location
    - 3:41am – staff arrives on scene to find a semi-truck had crashed into the traffic signal strain pole, electrical service panel, and ped signal
    - Shortly after arrival, County personnel began full MOT effort to close intersection, rerouting traffic through internal residential streets
    - 4:10am – County personnel activate their traffic signal contractor for emergency repairs
    - 6:00am – additional County personnel arrive to begin cleanup and continue to assist with MOT
    - 7:00am – Contractor arrives on scene but unable to begin work since truck removal and pole removal needs to be coordinated

  - 9:00am – tow truck begins assessing removal plan and contractor begins to work on minor repairs and securing materials
  - 9:30am – intersection turned over to traffic signal contractor to begin temporary replacement work
  - 5:00pm – intersection is back online after the installation of a wood pole, new span, and generator hookup. **(Approximately 14 hours from crash to intersection reopening)**
  - Refueling efforts continued for two days, when the new power service was installed
  - Long term repair efforts are underway to install a permanent concrete strain pole
- Key successes
  - Experienced County personnel leading an experienced contractor
    - County personnel capable of managing large MOT needs
  - Utilizing an "on-call" contract that doesn't require a PO or written NTP
  - Having a reliable contractor that is available 24/7
  - County worked with the contractor and provided some material, as needed
- Lessons Learned
  - Having a refueling plan for emergencies is critical
  - Coordination with FDOT for equipment is always an option

VII. NEXT MEETING

- June 5, 2025

VIII. ATTACHMENTS

- A – Presentation Slides
- B – Meeting agenda

END OF SUMMARY

This summary was prepared by David Williams and is provided as a summary (not verbatim) for use by the Consortium Members. The comments do not reflect FDOT's concurrence. Please review and send comments via e-mail to david.williams2@dot.state.fl.us *so the meeting summary can be finalized.*

Welcome to the TSM&O Consortium Meeting

April 3, 2025

CENTRAL FLORIDA TSM&O CONSORTIUM

FDOT TSM&O Transportation Systems Management & Operations

Meeting Agenda

1. FDOT District 5 – Updates
2. Emergency Vehicle Preemption – Update
3. Integrated Corridor Management (ICM) Operations
4. Orlando Advanced Air Mobility – Update
5. Drone Deliveries in Central Florida
6. Travel-Time Tool
7. FLASH Award – Lake County
8. Current Initiatives

FDOT District Five Updates

Tushar Patel, FDOT District Five

FDOT'S Signal Siren

EMERGENCY VEHICLE PREEMPTION

Overview

- Provides green lights on-demand for first responders based on the status of emergency lights apparatus
- Currently configured for 421 signals and 160 vehicles
  - 38 active trucks
- Operates entirely via vehicle AVL and District 5 central software, no signal side hardware needed
- Testing signal controller and management dashboard for on-going verification.

How it works?

- Vehicle position, heading, and speed are reported to central software each second
- A "cone" of likely future positioning is calculated and used to determine signals in the vehicle's path
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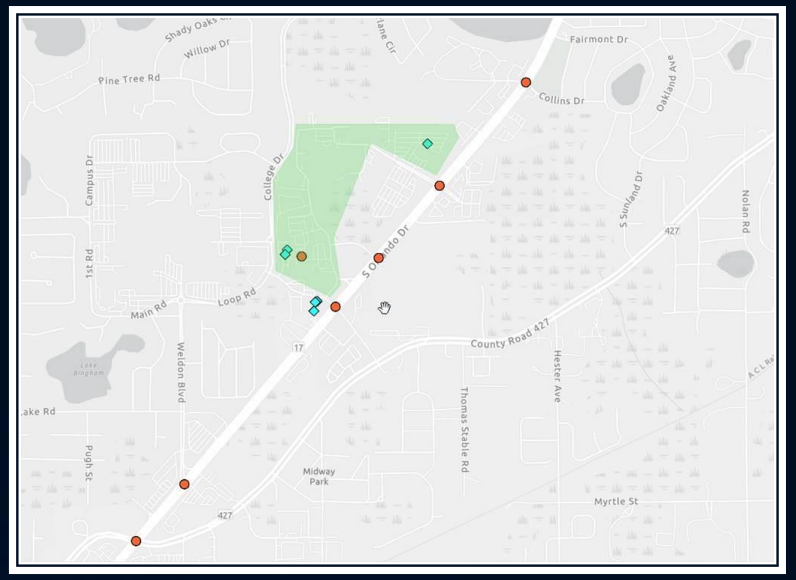
- Central software monitors vehicle position until the preemption can be rescinded
  - Controller returns to scheduled plan

Seminole County Deployment

- Use Mobile vehicle router to provide sub-second GPS location
  - Always-on when vehicle is on
  - When vehicle is moving virtual “cone” is turned on
- API connection to FDOT District 5 central server
  - Provides vehicle status (Lights/Sirens)
  - Central server monitoring for particular vehicle status
- Input Relay monitored by central server
  - Monitor 12V output from light bar

Customizable

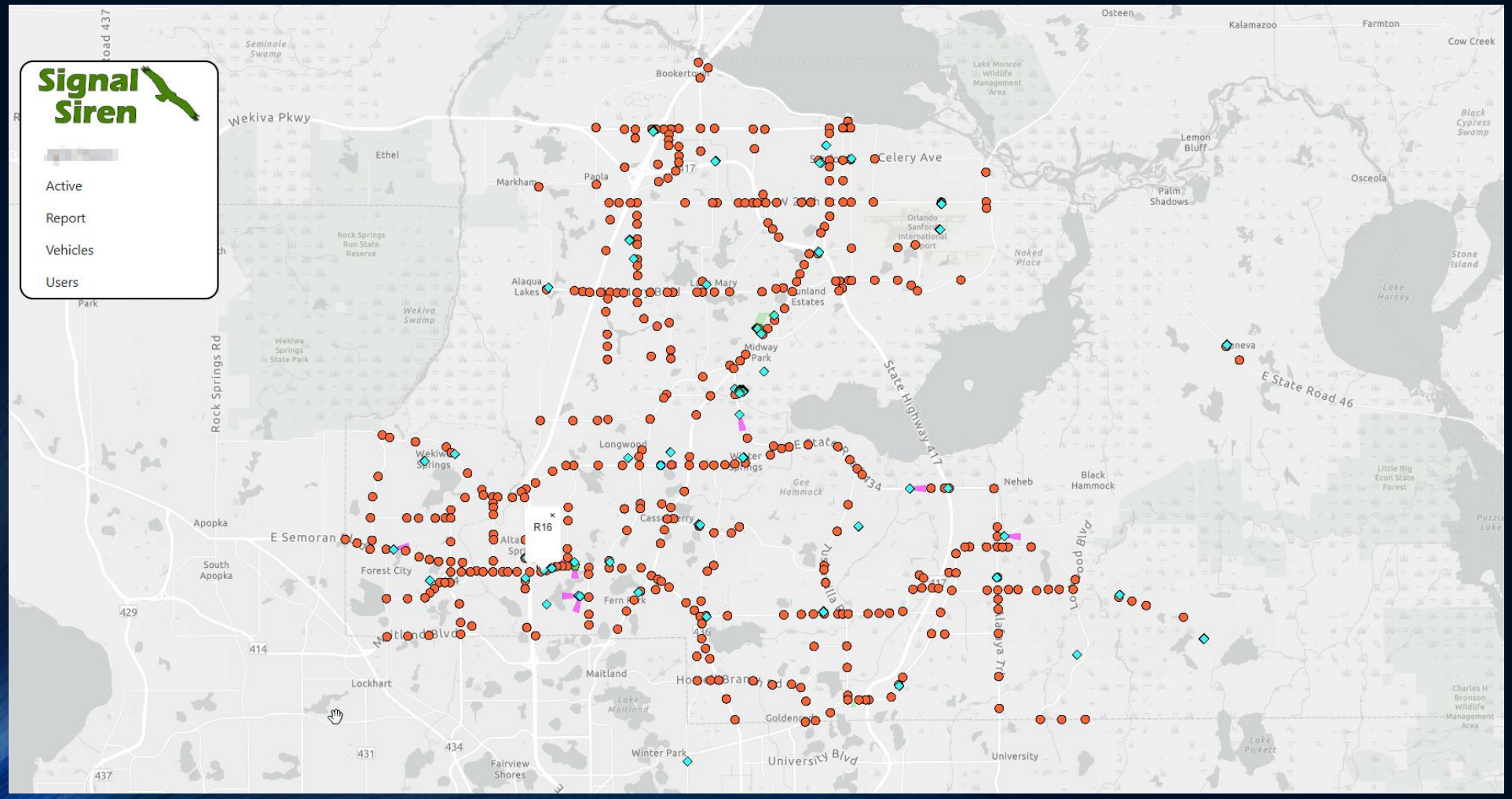
- Deployment can be customizable to operation needs and limitations
  - Monitoring tools (vehicle status)
  - Operator notification
  - Dashboard enhancements
  - Testing/non-activation zones



Requirements

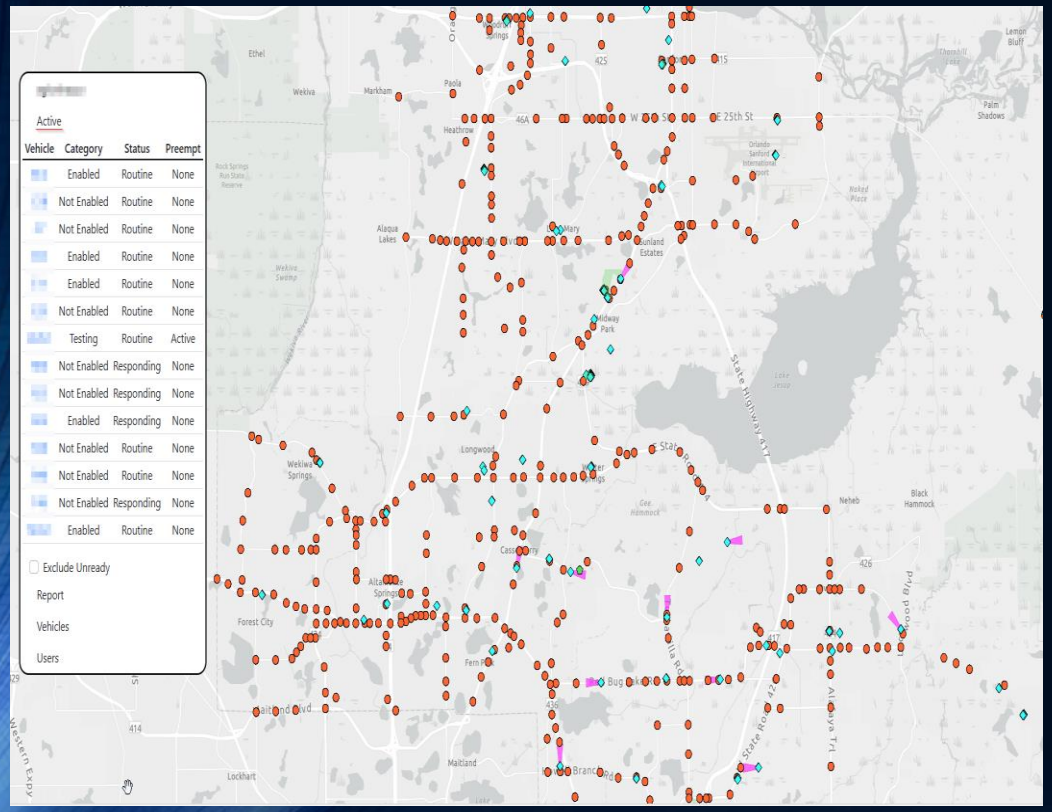
- Vehicle connectivity with a device capable of sending AVL
- Intersection inventory completed in SIIA
  - Lat/Long at center of signalized intersection
  - ATSPM ID
  - IP address
  - SNMP port with community string
  - Approach lane geometry
  - Signal heads with phase per lane
- Preemption database configured in signal controllers
- Signal controller internal communication back to District 5

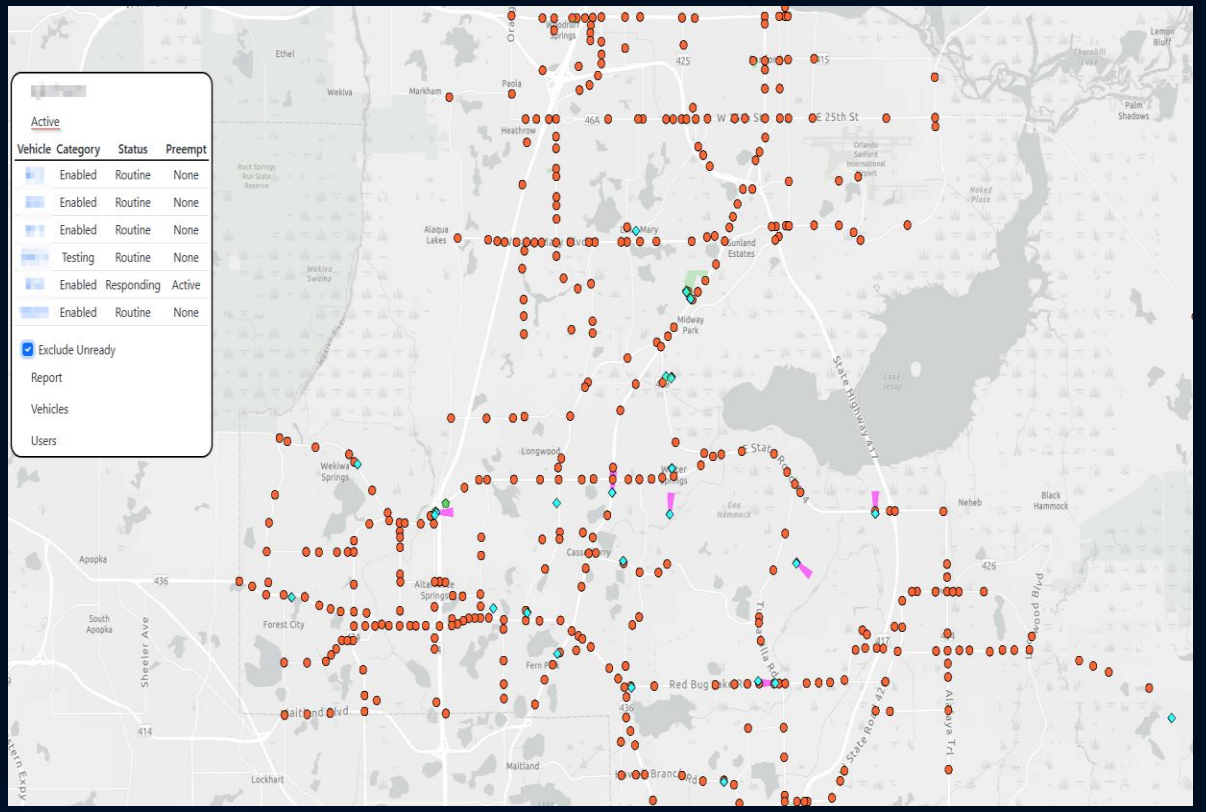
Signal Siren Dashboard



Signal Siren Dashboard

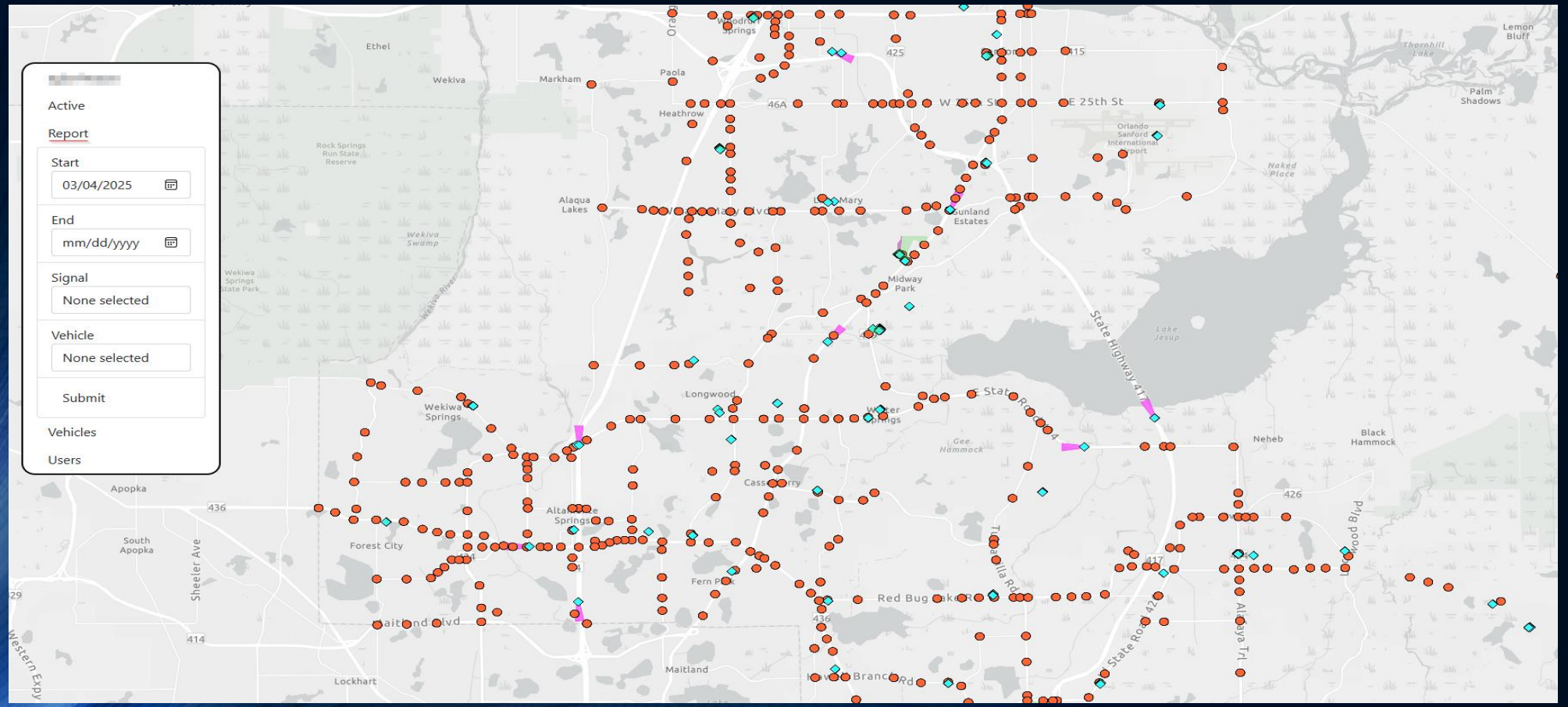
- Live Vehicle Status





Signal Siren Dashboard

- Reporting



Signal Siren Dashboard

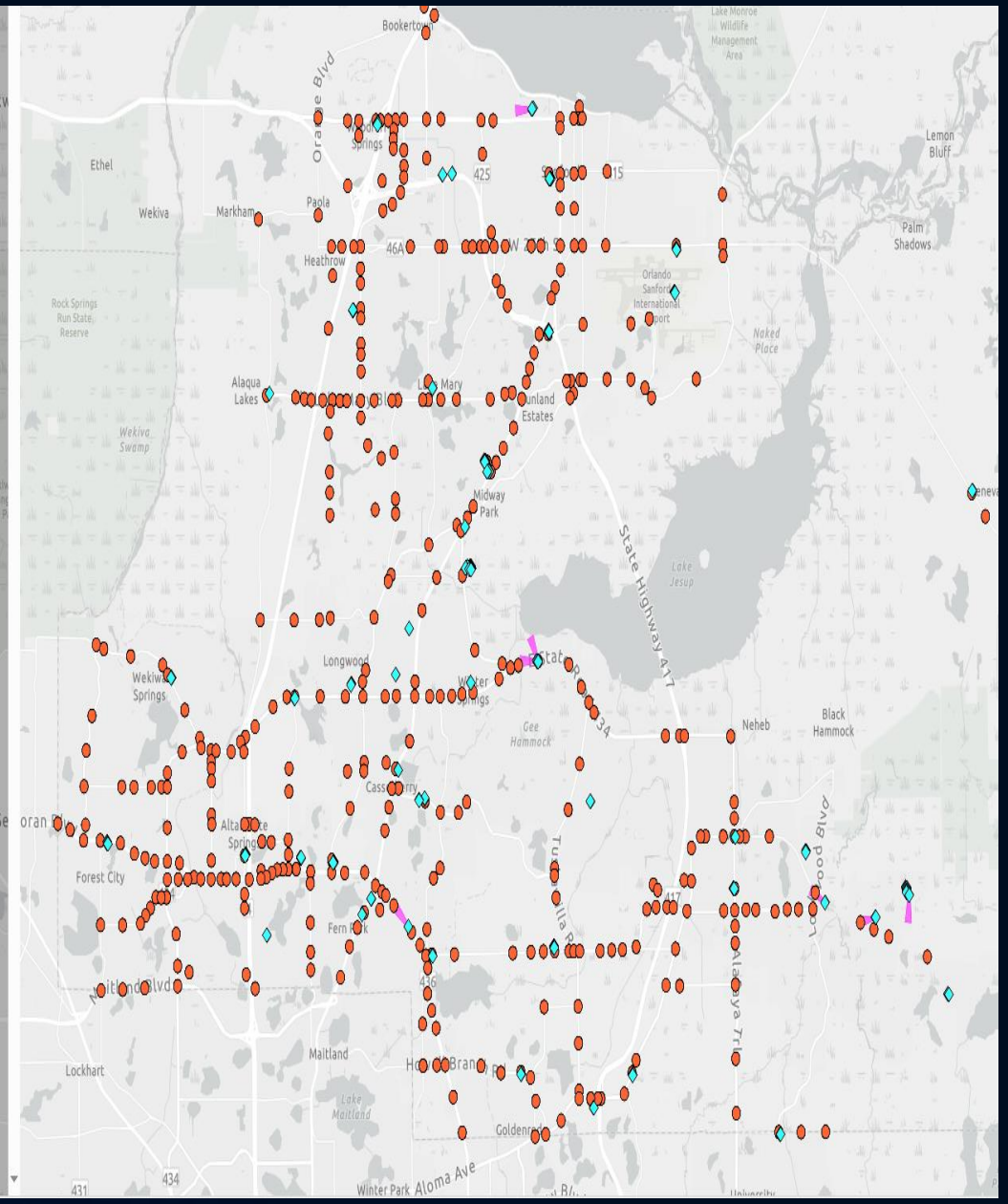
- Vehicle Management

Current Status

- March 1st – 31st
  - 22,631 Preempts were requested
  - Average duration: 29.3s

Preempts (22631)

Signal	Vehicle	Direction	Timestamp	Duration
SEM		EB	3/4/2025, 12:01:08 PM	18
SEM		EB	3/4/2025, 12:01:21 PM	34
SEM		EB	3/4/2025, 12:01:38 PM	35
SEM		EB	3/4/2025, 12:02:03 PM	28
SEM		EB	3/4/2025, 12:02:18 PM	29
SEM		SB	3/4/2025, 12:02:19 PM	34
SEM		EB	3/4/2025, 12:02:37 PM	29
SEM		EB	3/4/2025, 12:02:54 PM	26
SEM		EB	3/4/2025, 12:02:54 PM	13
SEM		WB	3/4/2025, 12:03:06 PM	43
SEM		SEB	3/4/2025, 12:03:27 PM	28
SEM		SWB	3/4/2025, 12:03:43 PM	49
SEM		EB	3/4/2025, 12:03:56 PM	29
SEM		NWB	3/4/2025, 12:03:57 PM	38
SEM		EB	3/4/2025, 12:04:25 PM	49
SEM		NWB	3/4/2025, 12:04:46 PM	25
SEM		NWB	3/4/2025, 12:05:00 PM	26
SEM		NWB	3/4/2025, 12:05:06 PM	26
SEM		SB	3/4/2025, 12:05:14 PM	21
SEM		NWB	3/4/2025, 12:05:17 PM	30
SEM		SB	3/4/2025, 12:05:17 PM	43
SEM		NWB	3/4/2025, 12:05:38 PM	30
SEM		EB	3/4/2025, 12:06:01 PM	23
SEM		WB	3/4/2025, 12:06:13 PM	25
SEM		SEB	3/4/2025, 12:06:14 PM	9



Demo

TRAFFIC OPS & THE REGIONAL TRANSPORTATION MANAGEMENT CENTER (RTMC)

Florida Department of
TRANSPORTATION

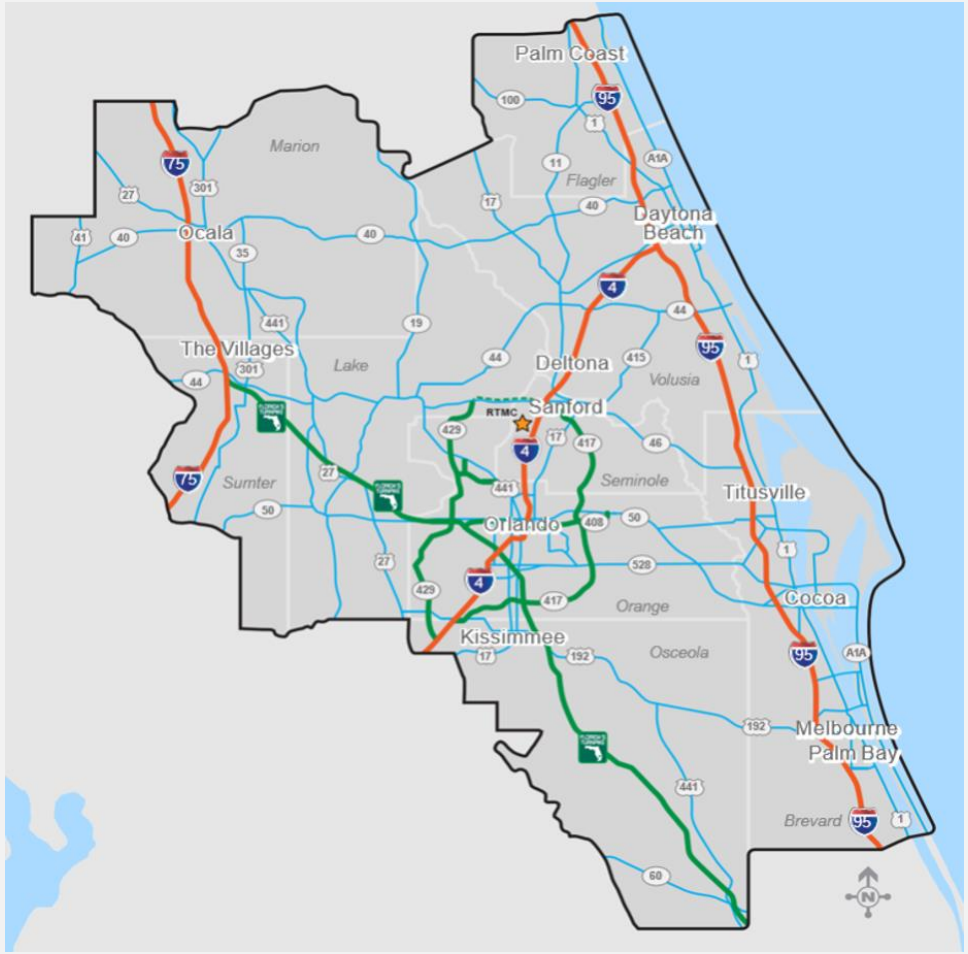
REGIONAL TRANSPORTATION MGMT CENTER

- 44,994 sq ft State-of-the-Art, Hurricane Ready Facility
- FDOT Co-located with FHP Dispatch & FWC
- Focused on Transportation Systems Management and Operations (TSM&O)
  - Reduce congestion and improve safety within the existing system
- Traffic & Incident Management for 795 Miles of State Roadway
- Staffed 24 / 7 / 365

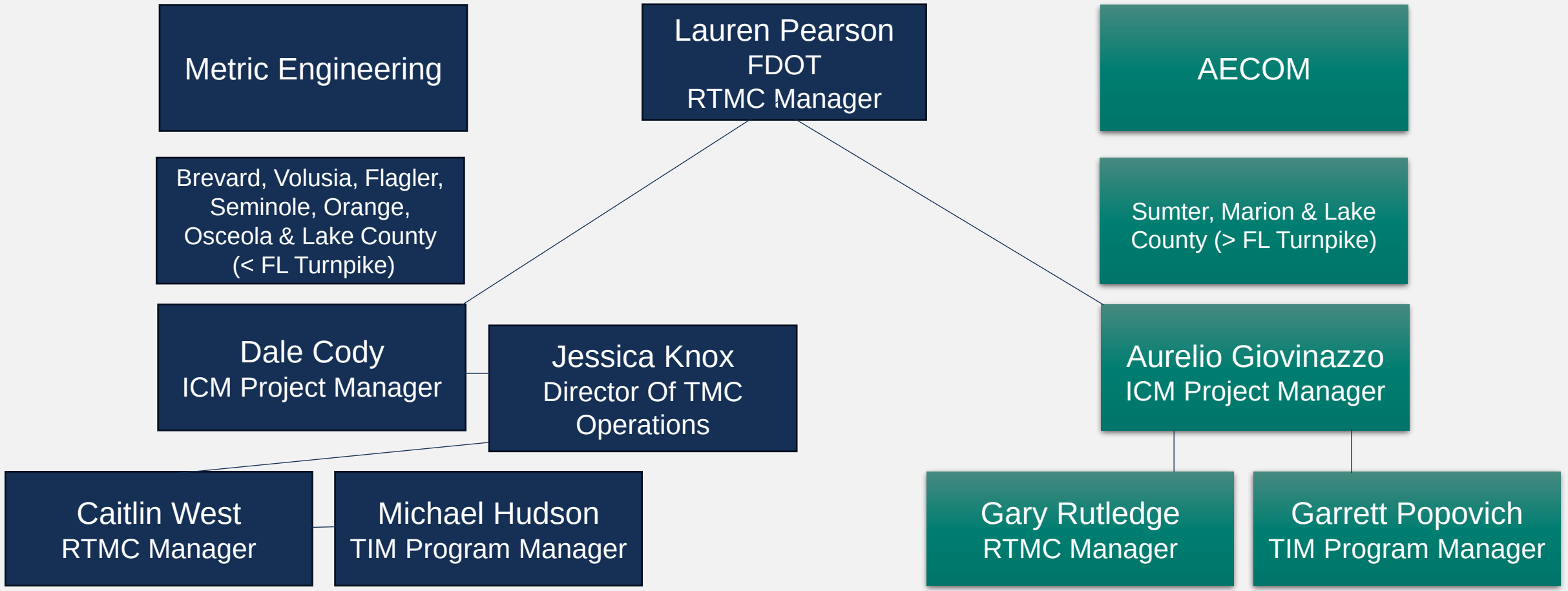
REGIONAL TRANSPORTATION MGMT CENTER

INTEGRATED CORRIDOR MANAGEMENT (ICM)

- Active Traffic Management
  - Freeway
  - Arterial
- Traveler Information
- Incident Management
- Emergency Management
- Two ICM Operations Contracts in D5

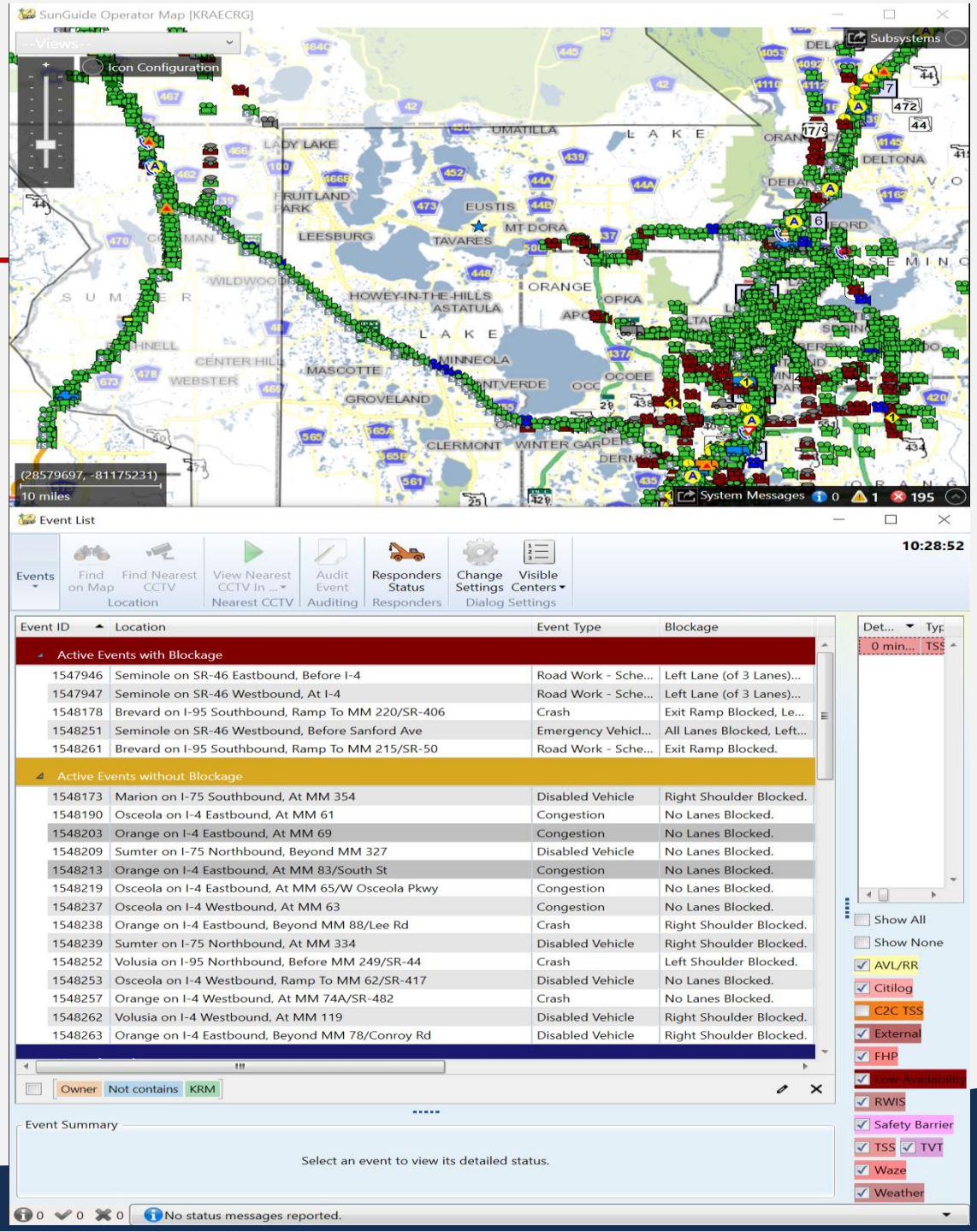


ORG STRUCTURE



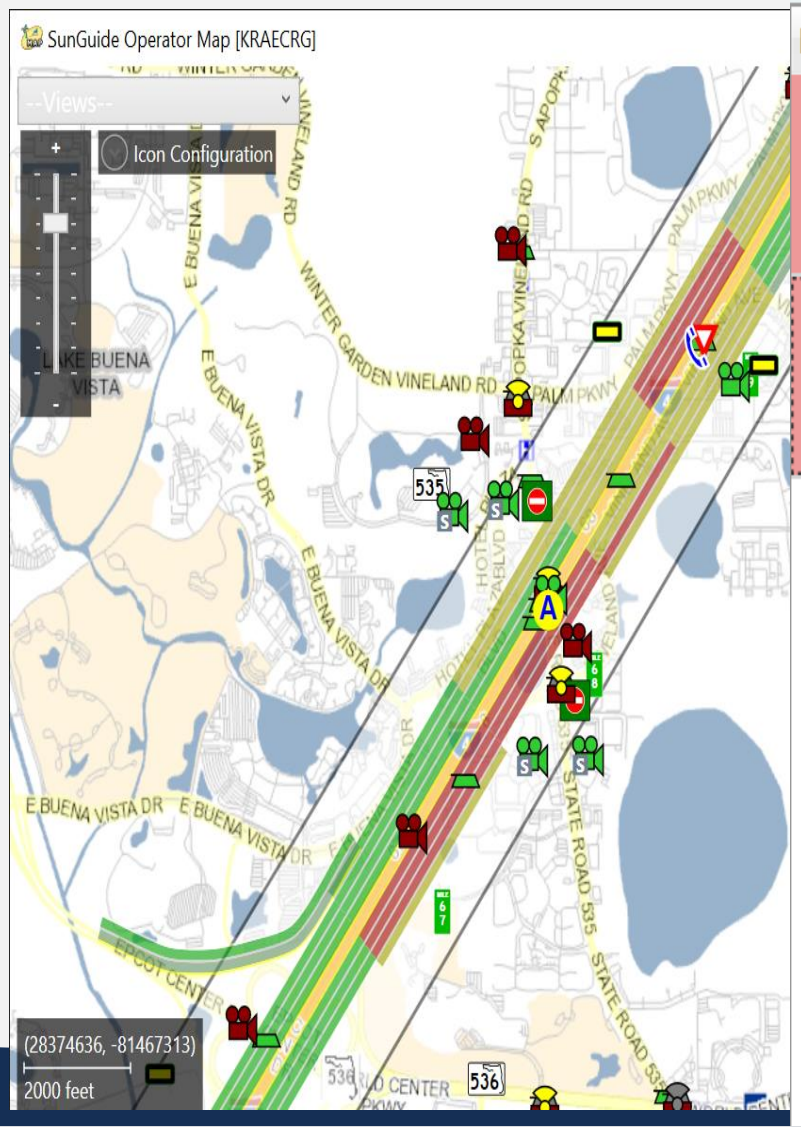
EVENT MANAGEMENT (EM)

- The *Event Management* subsystem (or EM as it is often referred to) allows all users to track incidents within the SunGuide software.
- Through EM a user can:
  - Create an Event detailing incident information.
  - Publish incident information to the FL 511 system.
  - Create a predefined plan for DMS messaging.
  - Check responder status.
  - Monitor incoming system alerts.
- Events are stored within FDOT's SunGuide database for future reporting purposes. Often, reports are run to conduct post incident reviews to identify what went well and what could be improved upon.



TRANSPORTATION SENSOR SUBSYSTEM (TSS)

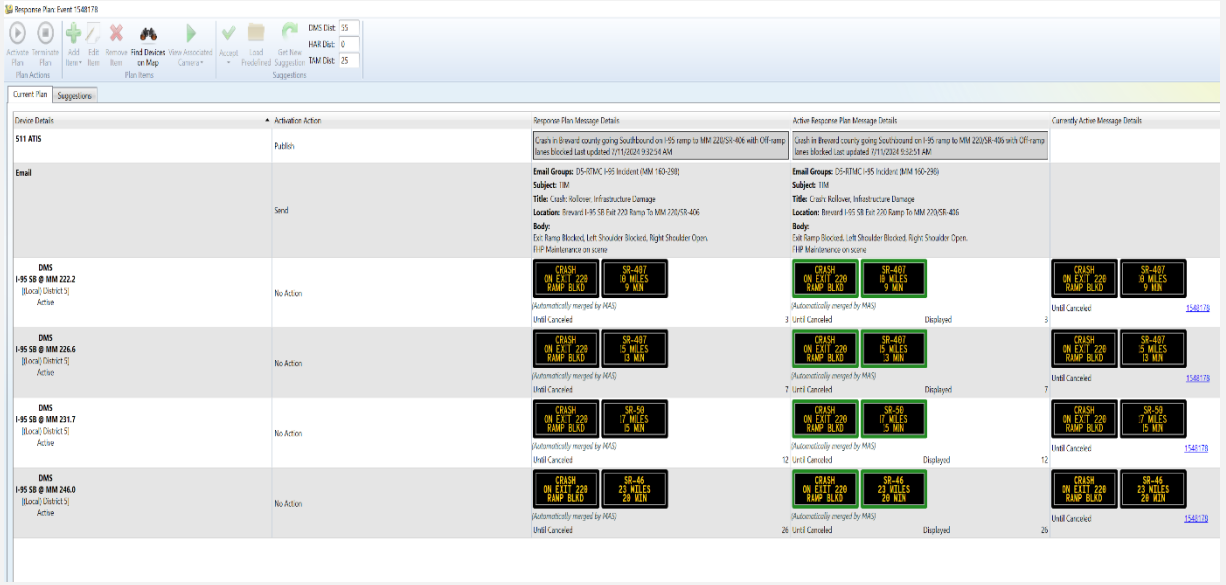
- Should average speed and/or occupancy fall below the configured threshold, SunGuide will produce a *TSS Alarm*. These alarms are generated in the same Alert Box as FHP Alerts, TPAS Alerts and Road Ranger Geofence Alerts.
- Each detector is configurable to produce an alarm should abnormal traffic conditions be detected.
- Currently, the standard configuration in SunGuide is a threshold between 35mph – 55mph.
- Below 35mph = Red (Congested)
- 35mph – 55mph = Yellow (Slowed Traffic)
- Above 55mph = Green (Free Flow)



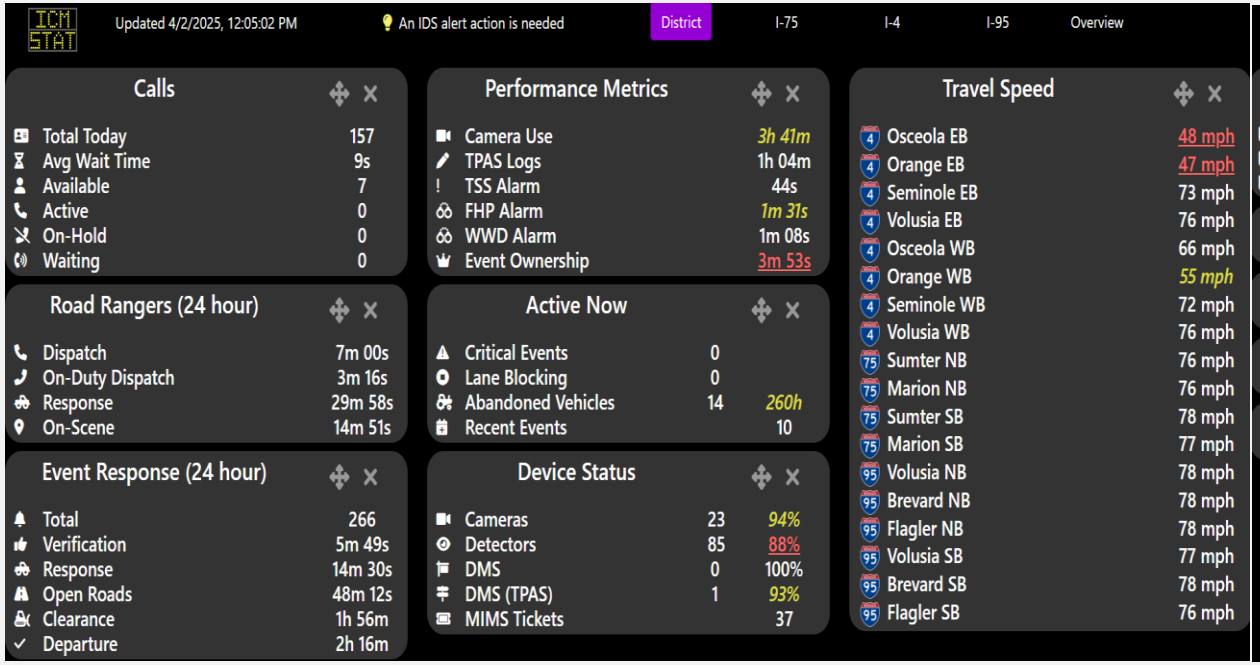
Det...	Type	Details	Location
2 min...	TSS	Incident detected by TSS link I-4 WB @ MM 077.1-WB: Speed	I4 Westbound
0 min...	TSS	Incident detected by TSS link I-4 EB @ MM 076.1-EB: Speed	I4 Eastbound

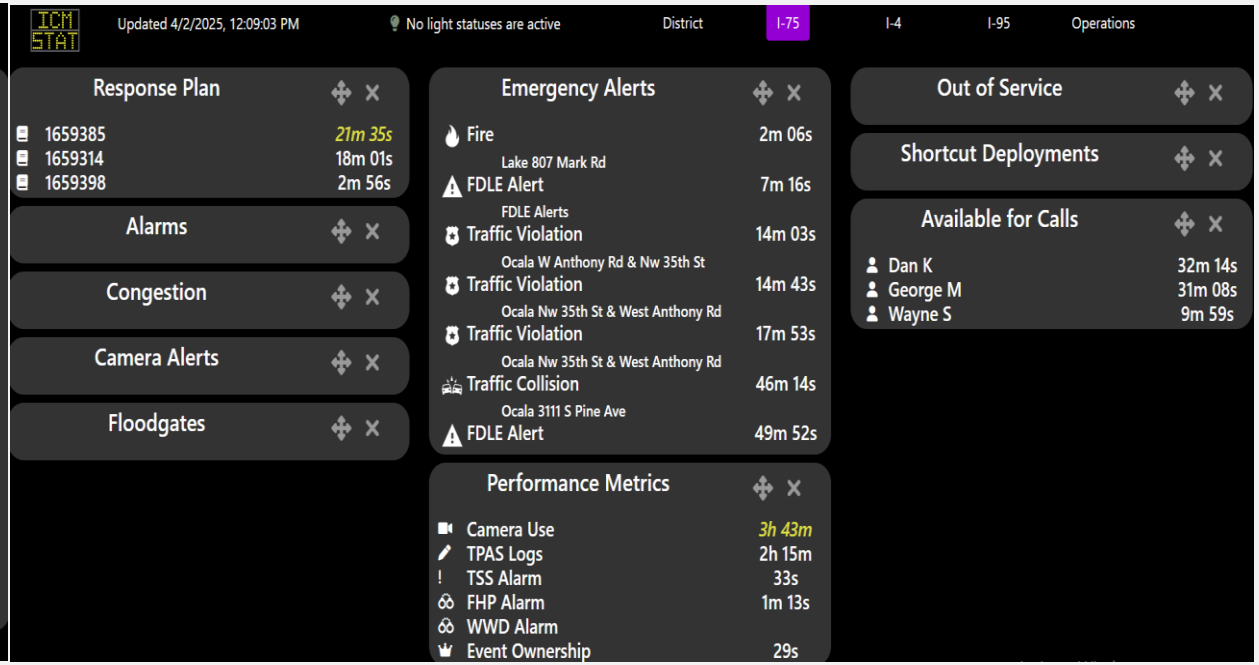
DYNAMIC MESSAGE SIGNS (DMS)

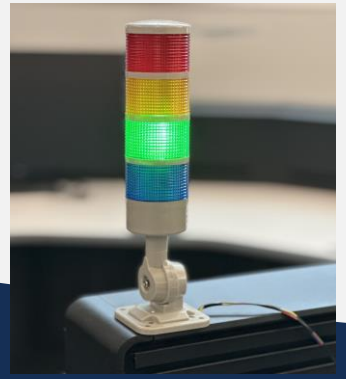
- Dynamic Message Signs, or DMS, are overhead message board signs placed strategically throughout our District on interstates, expressways and arterials to allow for traffic related information to be displayed to the motoring public.
- DMS located on interstates and expressways are configured with travel times to predetermined destinations.
- When certain types of incidents occur, the DMS throughout our network can be used to provide details regarding current road conditions, examples include:
  - Incidents with lane blockage (crashes, road work, debris, detouring traffic etc.).
  - During Silver/Purple/AMBER/Missing Child/LEO Alert activation.
  - During states of emergency such as hurricane evacuation.



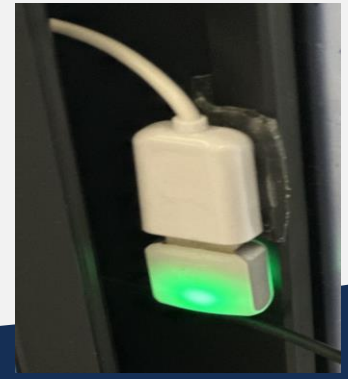
DASHBOARDS & LIGHTS





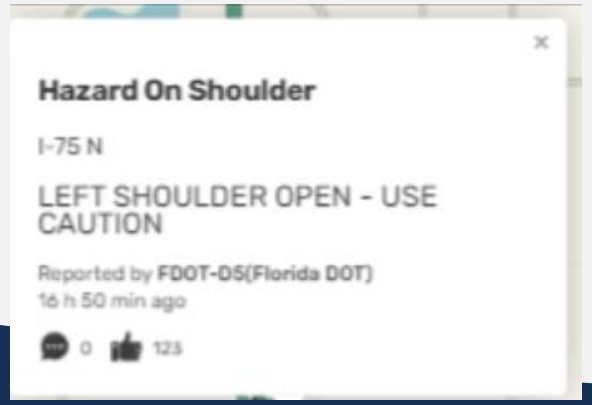


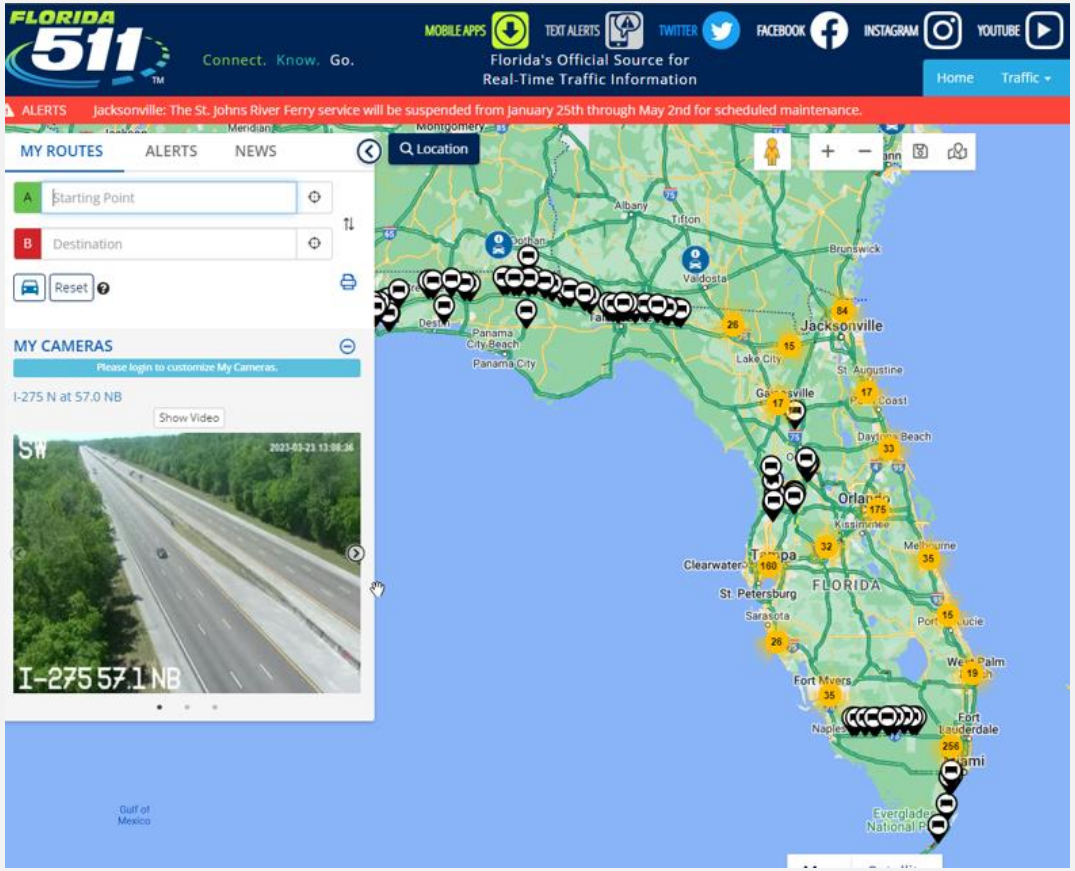
Dashboards and Status Lights are used by both Management and Operators (in addition to SunGuide notifications) to ensure new alerts are actioned as quickly as possible, and information is both accurate and updated, to help improve traveler safety and journey time reliability.



FREEWAY OPERATIONS - COMMUNICATION

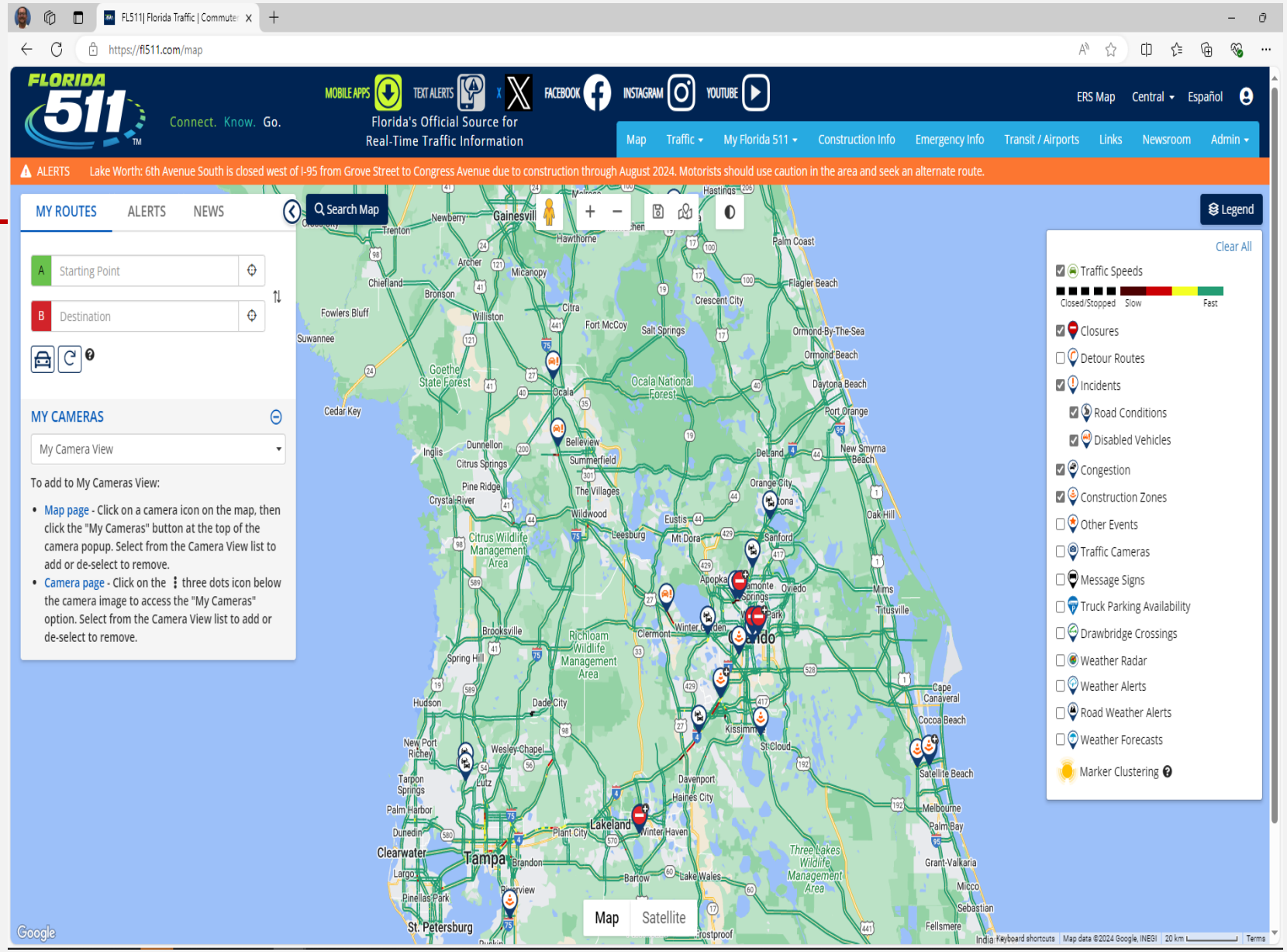
- Notification/Communication
  - Florida 511
  - Third party data sharing
    - ✓ Waze
    - ✓ Google Maps
    - ✓ Apple





FL511.COM

- Real-Time Traveler Information
- Traffic Speeds
- Travel Time
- Incidents/Closures
- Personalize Routes
- Floodgates/Banners
- Statewide Cameras
- Statewide DMS
- Active Construction
- Rest Area Status
- Emergency Information
- Train/Airport/Seaport Information
- Major Events



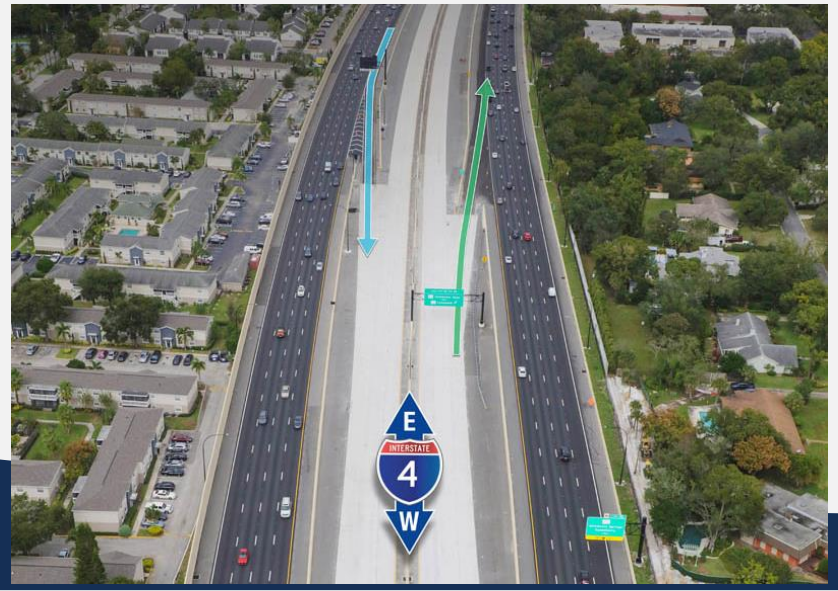
ARTERIAL TIMINGS & OPERATIONS

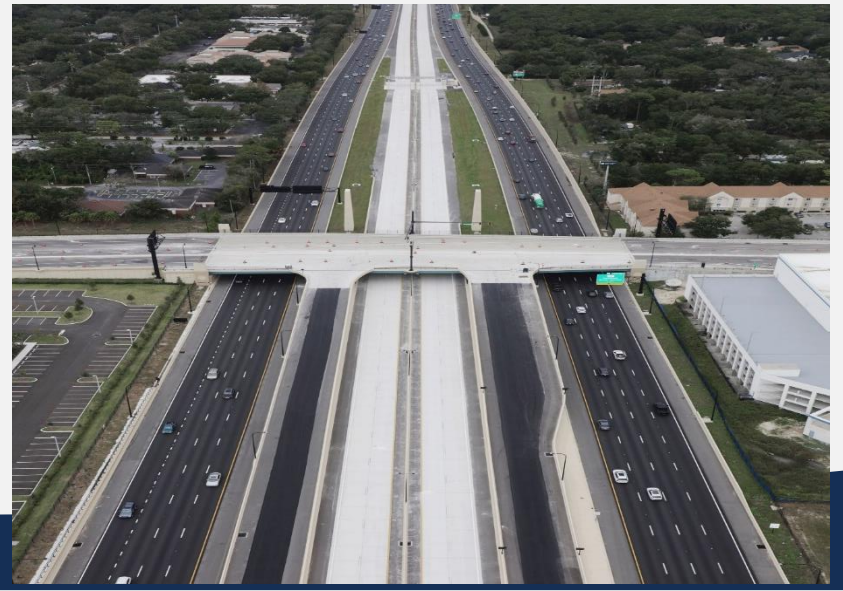
- 3rd parties can reach out for resources and assistance
- Issues may also be identified by Resident calls
- RTMC can typically visually monitor corridor performance remotely if we have connectivity and CCTVs
- If we only have connectivity, we should at least be able to see the controller
- Coordination with RTMC Staff, Construction/Maintenance and Contractor can result in less Resident issues/calls
- Benefit - better running corridor

MANAGED LANES

- There are two types of ramps used to access I-4 Express:
- 14 slips ramps to merge in and out of the general use lanes (GUL) and express lanes.
- 14 direct connect ramps that allow direct access from express leans to surface streets.

Slip Ramp

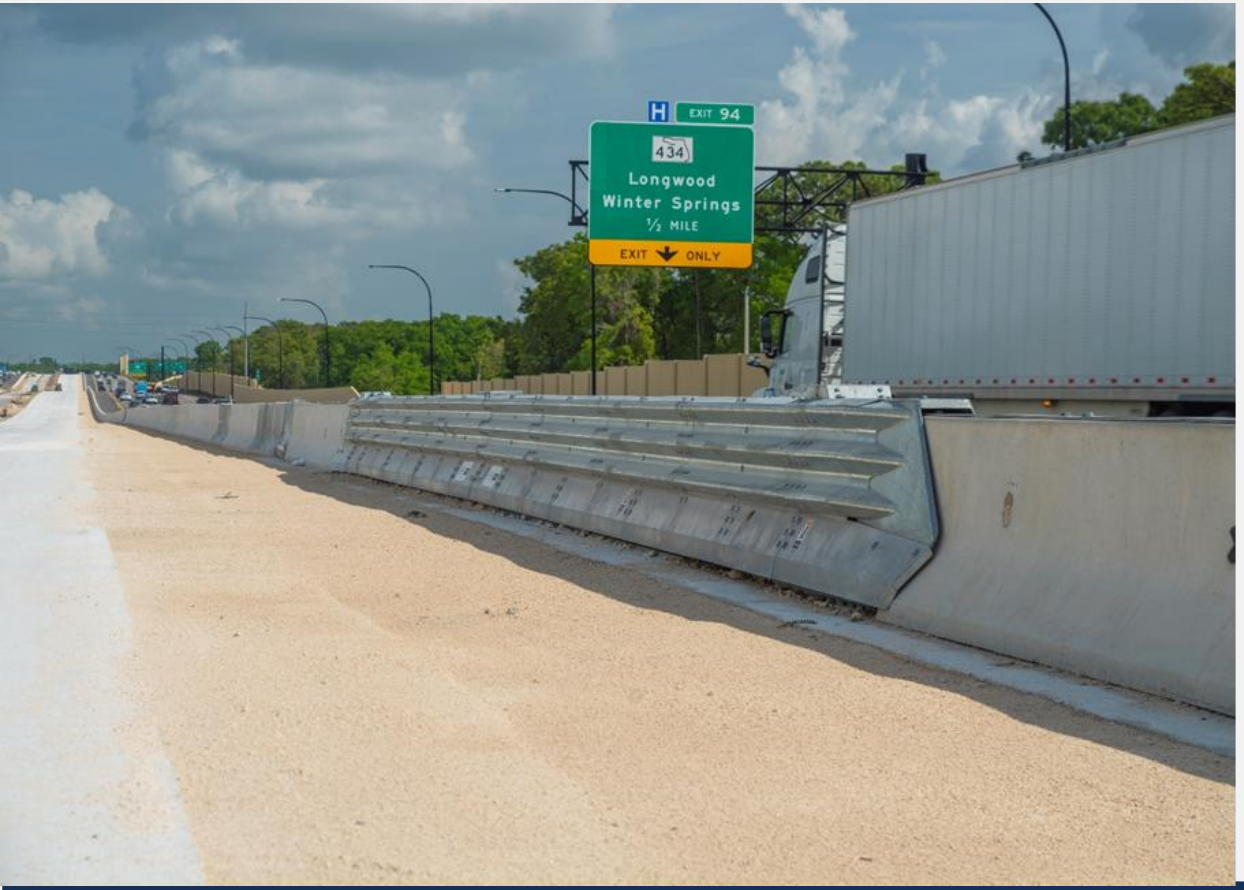




Direct Ramp

MANAGED LANES

- First responders will have access to emergency access gates (EAG).



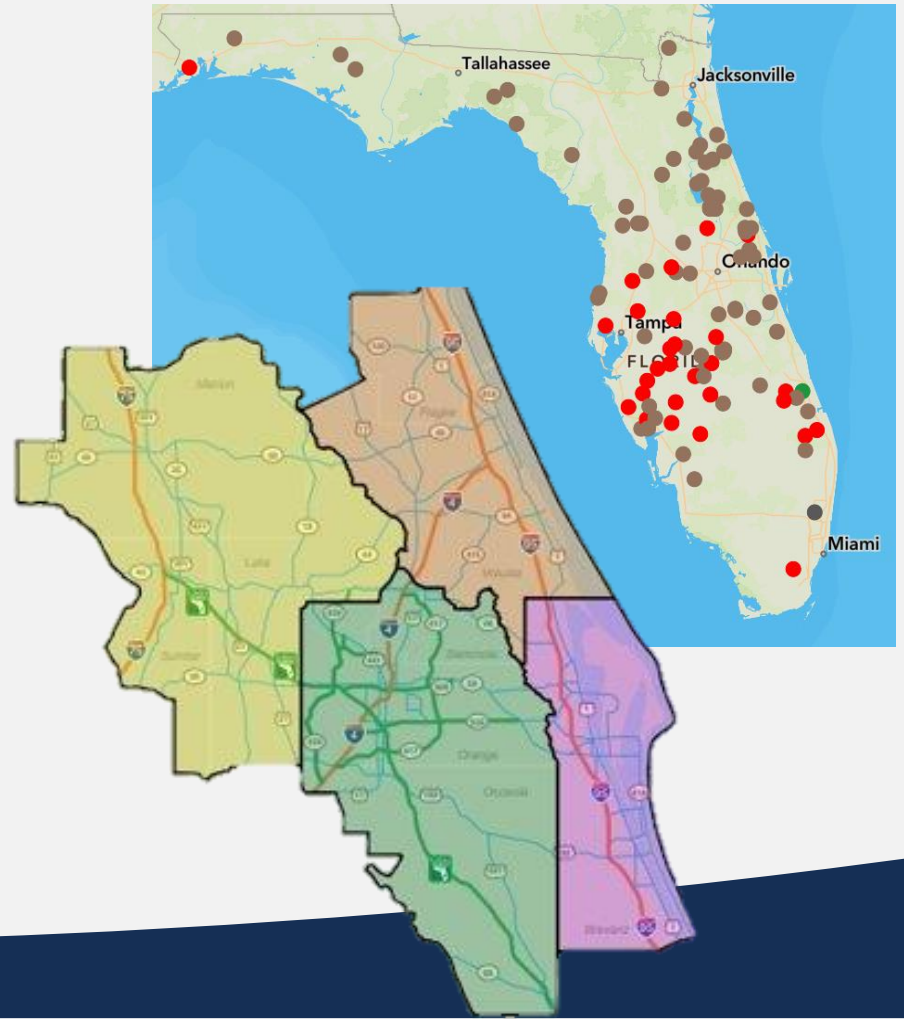
TRAFFIC INCIDENT MANAGEMENT

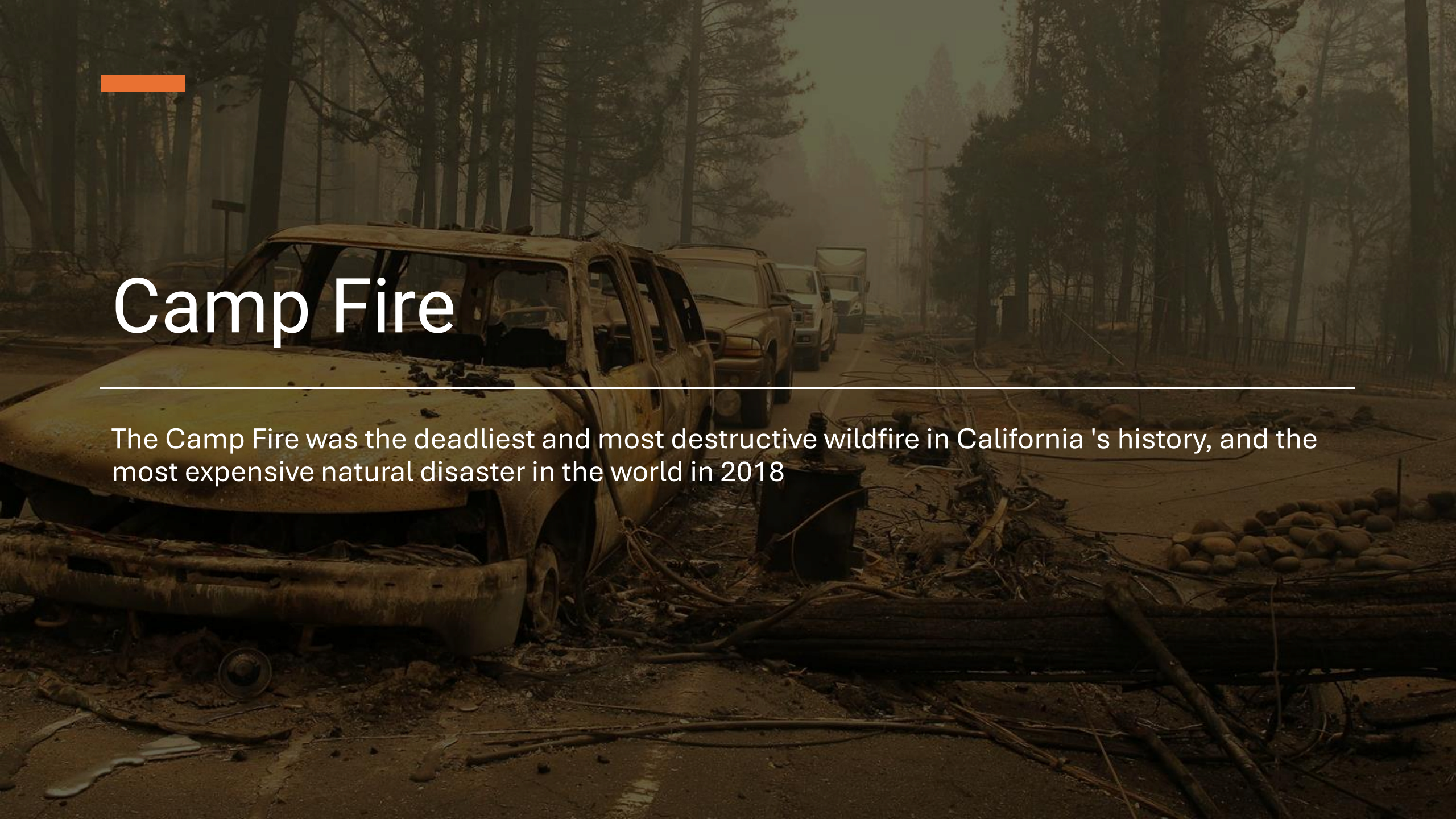
- Incident Management/Dispatch
  - Road Rangers
    - 5,500+ RR Assists per month
  - Asset Management
  - Structures
  - RISC (Rapid Incident Scene Clearance)
  - Safe Tow
- Special Events
- Emergency Response & Support

Wildfires Traffic Management

BY THE NUMBERS

- 2024
  - 1,985 wildfires and 9,622 controlled burns occurred in District Five.
- 2025
  - 51,455 Acres Burned
  - 1,096 Wildfires
  - **42 Active Wildfires**





Camp Fire

The Camp Fire was the deadliest and most destructive wildfire in California 's history, and the most expensive natural disaster in the world in 2018

Lahaina Fire

The Lahaina Fire was the deadliest and most destructive wildfire in Hawaii 's history, and the most expensive natural disaster in the world in 2023

TRANSPORTATION / EVACUATIONS

- State DOTs were **NOT** ready for a quick emergency evacuation
- State DOTs were **UNABLE or DELAYED** in assisting in evacuations
- State DOTs **FAILED** to have plans in place
- Local/County Governments put transportation response plans **LAST**


LVORI - 3

A THOUGHT THAT CAN KILL

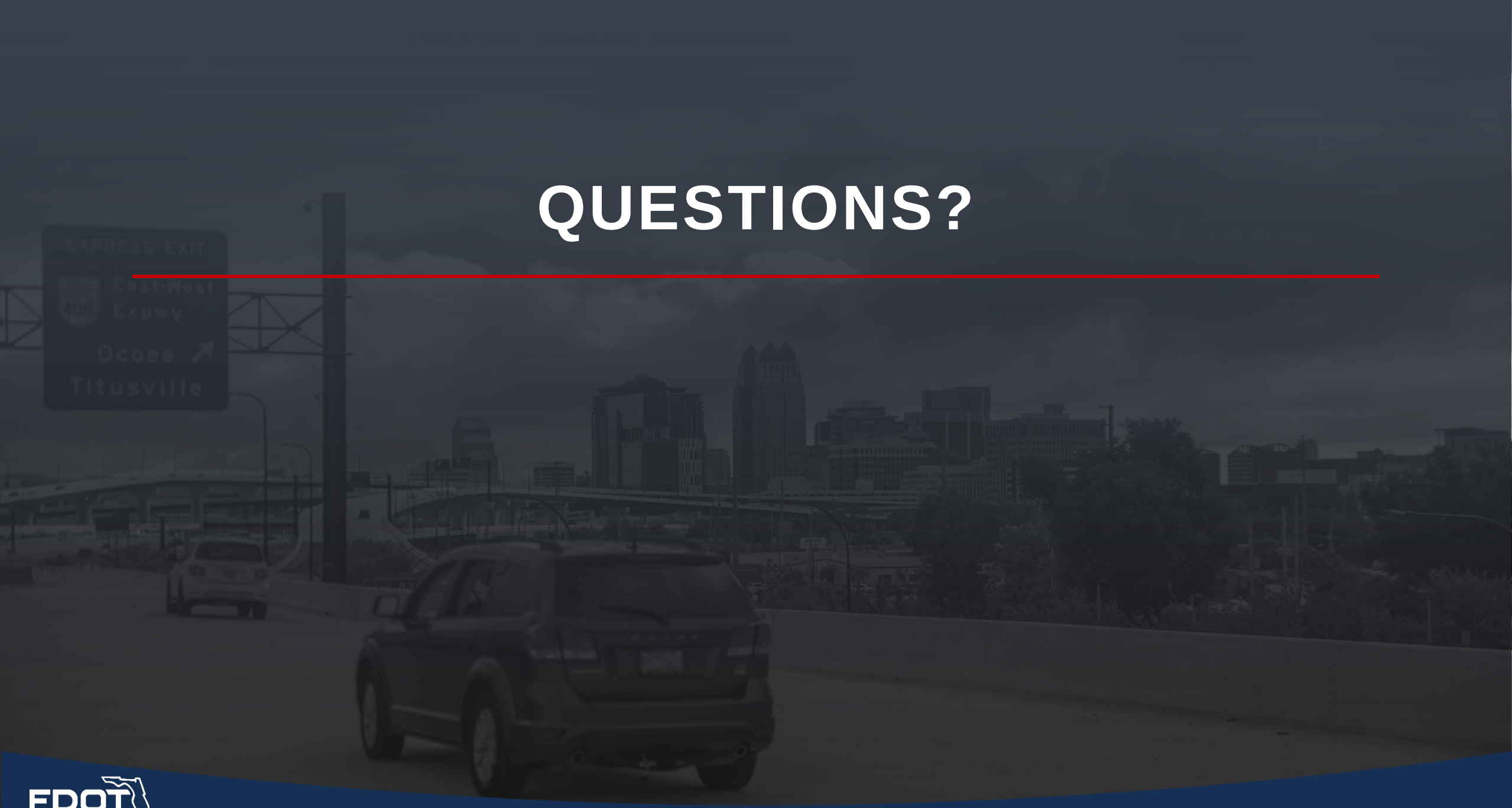
- That’s not our role…
- Is your agency ready to respond?
  - What recourses could you rapidly deploy
  - What plans do you have in place
  - Detour routes
  - How would you know a fire was in your district
  - “The fires of 1998”


Don’t be afraid to step out of your comfort zone.
Lives depend on it!

UNMANNED AIRCRAFT SYSTEMS (UAS)

- Drones are used to meet many transportation needs
  - Active Crashes, e.g., areas of low/no visibility
  - Structural & Environmental Issues, e.g. washouts, bridge strikes, etc.
  - Active Construction, e.g., Sand Lake Rd Interchange
  - Emergency management, Hurricanes and Special Events

QUESTIONS?



FDOT TSM&O

Transportation Systems Management & Operations

Travel-Time Tool

Katie King, Metric Engineering

ORLANDO ADVANCED AIR MOBILITY

CITY OF ORLANDO

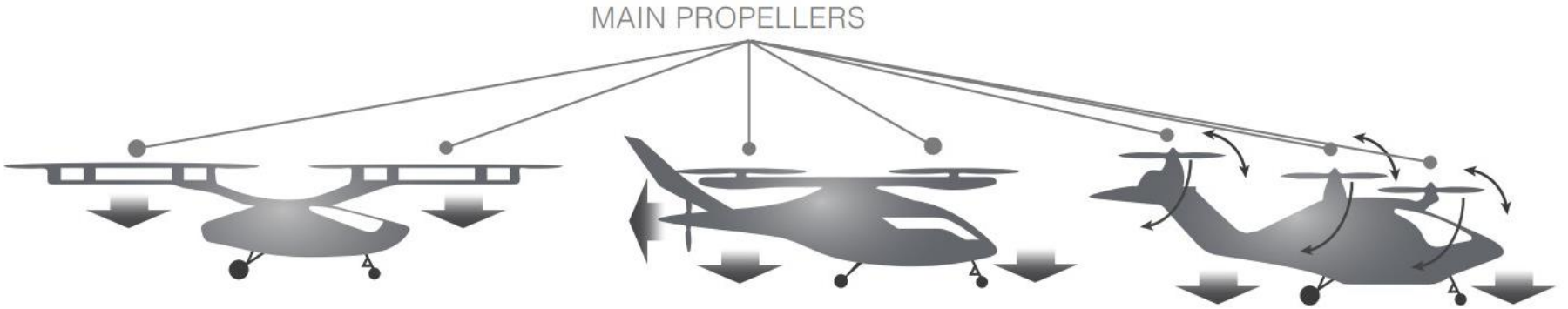
TSM&O Consortium Meeting - April 2025

What is Advanced Air Mobility (AAM)?

- Electric Vertical Takeoff and Landing (eVTOL) vehicles
- Passengers and cargo at low altitudes
- Potential to fly +/-150 miles on a single charge
- 150-200 mph
- Mature AAM network will consist of vertiports located on rooftops or garages in urban settings, hospitals, airports, and other major multimodal transportation hubs throughout the CFL region.

How are eVTOLs Different?

TRADITIONAL HELICOPTER



MULTICOPTER

looks and flies much like a helicopter except with multiple rotors

LIFT & CRUISE

uses rotors for vertical flight and transitions to propellers for horizontal flight

VECTORED THRUST

uses rotors or fans for both vertical and horizontal flight

Most eVTOLs in development have a range of 200-mile range with up to 8 passengers

Typical take-off weight is up to 12,500 pounds

ORLANDO FUTURE-READY CITY MASTER PLAN

- Mobility Strategy: Develop a plan to engage private sector eVTOL takeoff and landing companies to connect activity centers within the Central Florida region (city taxi model) and connect Orlando to other cities within the southeast.

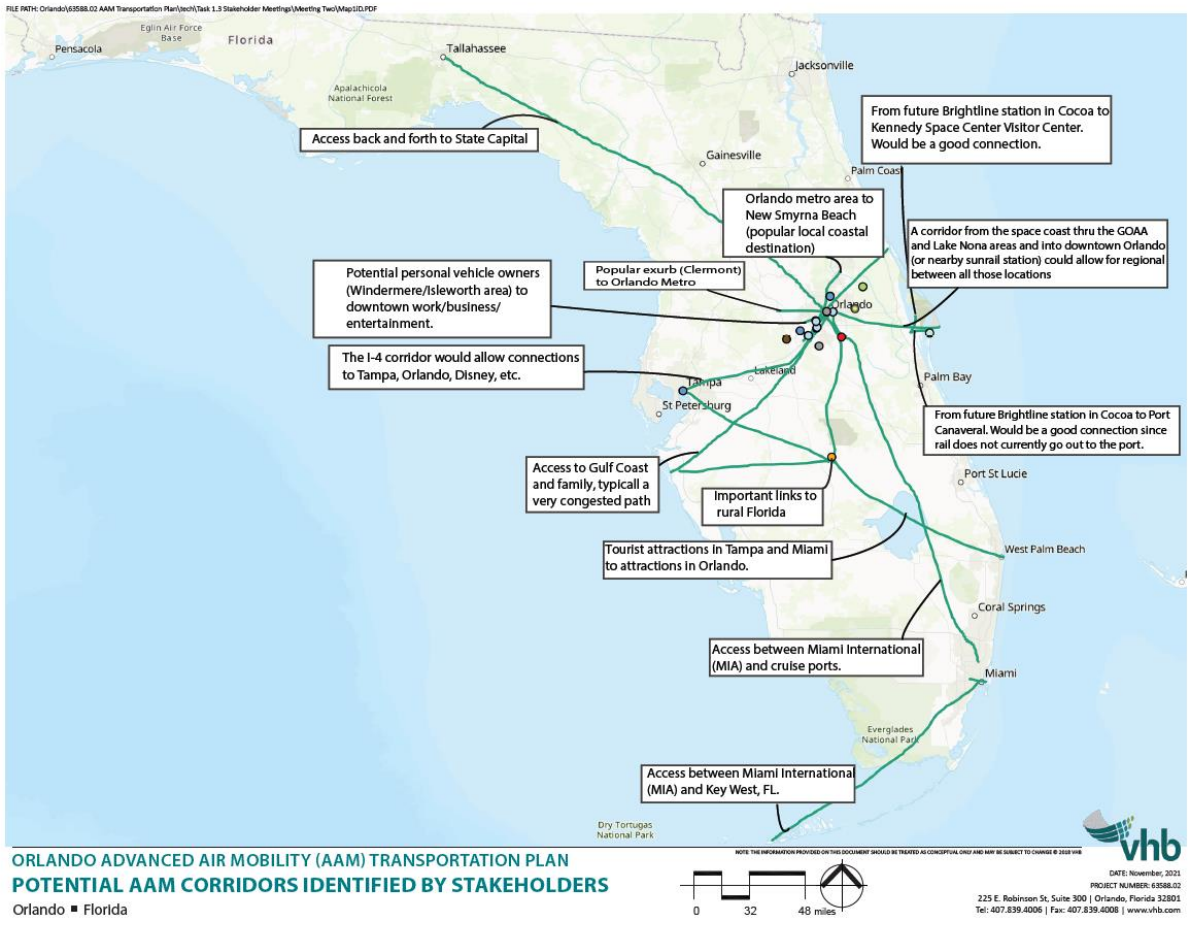
ORLANDO
ADVANCED
AIR MOBILITY

Why is it important for the City?

- Cities and counties must be at the forefront of the conversation on AAM and be active participants in policy formulation
- No one knows the City better than ourselves, and no one is better positioned to understand the potential impacts of AAM
- Enhanced mobility and transportation alternatives
- Continued innovation with our regional partners
- Equity considerations
- AAM/UAM is regional in nature and must be considered with regional partners

ORLANDO ADVANCED AIR MOBILITY

- Phase One
  - Technical Memorandums on Regional Transportation and Environmental Challenges and Opportunities
  - Economic Impact Study of Geico Garage
  - NASA Community Planning Annex
  - Stakeholder outreach and regional visioning
- Phase Two
  - Zoning and regulations review
  - Agency coordination
- Phase Three
  - Travel Demand Model
  - Vertiport target locations
  - Additional stakeholder outreach



Economic

- There will be positive economic benefits (employment, taxes, GDP), but it is too early for the City to invest in infrastructure without a partner

- The potential costs ($30M capital cost, $0.6-$1M/year parking revenue loss,) outweigh the direct fiscal impacts back to the City ($4.3M tax revenue over a 20 year period, as estimated by IMPLAN).

- To move forward, the City should negotiate an agreement with an AAM operator, detailing
  - Cost-sharing responsibilities
  - Revenue sharing (if applicable)
  - Performance measures
  - Ground lease payments back to the City.

- The Agreement will help the City understand the return on investment (ROI) before making capital investments.

ORLANDO ADVANCED AIR MOBILITY

- Phase One
  - Technical Memorandums on Regional Transportation and Environmental Challenges and Opportunities
  - Economic Impact Study of Geico Garage
  - NASA Community Planning Annex
  - Stakeholder outreach and regional visioning
- Phase Two
  - Zoning and regulations review
  - Agency coordination
- Phase Three
  - Travel Demand Model
  - Vertiport target locations
  - Additional stakeholder outreach

FDOT Recommended Best Practices

1. Assign a lead staff member for AAM
2. Review FDOT State of AAM
3. Review zoning ordinances
4. Map out aeronautical use facilities
5. Identify incompatible land uses
6. Establish a benchmark for existing ambient noise levels
7. Establish waste, hazardous materials, and pollution prevention requirements
8. Establish AAM Policies that put the community first
9. Update Zoning ordinances

AAM
FLORIDA DEPARTMENT OF TRANSPORTATION

Advanced Air Mobility Roadmap

FDOT AVIATION

June, 2022

City of Orlando Vertiport Approval Process

1. Chapter 58, Part 4P Vertiports City of Orlando Land Development Code
2. Zoning Districts
3. Conditional Use Permit

Image from: Air Force Fun Helicopter Tours North

1. Chapter 58, Part 4P Vertiport Standards

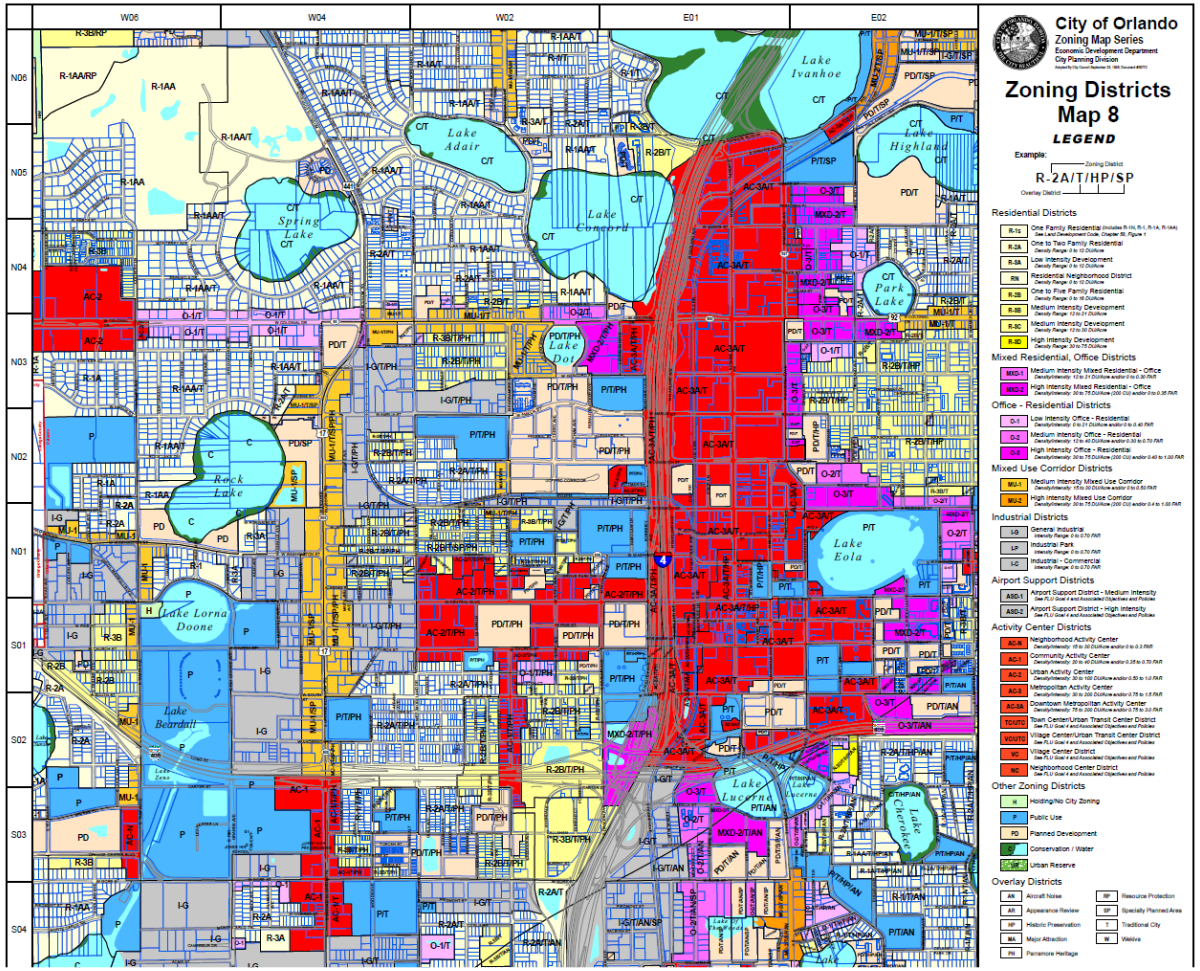
- Sec 58.850 – 58.853 of the Land Development Code regulates Vertiport permitting in the City of Orlando (Ordinance 9-16-1991)

- The classifications of vertiports defined in Chapter 8 of this City Code as Class I, II and III and the subclassifications thereof as Subclass A, B and C shall be deemed to be the **same respective classifications and subclassifications as are contained in the Federal Aviation Administration (FAA) booklet entitled "Heliport Design Guide," AC 150/53901A, dated November 5, 1969**. All recommendations set forth therein relating to the location, design, construction, visual markings, and fire protection for such vertiports shall be the requirements of this Chapter; provided, however, that a Variance therefrom may be granted in accordance with Chapter 65, Part 2J if the Federal Aviation Administration advises the City that such variance will not render such vertiports unsafe.

2. Applicable Zoning Districts

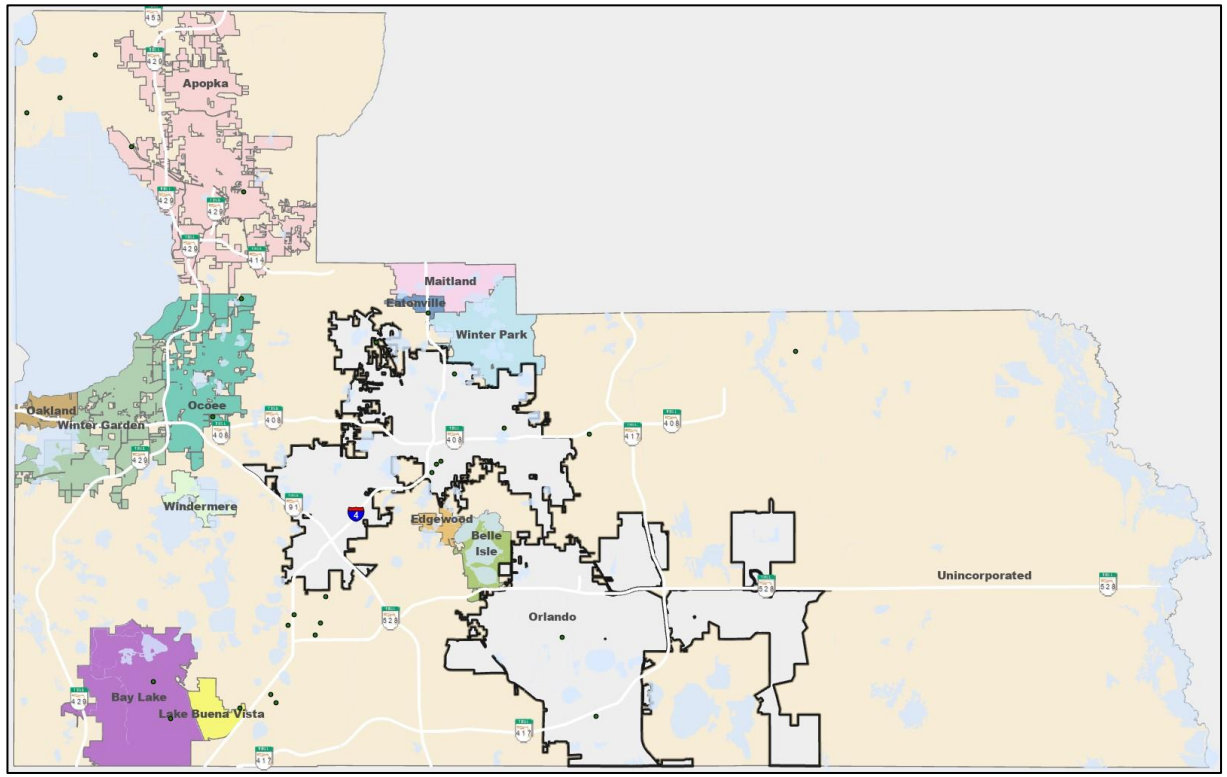
- Table FG-2B: Table of Allowable uses lists Vertiports as a **Conditional Use** in the following Zoning Districts:
  - AC-1: Community Activity Center
  - AC-2: Urban Activity Center
  - AC-3: Metropolitan Activity Center
  - I-G: Industrial General
  - I-P: Industrial Park

- Rezoning application (and Growth Management Plan amendment, if necessary) required for all other zoning districts



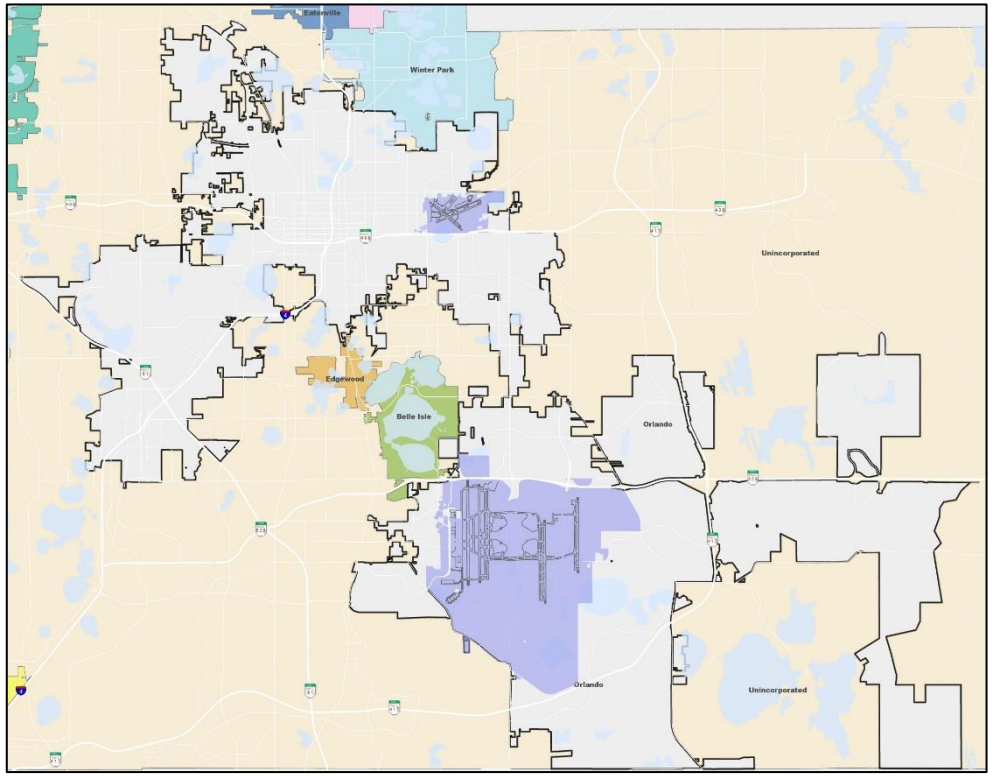
ORLANDO
ADVANCED
AIR MOBILITY

County Wide Airport Map

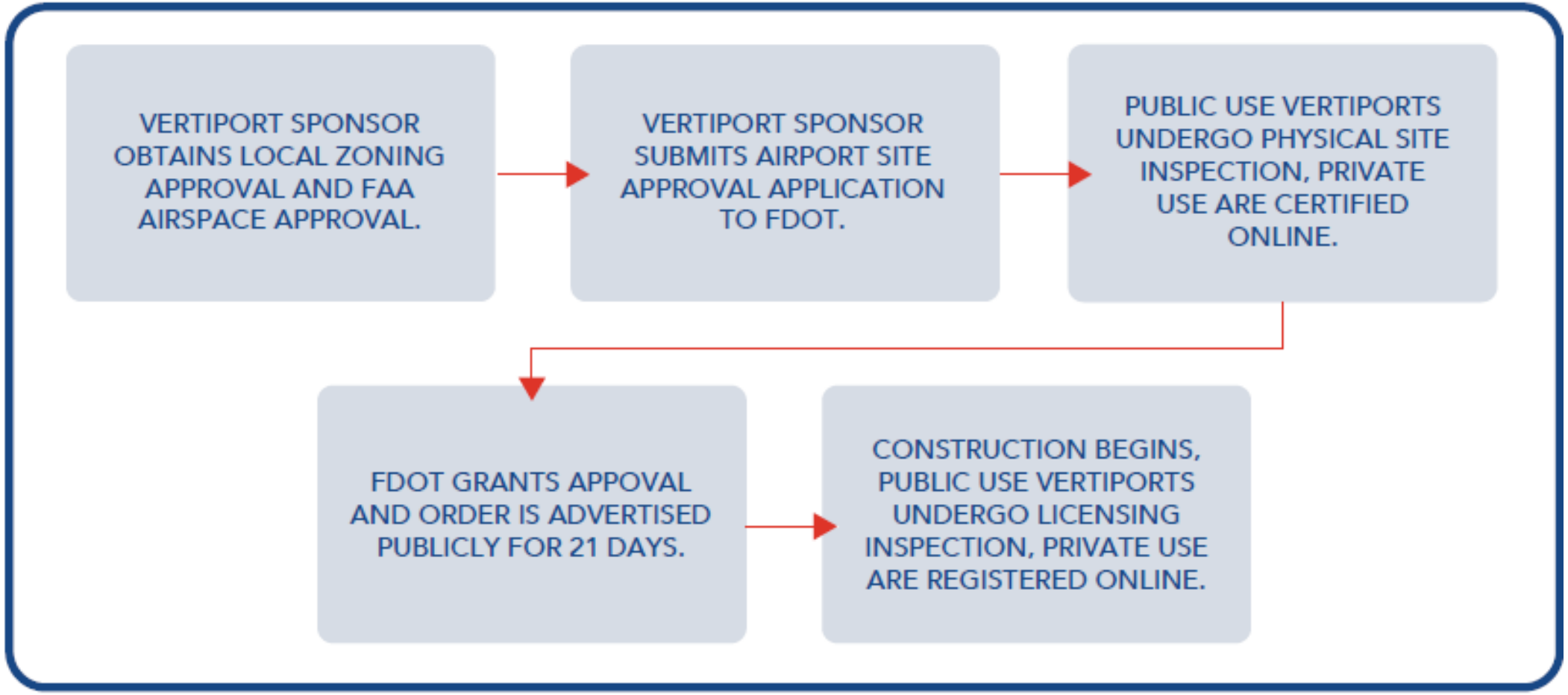


Retrieved from Airport Data and Information Portal, November 2024

GOAA Facilities



Summarized FDOT Airport Site Approval Process



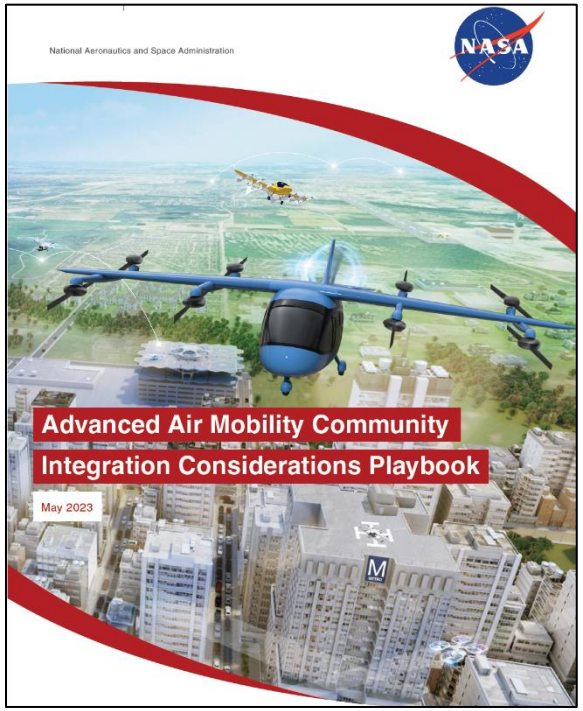
Stakeholder Engagement

Key Questions

- How do we project possible demand and preferred vertiport location
- Who owns and operates vertiports
- How do we ensure safe operations and integrations into existing airspace and ground transportation networks
- What happens when we move out of the regulatory phase, what community partners do we need to engage
- How do we regulate, measure and enforce external impacts (noise, visual pollution…)
- How does approval of a Vertiport affect property rights
- What type of information/data sharing will be required

Resources

- NASA – Community Integration Considerations Playbook
- FDOT – Advanced Air Mobility Land Use Compatibility and Site Approval Guidebook
- American Planning Association – Planning for AAM Guidebook
- NAS Transportation Research Board (TRB) - New Users of Shared Airspace
- Conferences – APA National Conference, NASAO National Conference, International Civil Aviation Organization, Berkley Future of Aviation, Smart Cities Connect




Thank You!
CITY OF
ORLANDO
orlando.gov/futureready

Drone Deliveries in Central Florida
Update on Draft Environmental Assessment for Wing Aviation

TSM&O Consortium Meeting - April 2025

CITY OF ORLANDO

What Was Applied for…

- On December 19th the FAA provided notice that Wing Aviation is seeking approval to conduct drone deliveries in Central Florida through the dissemination of a Draft Environmental Assessment (EA).
- Wing is planning to operate drone deliveries from 4 Wal-Mart stores in Metro Orlando.
- Deliveries of up to 5 lbs. will take place within 6 miles of each store and all deliveries will be automated, without a human operator, and drones should not need to land at any point except at the drone nest.
- Feedback to the EA was due to the FAA on January 20th.

https://www.faa.gov/uas/advanced_operations/nepa_and_drones

Package Delivery Process – Section 2.2.2 of EA

- 1. Customer places an order and selects drone delivery.
- 2. Staff at the store prepare item for delivery and bring it to the loading area at the nest.
- 3. Drone is sent a predetermined route and gets clearance from Wing's system to start operations.
- 4. Drone lifts vertically to 23 ft. above ground level (AGL) and waits until package is loaded to end of tether.
- 5. Tether and package are reeled into the drone and the vehicle begins trip to delivery location. While in route drone will climb to cruising altitude of 150-300 ft. (AGL) and will travel around 59 miles per hour (MPH).

Package Delivery Process Continued…

- 6. Drone will follow the predetermined route to delivery location.
- 7. As drone approaches delivery location it will descend ultimately hovering at 23 ft. (AGL) at delivery location.
- 8. Drone will lower the package to the customers property (yard, driveway etc.) via the built in tether, once package is on the ground the drone will release the package and reel in the tether.
- 9. Drone repeats the trip and altitude adjustments to return to the nest for the next delivery.

Drone Details

Aircraft Model	Hummingbird 7000W-B	Hummingbird 8000W-A
Fleet Make Up	70-80%	20-30%
Size	4.3 ft. (L) 4.9 ft. (W) 1 ft. (H)	6.2 ft. (L) 6 ft. (W) 1 ft. (H)
Weight	11 lbs. (no payload) + 2.5 lbs. (max payload) < 15 lbs. Total	20 lbs. (no payload) + 5 lbs. (max payload) < 25 lbs. Total
Rotor Design	Multi-rotor design with 16 propellers	Multi-rotor design with 12 propellers

Proposed Locations…

- Initial Locations: 4+ in Metro Orlando delivery area is up to 6 miles from drone nest (droneport).
  - 8990 Turkey Lake Rd Orlando, FL 32819
  - 11250 E Colonial Dr Orlando, FL 32817
  - 1450 Johns Lake Rd, Clermont, FL 34711
  - 2855 N Old Lake Wilson Rd, Kissimmee, FL 34747
- Future Expansion: Seeking FAA Approval for up to 150 nest across CFL

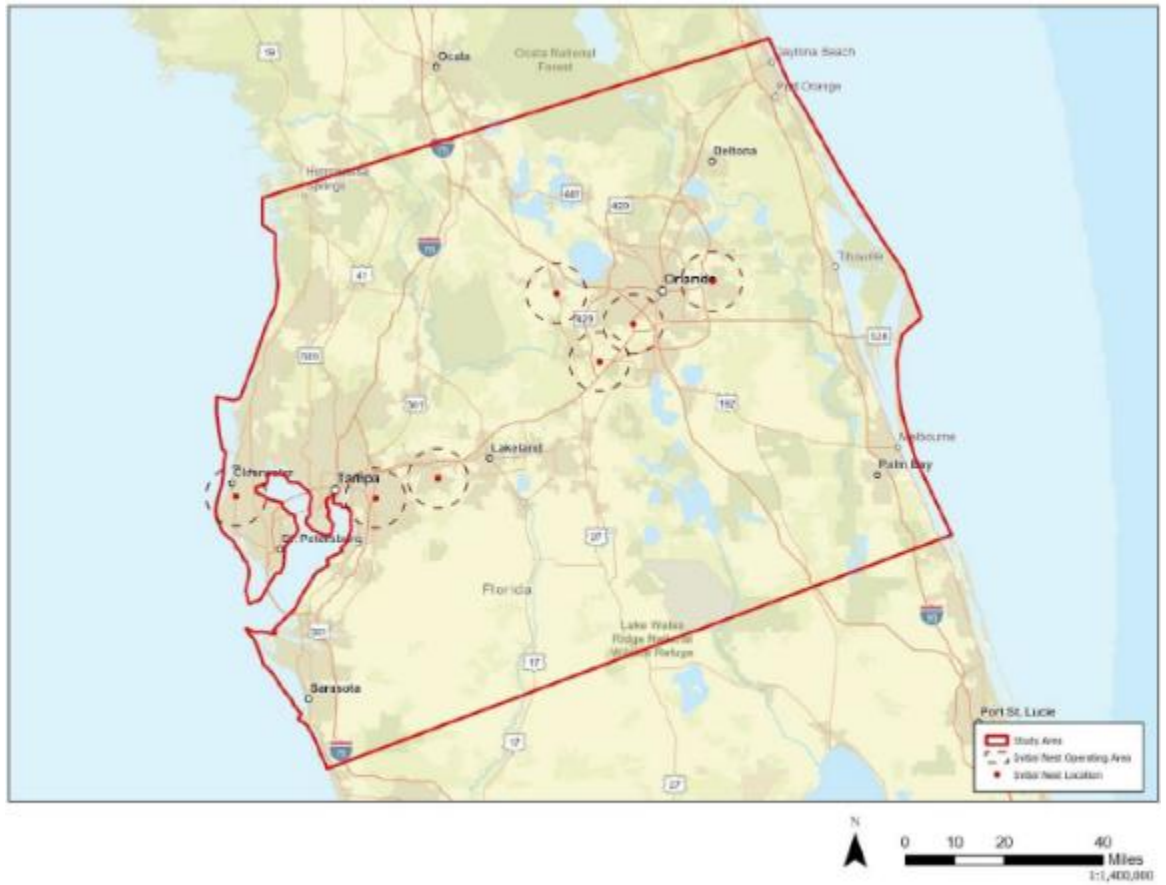
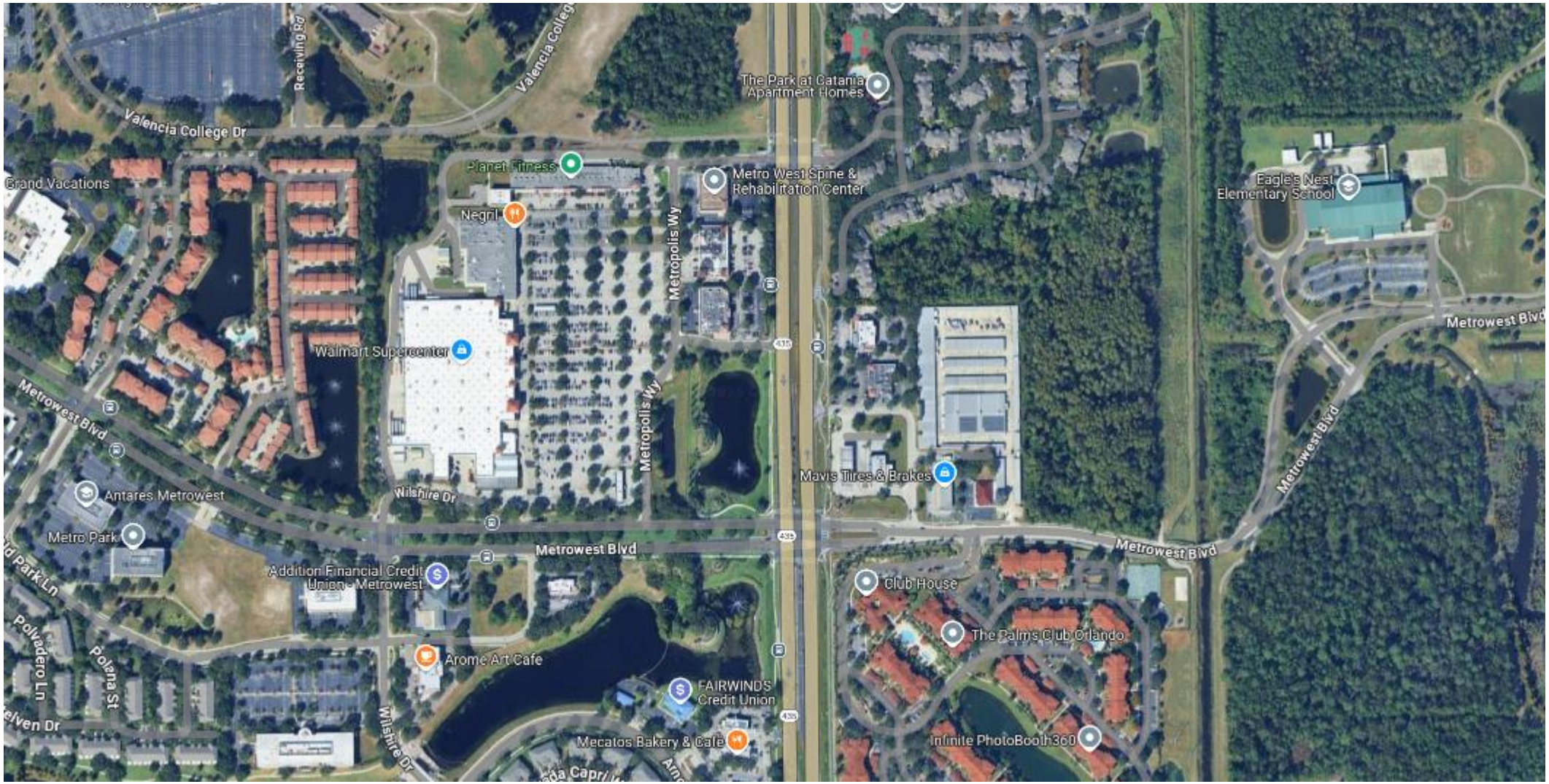


Figure 2.2-2. Wing's Proposed Central Florida Metro and Surrounding Area Initial Site Locations

Proposed Locations…

- 2500 S Kirkman Rd., Orlando



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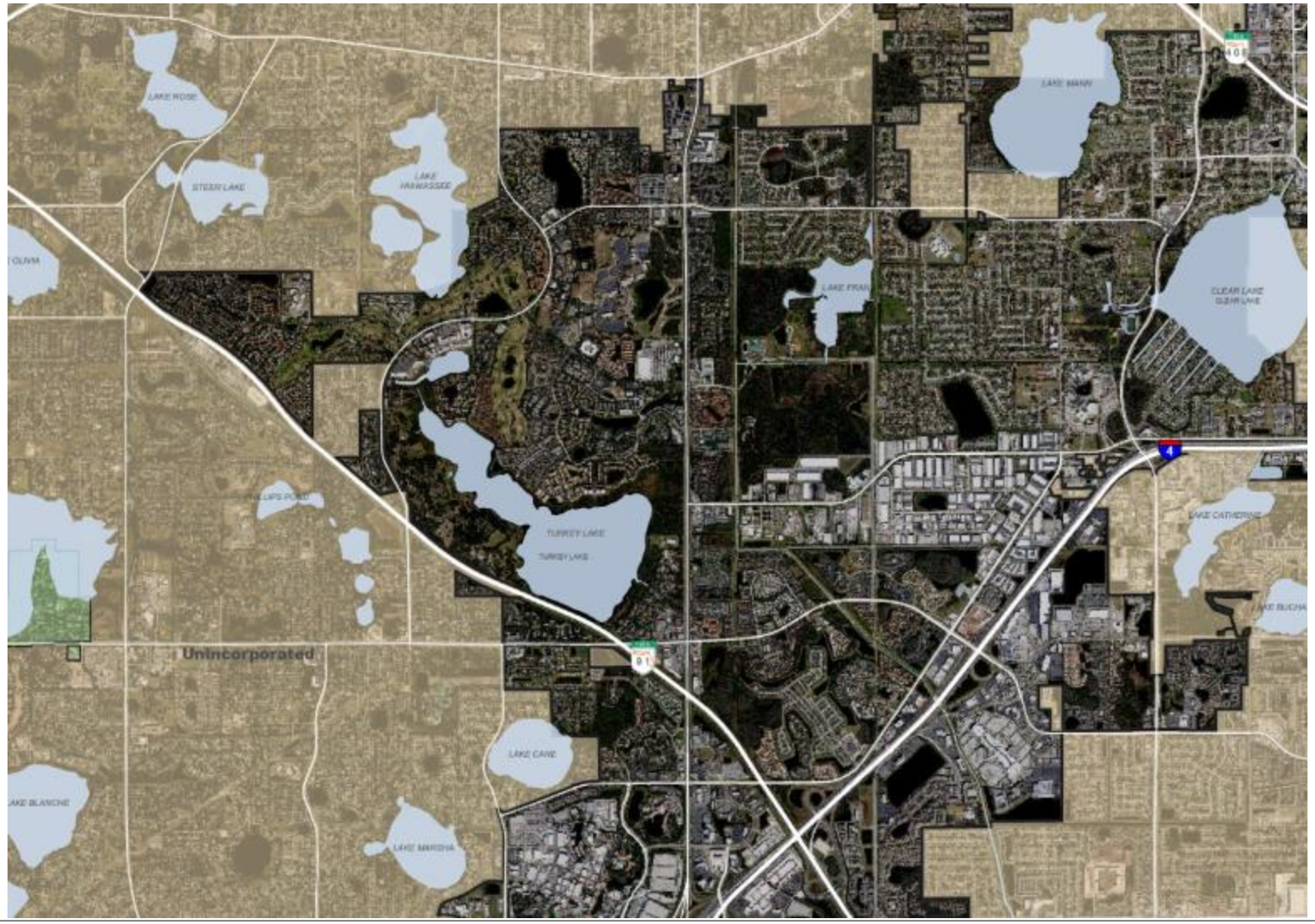

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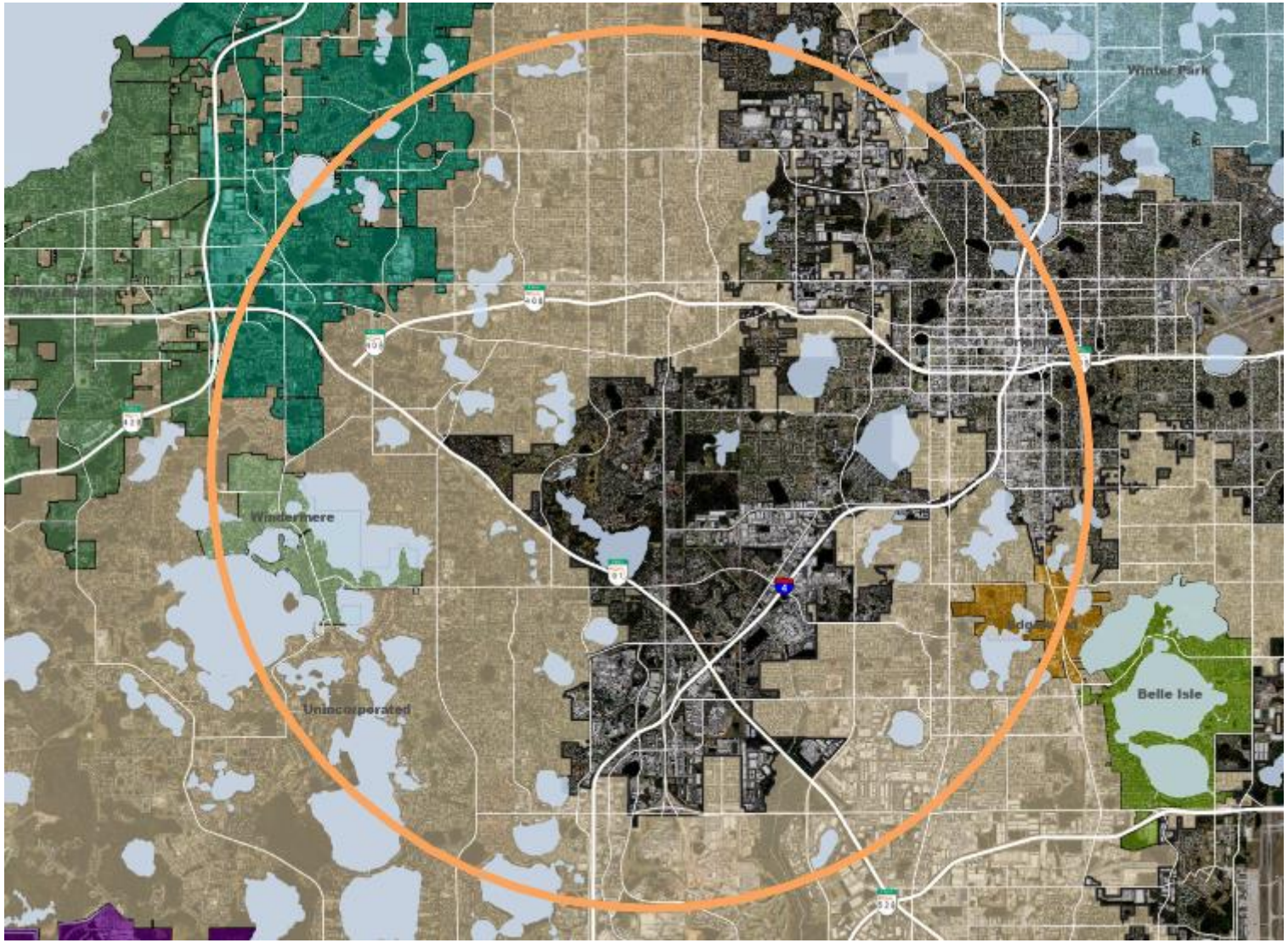


Drone Nest Details…

- Typically located in parking lot, close to other delivery service area.
- Fenced area with a shipping container for drone storage and generator for initial power delivery.
- City of Orlando expects to permit through a site plan determination or similar if accessory use.
- Will need building permit for fence and electrical permit for power connection.

8555 Preston Rd Frisco TX

Regulatory Framework - Federal

- The federal government, through the FAA, has sole approval powers for the aircraft (drone) certification as well as the certification of the company as an “air carrier” under Part 135 Certification. (FAA Package Delivery by Drone Summary)
- Wing Aviation has existing FAA, Part 135 approval to operate as an air carrier.
- Under current FAA rules the expansion of drone deliveries into Central Florida is a major federal action which requires the approval of an environmental assessment (EA).

Regulatory Framework - State

- Drone operations within Florida are governed by Section 330.41 Unmanned Aircraft Systems Act of State Statute.
- Section 3 – Regulation – seats all authority to regulate the operation of unmanned aircraft systems to the State. Part 3(c) states that local jurisdictions "*may not withhold issuance of a business tax receipt, development permit, or other use approval to a drone delivery service or enact or enforce an ordinance or resolution that prohibits a drone delivery service's operation based on the location of its drone port* "
- Generally, in relation to drones local jurisdictions can only enact or enforce local ordinances relating to nuisances, voyeurism, harassment, reckless endangerment, or property damage.

Next Steps

- Wing Aviation is waiting for FAA response to EA with a goal to start operations in Central Florida in the 2nd half of 2025.

Remaining Questions:

- Public Outreach Before Operations
- Emergency Procedures
- Company Point of Contact
  - Lines of Communication
  - Public City to Company
- FAA Remote ID Requirements
- Package Drop Off Locations

Thank You!

Jacques Coulon, AICP
Jacques.coulon@orlando.gov

orlando.gov/futureready

FDOT TSM&O

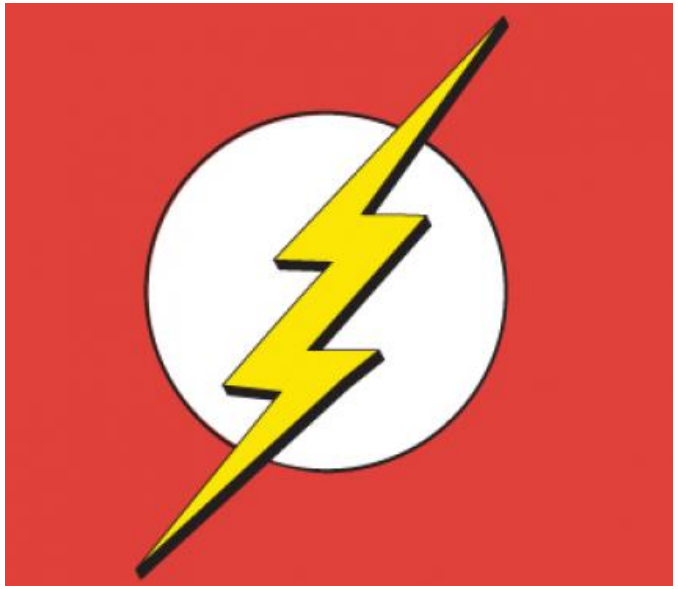
Transportation Systems Management & Operations

FLASH Award

Kevin Marquez, FDOT District Five

FLASH AWARD

- D5 TSM&O's recognition program for outstanding maintaining agency response for traffic signal emergencies
- Focuses on showcasing specific efforts throughout D5
- Discuss processes, best practices, lessons learned, etc.



FDOT TSM&O
Transportation Systems Management & Operations

State Road 50 at East Avenue
Lake County

- 2/25/2025 at 2:52 AM Lake Country Traffic Operations signal on-call personnel received call about crash at subject location
- 3:41 AM staff arrives on scene to find a semi truck had crashed into the traffic signal strain pole, electrical service panel, and ped signal.

FDOT TSM&O
Transportation Systems Management & Operations

State Road 50 at East Avenue
Lake County

FDOT TSM&O
Transportation Systems Management & Operations

State Road 50 at East Avenue
Lake County

- Emergency Response Details
  - Shortly after arrival, County personnel begins full MOT effort to close intersection, rerouting traffic through internal residential streets
  - 4:10 AM County personnel activate their traffic signal contractor (TCD) for emergency repairs
  - 6:00 AM additional County personnel arrives to begin clean up and continue to assist with MOT
  - 7:00 AM Contractor arrives on scene but unable to begin work since truck removal and pole removal needs to be coordinated.
  - 9:00 AM tow truck begins assessing removal plan and contractor begins to work on minor repairs and securing materials (wood pole, signals, span, etc.)
  - 9:30 AM intersection turned over to traffic signal contractor to begin temporary replacement work

State Road 50 at East Avenue
Lake County

- Emergency Response Details
  - 5:00 PM intersection is back online after the installation of a wood pole, new span, and generator hookup for power source. **Approximately 14 hours from crash to intersection reopening.**
  - Refueling of intersection generator was handled by County personnel on 8-hour refueling schedule.
  - Refueling efforts continued until 02/27/2025 (two days), when the new power service was installed.
  - Long term repair efforts are underway to install a permanent concrete strain pole at the intersection.

FDOT TSM&O
Transportation Systems Management & Operations

State Road 50 at East Avenue
Lake County

FDOT TSM&O
Transportation Systems Management & Operations

State Road 50 at East Avenue
Lake County

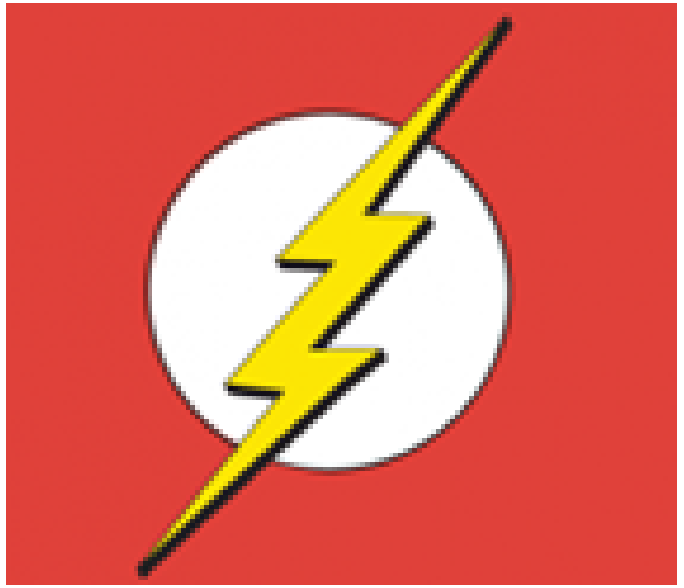
- Key Successes
  - Experienced County personnel leading an experienced contractor
  - Utilizing an “on-call” contract that doesn’t require a purchase order or written NTP
  - Experienced County personnel capable of managing large MOT needs
  - Having a reliable contractor that is available 24/7 - TCD
  - County worked with the contractor and provided some material as needed
- Lessons Learned
  - Having a refueling plan for emergencies is critical
  - Coordination with FDOT for equipment is always an option

FDOT TSM&O
Transportation Systems Management & Operations

State Road 50 at East Avenue
Lake County

Key Staff Involved – Lake County:

- William Narvaez
- Geoffrey Gurney
- John Patterson
- Lake County Traffic Operations Signal Department
- Clermont Police Department



FDOT TSM&O
Transportation Systems Management & Operations

FDOT TSM&O

Transportation Systems Management & Operations

THANK YOU!

Next Consortium – June 5, 2025

TSM&O Consortium Meeting

MEETING AGENDA

Teleconference or
FDOT District 5 RTMC (4975 Wilson Rd, Sanford, FL 32771)

April 3, 2024
10:00 AM-12:00 PM

1) FDOT DISTRICT FIVE TRAFFIC OPERATIONS – UPDATE
    - Tushar Patel, FDOT District Five Traffic Operations
2) EMERGENCY VEHICLE PREEMPTION – UPDATE
    - Aurelio Giovinazzo, AECOM
3) INTEGRATED CORRIDOR MANAGEMENT (ICM) OPERATIONS
    - ICM Operations Teams
4) ORLANDO ADVANCED AIR MOBILITY – UPDATE
    - Jacques Coulon, City of Orlando
5) DRONE DELIVERIES IN CENTRAL FLORIDA
    - Jacques Coulon, City of Orlando
6) TRAVEL-TIME TOOL
    - Katie King, Metric Engineering
7) FLASH AWARD FOR EMERGENCY REPAIRS – LAKE COUNTY
    - Kevin Marquez, FDOT District Five Traffic Operations
8) CURRENT INITIATIVES
    - David Williams, VHB