Florida's Automated Vehicle Initiative

Creating the Framework for Implementation

Outline

1) Definitions
2) National Implementation Perspectives
3) State of Florida Implementation Perspectives
4) Challenges Moving Forward

FLORIDA AUTOMATED VEHICLES

Automated Vehicles

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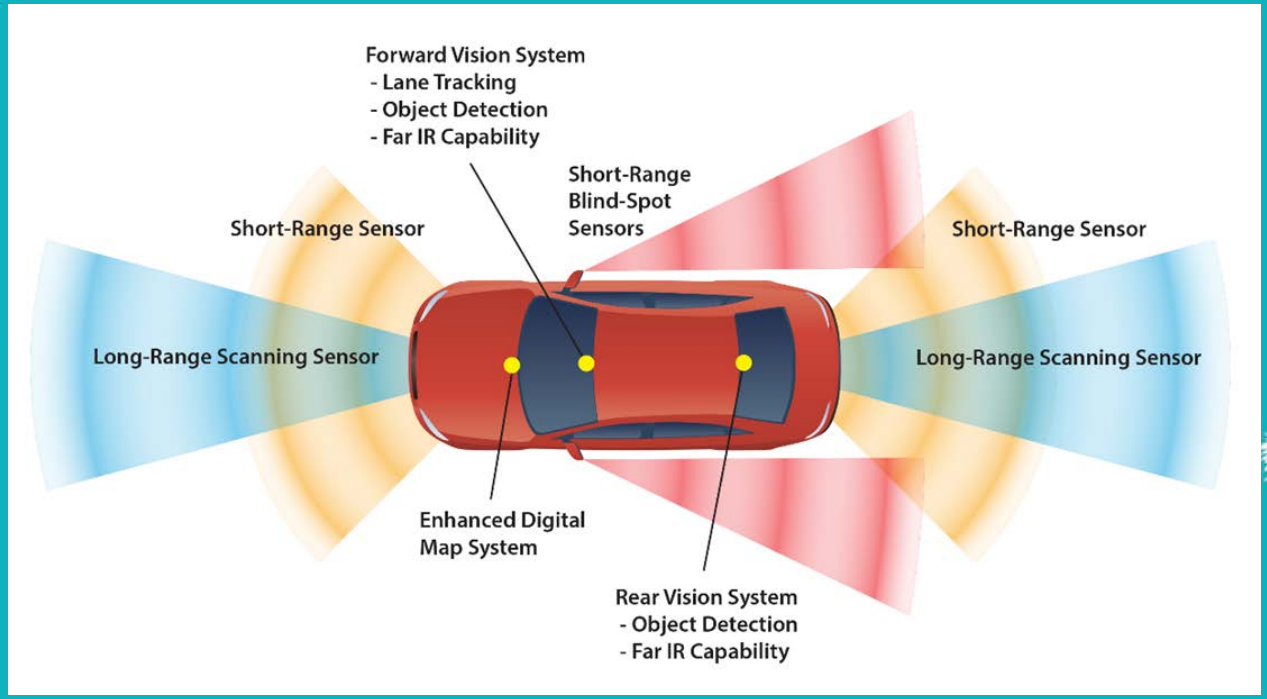
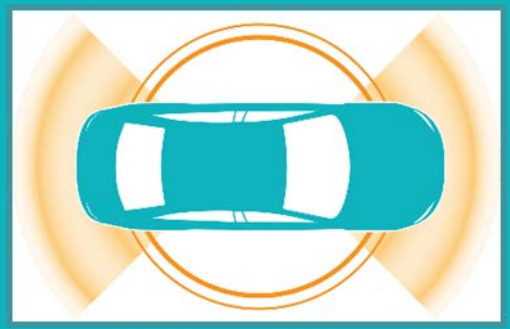
Autonomous Vehicles





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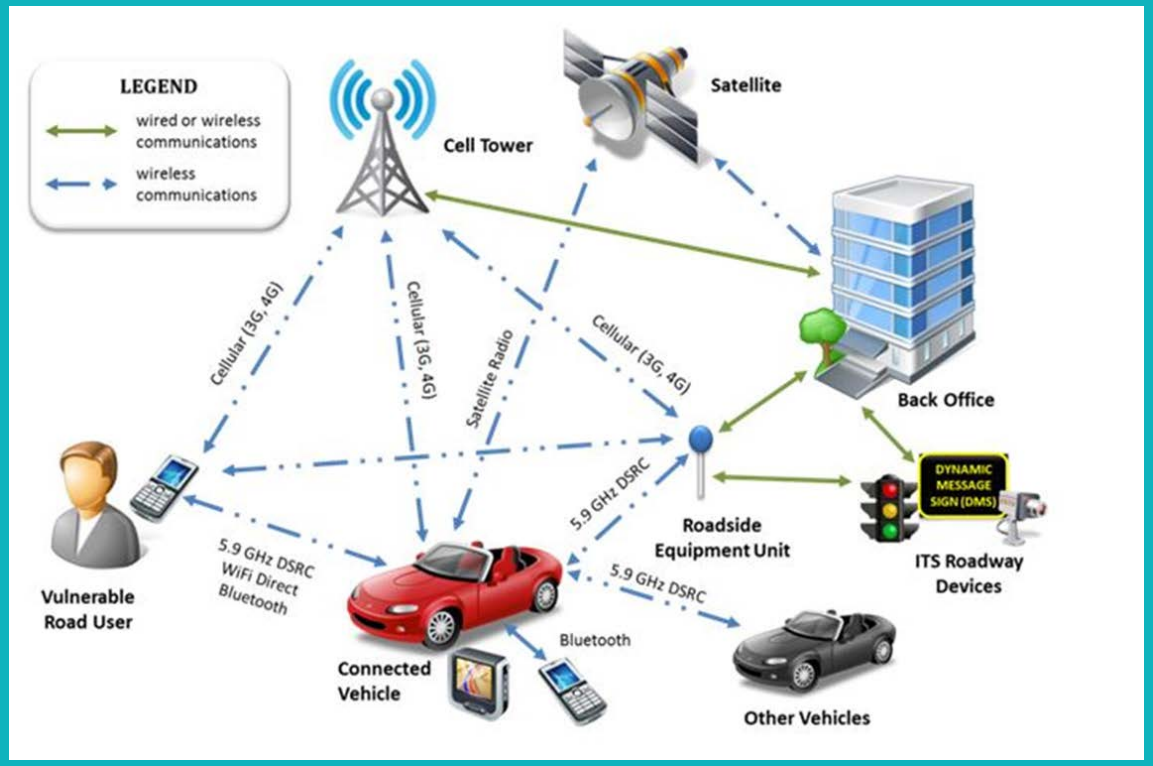
Connected Vehicles



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Implementation Challenges of Automated Vehicles

Lack of Business Model

- Requires new benefit/cost analysis to support deployment decisions
- Needs systematic & strategic approach

New Investments Needed

- Funding sources
- Infrastructure requirements
- Staffing needs

Data Issues

- Ownership
- Privacy
- Security and resiliency
- Access & support

Interoperability

- Local, regional, national – multiple protocols
- Multi-jurisdictional testing and pilot agreements

National Strategies

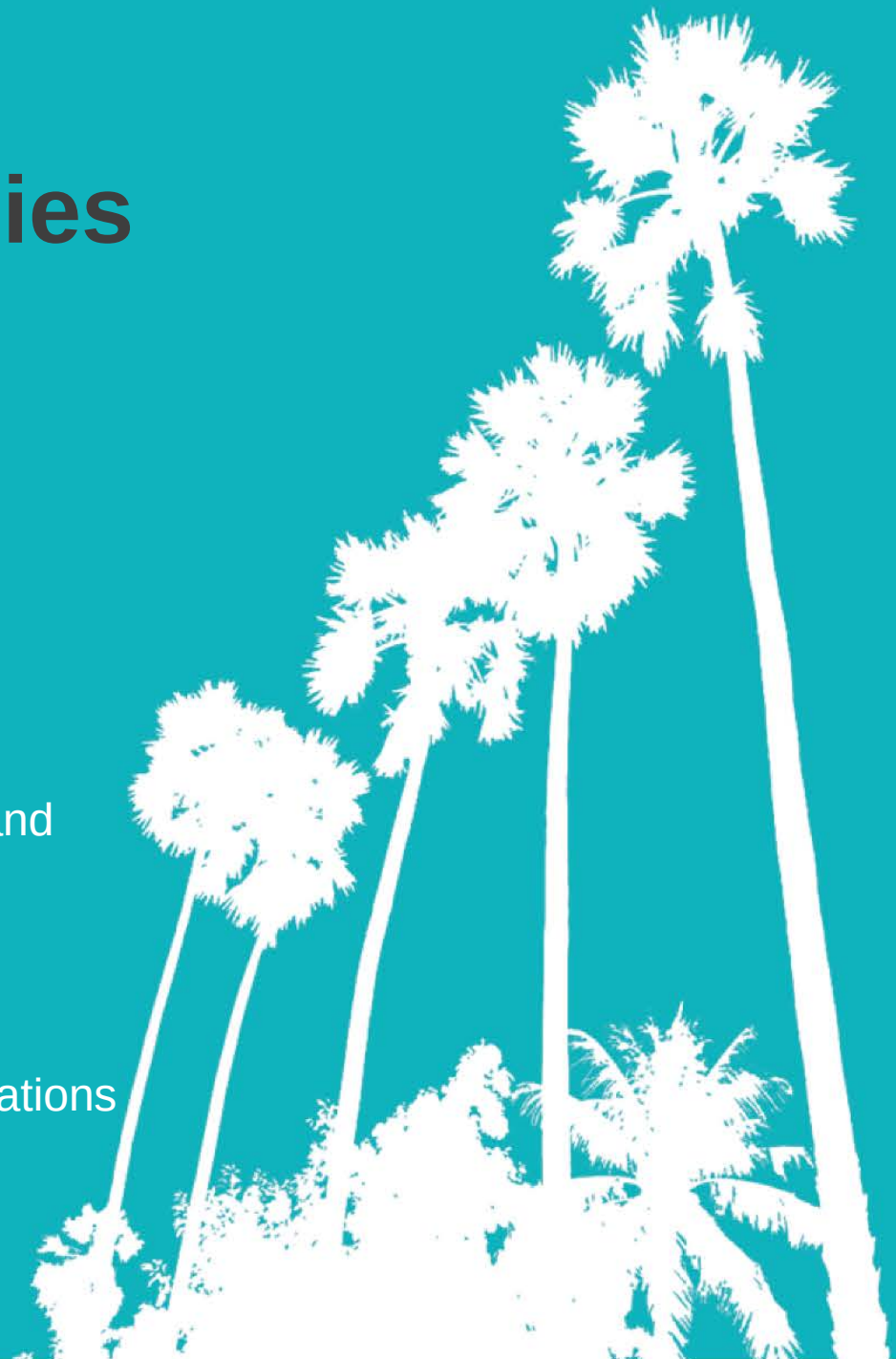
V2I Deployment Coalition

Coalition of members from:

- USDOT
- AASHTO – Blaine Leonard Utah DOT
- ITE
- ITS America

A single point of reference for stakeholders to meet and discuss V2I deployment related issues.

The role is to accelerate consistent and effective deployments of connected vehicle technologies that address passenger vehicles, freight, and transit operations



National Strategies

V2I Coalition Objectives

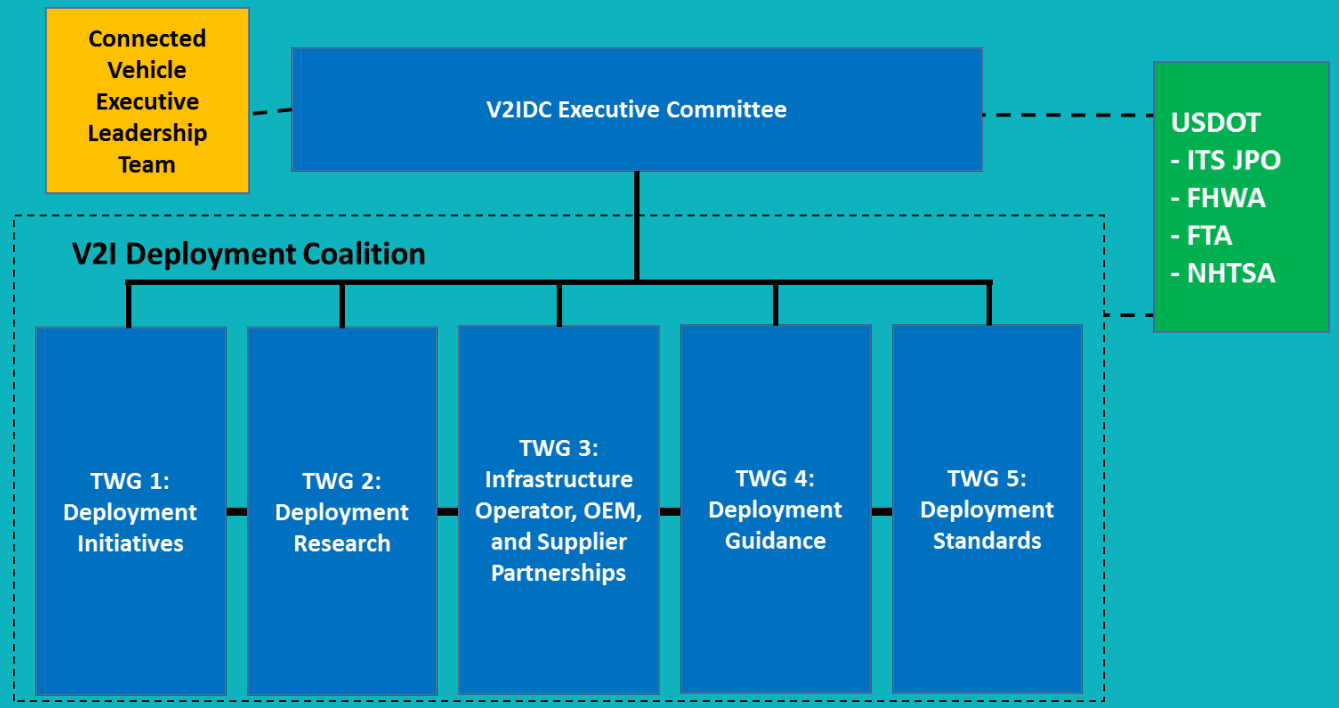
- Inform & educate stakeholders to advance connected vehicle goals

- Analyze key V2I topics to facilitate planning and inform investment decisions by state and local agencies

- Provide an understanding of the initial, near-term (0-5 years) V2I investments or decisions that state and local agencies can make to facilitate a transition into connected vehicle operations

- Facilitate discussions between OEMs and Infrastructure owners & operators

V2I Deployment Coalition



V2I DC TWG Leadership

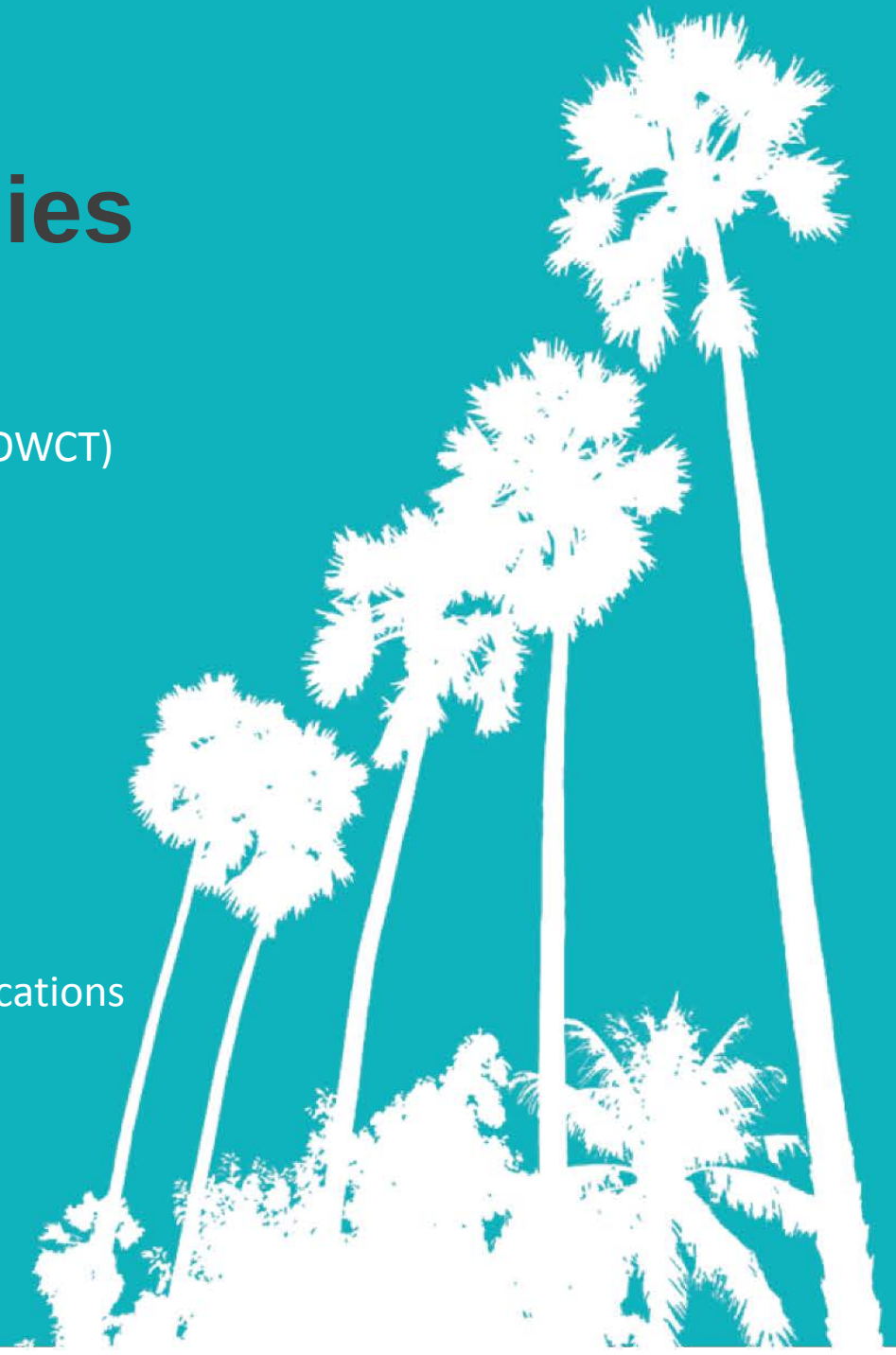
TWG Name	TWG Chair / Co-Chair	TWG Liaison (V2IDC Project Team)
TWG 1: Initiatives	Bill Legg, Washington State DOT (chair) Joe Averkamp, Xerox (co-chair)	Dean Deeter, Athey Creek
TWG 2: Research	Greg Larson, Caltrans (chair) Rob Bertini, Cal Poly State (co-chair)	Patrick Zelinski, AASHTO
TWG 3: OEM	Matt Smith, Michigan DOT (chair) Roger Berg, DENSO (co-chair)	Jennifer Carter, ITS America
TWG 4: Guidance	Faisal Saleem, Maricopa County (chair) Navin Katta, Savari Inc. (co-chair)	Ginny Crowson, Athey Creek
TWG 5: Standards	Ed Seymour, TTI (chair) Gary Duncan, Econolite (co-chair)	Siva Narla, ITE

National Strategies

AASHTO Special Committee on Wireless Communications Technology (SCOWCT)
Committee Chair – Paul Steinman FDOT

Support state departments of transportation with FCC program issues

- Frequency Coordination
- Land Mobile Radio
- Spectrum Management
- Dedicated Short Range Communications
- Cyber Security
- System Hardening
- Connected and Autonomous Vehicle Technology Communications
- Deployment



SCOWCT Working Groups

TWG Name	TWG Chair / Co-Chair
TWG 1: Legacy Programs	Paul Gilbert, Texas DOT
TWG 2: Spectrum Management	Randy Pierce, FDOT
TWG 3: Cyber Security	Russ Buckholz, North Dakota DOT
TWG 4: Emerging Technology	Ferdinand Milanes, Caltrans

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National Strategies

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National Space Weather Strategy

A cohesive all-of government strategy was necessary to ensure the federal government was positioned to mitigate, respond to and recover from a major space weather storm.

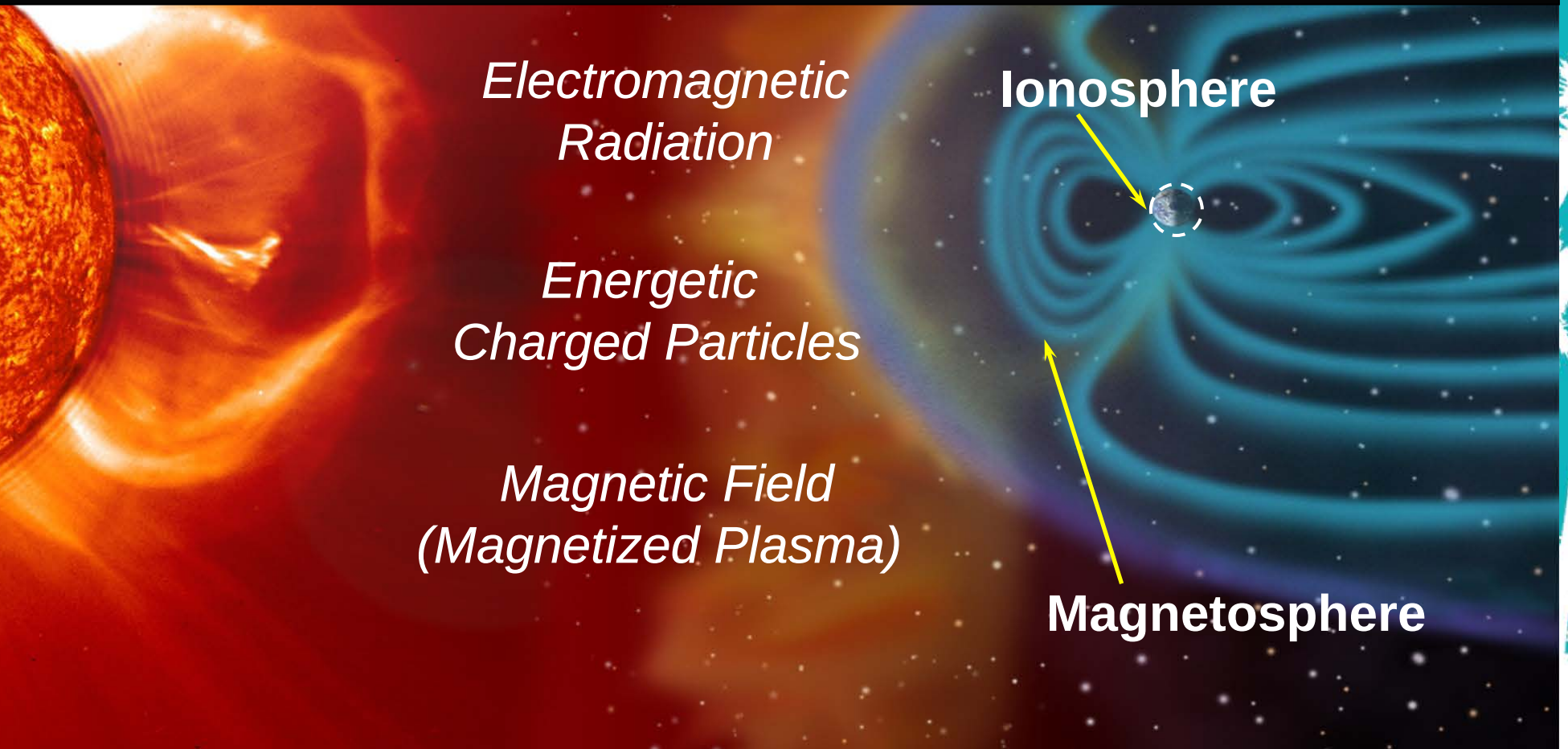
Nov 2014 – The Space Weather Operations, Research, and Mitigation (SWORM) Task Force was established by action of the NSTC/CENRS/SDR

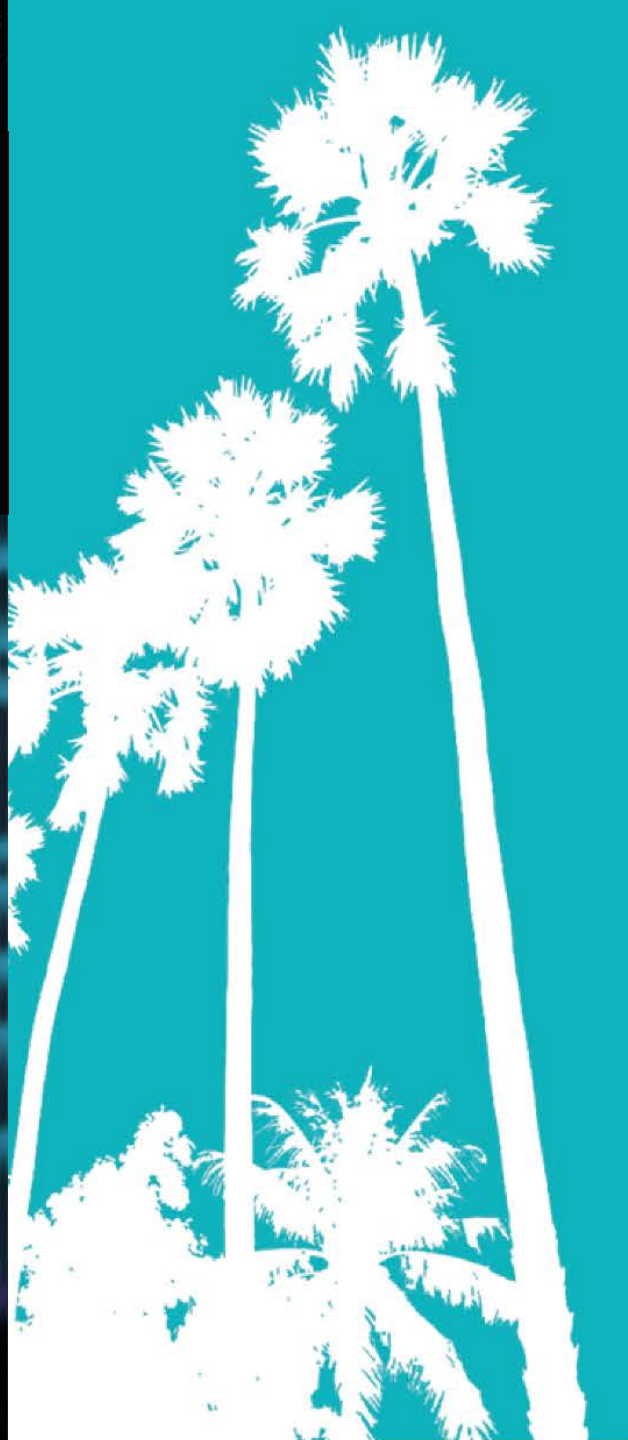
Tasked to develop:

- National Space Weather Strategy
- Space Weather Action Plan

Space Weather

Space weather refers to the variable conditions on the Sun and in space that can influence performance and reliability of space and ground-based technological systems, and endanger life or health.





Geomagnetic Storm Impacts

Impacts from geomagnetic storms are wide-ranging with potentially significant consequences.

Satellite Operations

Manned Spaceflight

GPS

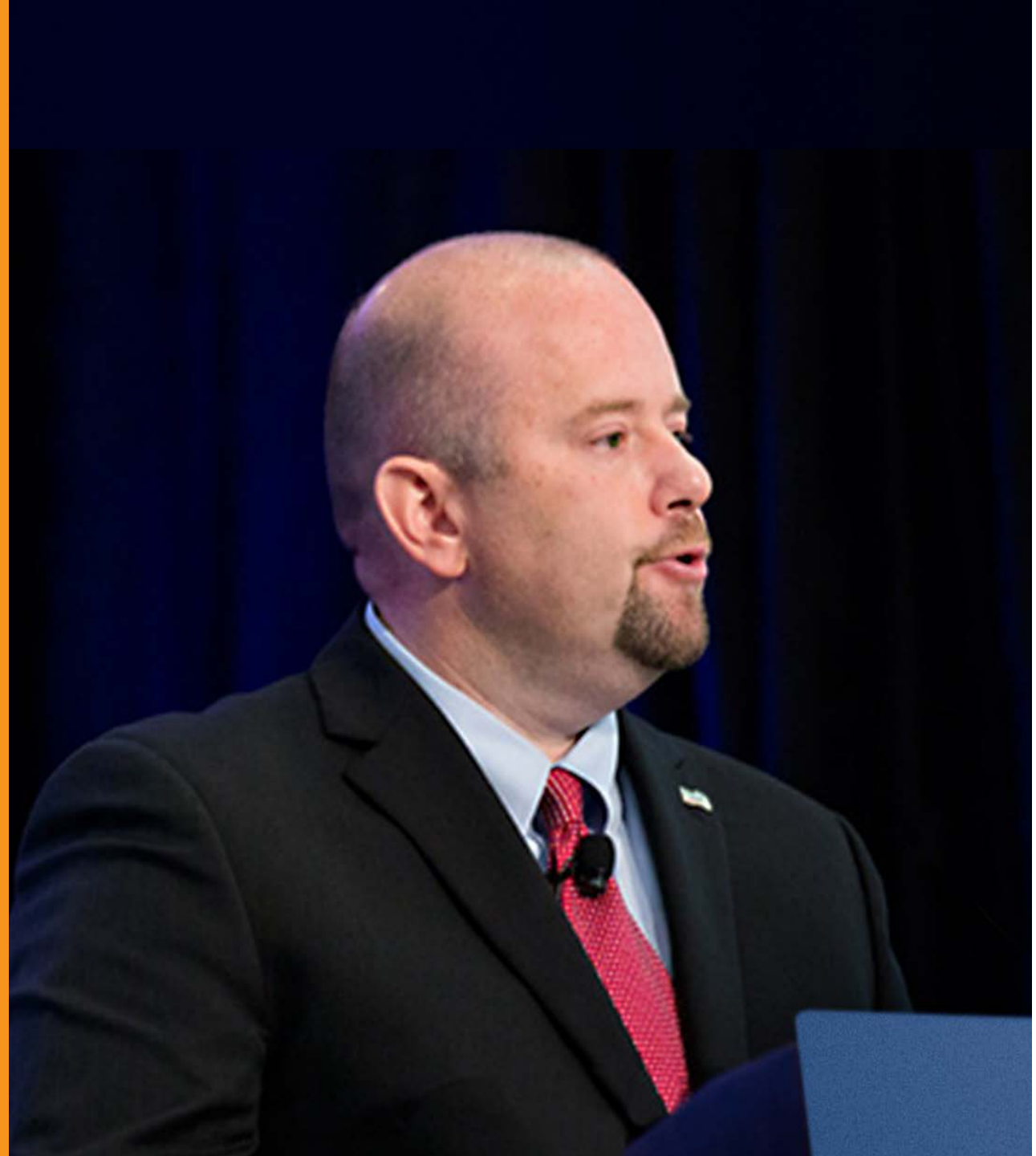
Power Grid Operations

Rail

Aircraft Operations

FDOT AV/CV/ITS Steering Committee

Earlier this year, Secretary Jim Boxold established a Steering Committee comprised of key FDOT stakeholders, led by Assistant Secretary Rich Biter, to coordinate and provide leadership direction over FDOT's AV/CV/ITS initiatives.



FDOT AV/CV/ITS Steering Committee

By the end of the year:

- Develop a Strategic Plan
- Draft Design Standards for Major Infrastructure Investments
- Initiate additional testing facilities
- Form new non-traditional partnerships
- Prioritize investment locations

In 2016:

- Include AV/CV in all state planning documents
  - LRTP
  - Strategic Highway Safety Plan
- Further enhance 2015/2016 accomplishments

Active FDOT Initiatives

- **Connected-Vehicle Test Bed in Orlando (2011)**
- **Public Outreach and Education**
- **Florida Automated Vehicles Summits**
  - 2013 – Tampa
  - 2014 – Orlando
  - 2015 – Jacksonville
- **Stakeholder Working Groups**
- **University Research Partnerships**
- **Pilot Projects**

Stakeholder Working Groups

1) Policies & Legal Issues
2) Infrastructure/Technology
   - Roadway improvements
   - Roadside devices
   - Engineering & design standards
   - Infrastructure investment
3) Modal Applications
   - Transit, Freight, Inspections

Pilot Projects

- Focused on reducing the frequency and severity of crashes
    - 80% of all avoidable collisions could be prevented

- Commercial vehicle applications
    - Improved intermodal connectivity
    - Reduce bottlenecks at ports
    - Increased safety at intersections

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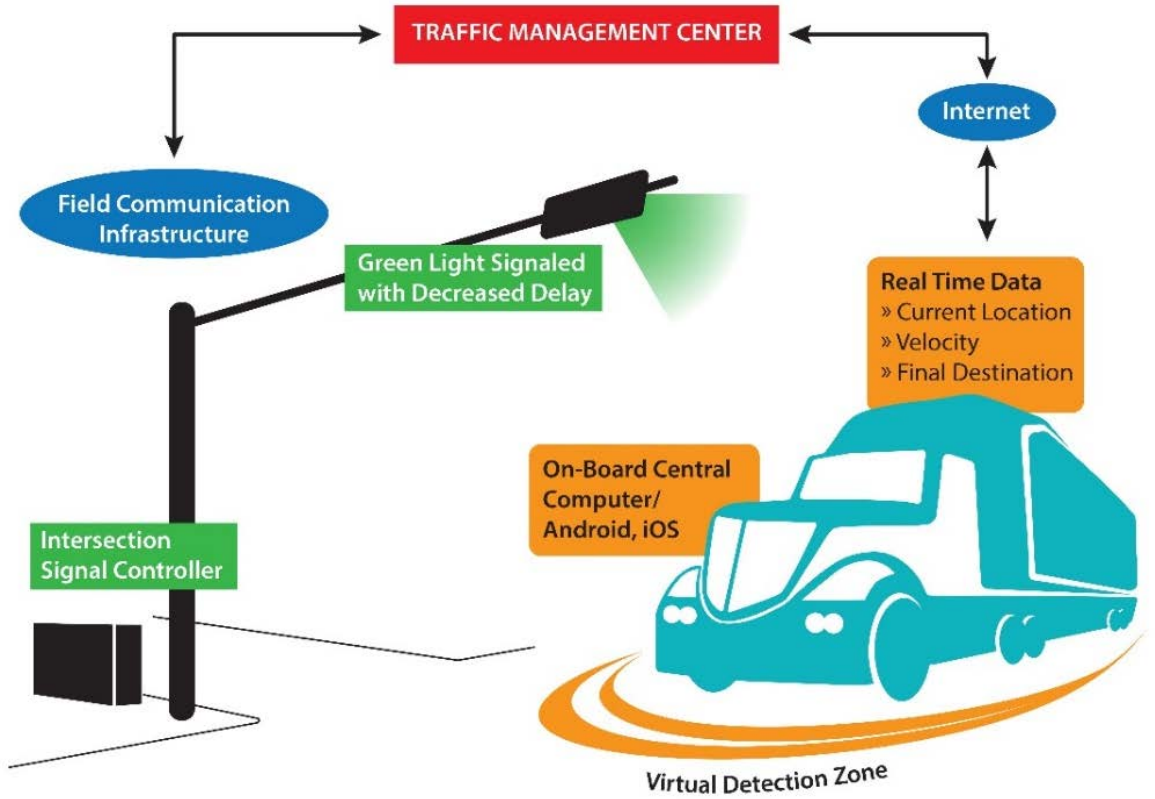
Freight Applications Pilot Project

Assessing Automated Vehicle Technologies for Miami's Perishable Freight Industry



Partnership Opportunities

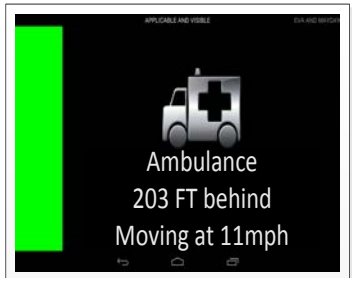
- Connected Vehicle Test Bed

- USDOT Connected Vehicle Pilot Deployment Grant Awarded to THEA

TAMPA HILLSBOROUGH EXPRESSWAY AUTHORITY

- Development of Test Track

- FDOT is investing in AV/CV to rapidly deploy emerging solutions



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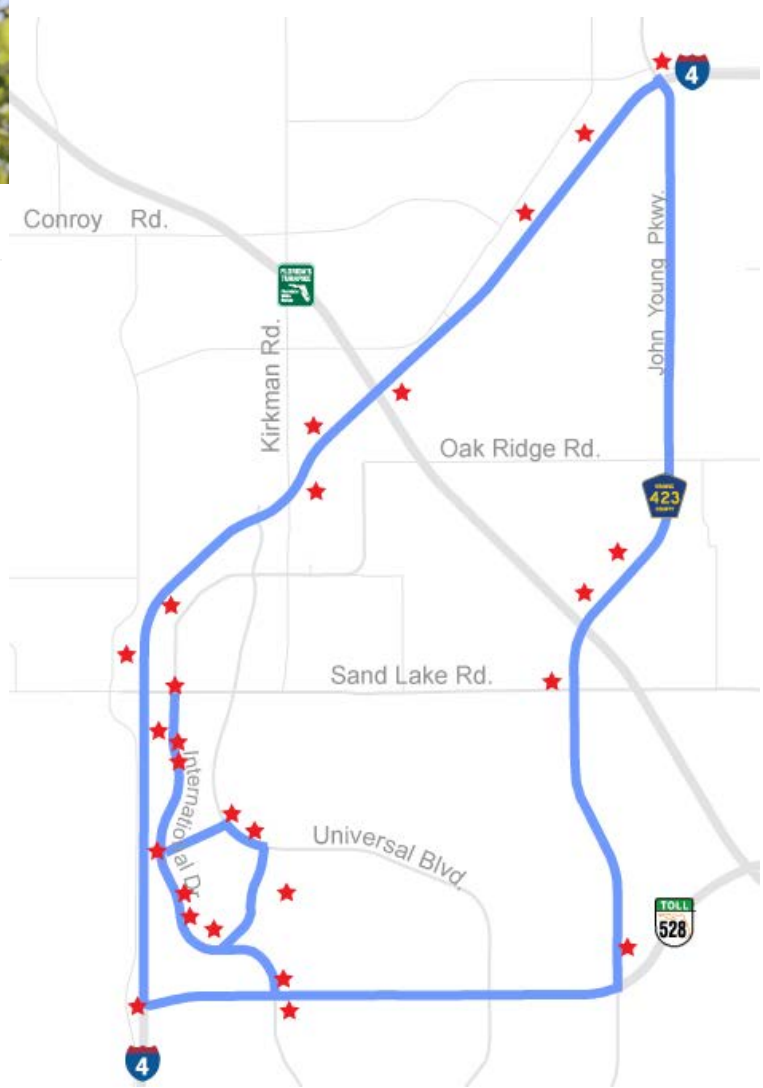
Florida's Intelligent Transportation System

Connected Vehicle Test Bed in Orlando



Challenges Ahead for Transportation Professionals

Engineering Design Standards for AV

- Updates to the Florida Greenbook
- Potential changes to the Manual for Uniform Traffic Control Devices
- Adaptive/Flexible infrastructure
- Design for large structures (50+ year lifespan)

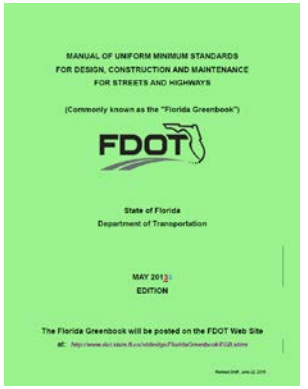
Increased Focus on ITS Support for CV

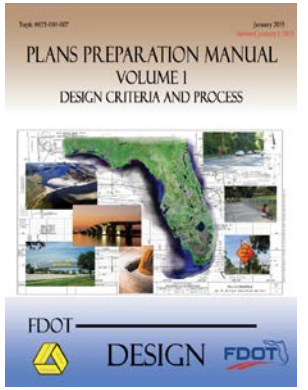
- Intelligent Transportation Systems
- New hardware and software skill sets
- Information Technology demands

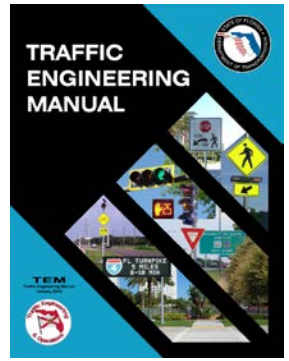
Changes in Right-Of-Way Usage

- Potential for dedicated AV-only lanes
- Additional facilities for non-traditional vehicles
- Infrastructure requirements
- More efficient use of existing ROW

Private Sector Implications







Questions?

Paul Steinman, P.E.
District Seven Secretary
813-975-6039

Email questions/comments to:
automatedFL@dot.state.fl.us

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