TSM&O CONSORTIUM MEETING SUMMARY

Meeting Date:	July 26, 2018 (Thursday)	**Time**: 10:00 AM – 12:00 PM
Subject:	TSM&O Consortium Meeting	
Meeting Location:	Orange Technical College – Mid Florida Campus 2900 W Oak Ridge Rd, Orlando, FL Conference Room 729	

I. OVERVIEW

The purpose of this recurring meeting is to provide an opportunity for District Five FDOT staff and regional agency partners to collaborate on the state of the TSM&O Program and ongoing efforts in District Five. David Williams gave a short introduction and explained the meeting agenda.

II. GENERAL UPDATES

David Williams gave a brief update to Consortium members on the status of the Orange Technical College partnership as well as the ICMS TSM&O Request List 2019-2028.

- Traffic Signal Technician Program with Orange Technical College
  - Survey polls were sent out to appropriate personnel to determine which skills, trainings, and courses currently provided by OTC would be beneficial in a Traffic Signal Technician program
  - Survey Results: *Electronics Technology & Electricity* (**bold items were unanimous or near-unanimous**)
    - **Safety fundamentals**
    - **AC Electronics**
    - **DC Electronics**
    - **Electrical Blueprint Reading**
    - **Hand Tools**
    - **Digital Multimeter**
    - **Electrical Circuits**
    - **Digital Circuits**
    - **Resistors and Conductors**
    - Microprocessors
    - Analog Circuits
    - Math for Technicians
    - Semiconductor Devices
    - DC Power Supplies
    - Employability

        - Relays, Timers, Time Delay Relays
        - Transformers
        - Overload/Overcurrent Protection & Monitoring
    - Survey Results: Enterprise Network & Server
        - IP Addressing
        - IP Routing Technologies
        - IP Services
        - Networks and components
        - Operation of data networks
        - LAN Switching technologies
        - IP Routing Technologies
        - Network Troubleshooting
        - Network Device Security
        - Troubleshooting VLANs, Trunking, and ACLs
        - Wireless technologies, mobile security & attacks
        - Threats and vulnerabilities
    - Enterprise Desktop & Mobile support (no skills had more than 50% acceptance)
        - Setup/Configure VPN on desktop, tablet, and laptop platforms
        - Professional ethics / legal responsibilities
        - Leadership and teamwork skills
        - Network architectural structure of LANs, fundamentals and roles of the network switch, router, and WAN
        - Network Device Security
        - Troubleshooting VLANs, Trunking, and ACLs
        - Wireless technologies, mobile security & attacks
        - Threats and vulnerabilities
    - Write-in skills and training
        - ITS communications components
        - Traffic Signal Phasing/Timing
        - Signal Controllers, diagnostics
        - Equipment Testing
        - Technical writing/documentation
        - Construction monitoring/inspection
        - Mechanical (metal) connectors
        - IMSA Level 1
        - Single and multi-mode fiber
        - Troubleshooting skills
        - Working with bucket/rack trucks
        - Construction zone safety
        - Cabinet level operation
        - Grounding
        - Comment: How to read Fiber Splicing Diagrams

  - Comment: Troubleshooting Concepts
    - Michael Martucci, OTC: If we get some equipment from partners we can better prepare students for troubleshooting
  - Question: Are Linux servers something that needs to be added?
    - Jeremy: Yes, because of connected vehicles
  - Comment: Specific to traffic, but looking at smart home side of the industry, this will be very important
    - Michael Martucci: OTC is the first school in the country to offer a smart home certification
  - Michael Martucci: We are about to meet with CareerSource and need to show there is a need from the industry
    - Comment: Do you have a sample letter or outline for a letter of support?
    - Michael Martucci: Yes, I will provide to David to disperse to everyone.
  - Comment: We need to move towards using ITS terminology, which will "sell" better than highly technical terminology
- FDOT D5 TSM&O Request List for 2019-2028 and the Central Florida MPO Alliance.
  - Intended to present at July 13th CFO MPO Alliance meeting
  - However, the MPO Alliance does not have influence over project priorities; projects must be added to the Project Priority Lists of individual MPOs before being discussed
  - Jeremy: The 5-year Work Program for FDOT isn't very flexible; it needs to be approved by Central Office, so it is not simple to get projects added to this list
    - We can get good statewide funding if the MPOs work together with FDOT to build momentum for a regionwide vision
    - FDOT will be asking to get projects on the MPO Prioritized Projects List so that we can speak with the MPO Alliance and get agreement on a regionwide vision

III. CONNECTED VEHICLE (CV) READINESS STUDY

Eric Gordin from Florida's Turnpike Enterprise (FTE) provided a brief update on FTE's progress with their Connected Vehicle Readiness Study and what specifically they will be looking at.

- The study's main goals are
  - To understand the current state of CV technology
  - Determine deployment needs for Turnpike roadways
  - Lessons learned from other deployments
  - Assessment of Turnpike's Network (readiness)
- Propose key CV pilot projects as first phase
- The FTE system has 511 centerline miles, 153 interchanges, complete fiber optic and CCTV coverage
- Central Florida CV Initiatives
  - CFAVP Automated Vehicle Proving Ground (AVPG)
  - Driver Assistive Truck Platooning Pilot
  - I-75 FRAME
  - FTE SunTrax
  - I-4 Frame

- TWO under ITS Continuing Services contract with Metric
    - Task 1: State of the Industry Best Practices Technical Memo
    - Task 2: Existing Readiness
        - Infrastructure
        - Staffing
        - System and Network
        - Training
        - Recommendations
        - Gap Analysis
        - Security
    - Task 3: Ready to Deploy CV Applications
        - Short Term – 2-3 years
        - Mid Term – 4-8 years
    - 210-day schedule
    - Meetings
        - All TSMO Engineers
        - Central Office
        - Other Districts
        - Planning Organizations
        - Internal Turnpike Stakeholders
- Overall goal of the study is to be ready to move forward with pilot projects
- Jeremy: Are you focused on the infrastructure side or are you looking also at upgrading your fleet and other fleet considerations
    - A: The fleet could be included in a pilot project, but the infrastructure is the main focus of the study
- Benton Bonney, Orlando: Is the ITS architecture keeping up with CAV technology?
    - Jeremy: Yes, the National ITS Architecture (NITSA) is being updated; will be more flexible, with new market packages and they don't prescribe the data flows
        - TURBO is no longer available for download
        - FDOT wants to update every Regional ITS Architecture (RITSA) throughout the State; we are searching for funding
        - Contract for the upcoming FY will have consultant update all RITSAs
        - What will the CVs of the future look like and what needs to change?
        - Now that we can draw up new architectures, which gives us the flexibility to adapt; can draw up whatever system we can come up with now
        - FHWA is forgiving on this topic specifically because they know there is uncertainty surrounding the future of architectures, and accept the year-long update process

IV. TOKEN ROLE & MANAGER DEMONSTRATION

Keith Smith (VHB) gave a demonstration of the soon-to-be published District Five Data Fusion Portal, (aka Token & Role Manager) including how to use it and what data is accessible through the portal.

- Introduction by Jeremy: Keith has been helping us out with data initiatives and dashboards
    - Some data has licensing restrictions, so we are introducing the Token & Role Manager

    - Also working on bulk data loader
    - Want to make sure all the regional data is available
    - Token & Role Manager makes sure the data permissions are taken care of easily and simply on the backend, with minimal interference to the user experience
- 84 individual datasets in DFE Sandbox
    - Real time data
    - ATSPM
    - Center to Center
    - Static Data (RCI database)
- Classified into public and restricted data that can be login-restricted
- Document Library
    - Describes process for getting access to data and getting it on the platform
    - Data Discovery
    - Data Digestion
        - Some from XML, SQL, etc.
        - Jeremy: User manual lets users share data and helps integrate with partners
            - There aren't good standards this kind of data sharing today so we are trying to standardize the process with this document
- 60 publicly available datasets, relying on data provider for updates
- Dataset Information
    - Able to see how often it is updated, where it came from, when it started coming into the system, as well as contact information
    - Able to set parameters, but wanted to give access to the full data set so it is fully able to be manipulated, exported to JSON and csv
- Adding a 'request data' button, able to set parameters (date, location, etc)
    - Email a download because sometimes data request is fairly large
    - Piles the data up behind the scenes
- When login is created, you are assumed to be public, but then you can get access to greater number of data sets, currently up to 84
    - Able to restrict data access
- If there is data need we haven't thought of, that is easily requestable and likely easily added
- Jeremy: Why are we doing this?
    - Making your own information available to your own staff is difficult in and of itself
    - FDOT open data portal
    - May help the public to solve problems and build businesses around this data
    - Can help feed this into machine learning and teaching systems based on this data
        - Proactively deal with issues and make research much simpler
        - Universities want access to this data, more efficient and discoverable
        - Master data management helps to improve access and accuracy
    - The system is not just for pulling data, but can begin to do statistical analysis, elastic search
        - Live analysis of problems
        - Can start looking at crashes for rain, time of day, etc.
        - Querying against 10.2 billion records and responses in less than 1 second

  - Can create things like the D5 Dashboard with this data
- Question: What is the process for getting access?
  - Still in development, but we are hoping to publish it in the next couple weeks; then there will be requests for access
- Question: Are the parameters pre-set?
  - Yes, to a degree, some are adjustable, and some are not. Parameters were created based on feedback and expectations, but you can download full datasets and sort parameters yourself.
- Question: What is "metadata?"
  - Metadata is the information about your data
    - Source, date of publication, date of retrieval, explanation of each field in the dataset, etc.
    - Jeremy: a good example is giving a definition of "volume"
      - To the typical person, "volume" is talking about the space within a container
      - To the transportation practitioner, "volume" represents the number of vehicles traveling through a corridor
    - Metadata helps users unfamiliar with a given dataset understand the data and apply it properly
- Developed the Token & Role Manager with the user in mind. How do we think people will want to work with the data? This question led to certain decisions:
  - Provides a preview so user can confirm they want it
  - Provides JSON data for developers
  - Initial query selections were identified based on what we thought would be needed; if you need to select from a different query, you can request that through the Token & Role Manager
- Question: How much data outside of District Five is available?
  - Some data spills over from the District and goes beyond the District
    - This is a policy decision, not a technical limitation
  - Long-term plan for architecture from Central Office
  - Discussion with other districts has still not been had yet but it will be easy to translate for other districts
  - This system is highly scalable, it can run on servers or the cloud; we're learning how to scale the system
  - Want to funnel in and show live data, but everyone will keep their own backend of historical records
- Question: Is there anything proprietary?
  - Microsoft SQL (could be switched out for Oracle) and ArcGIS is used
  - Everything else is open source
  - Also, in line with NITSA, and falls in line with national standards for data management
- VHB has met with open source vendors and they like this direction and are impressed how far along the data sharing effort is coming
- H. Walker, FTE: Will there be any disclaimers from the safety side? For example, there are some restrictions where CARS data must be used, not Signal 4 Data

    - Keith: There is an access policy provided for every dataset so it is very clear for every dataset. If there wasn't one provided, the generic FDOT access policy was used.
        - Should also include with the download packages
- ROADS compliant
- In development but would like to roll out shortly – bulk architecture was added later
- In discussion with Tableau to licensing to add their dashboard on top of the DFE to perform data discovery

V. LOCAL AGENCY PROGRAM (LAP) PROCESS

Jeremy Dilmore gave a brief overview of the LAP process.

- Contracts set up so MPOs don't have to go through LAP process
- FDOT moving towards being more involved with LAP review process
- If agencies need any assistance, FDOT will help and look it over
- If design is requested or any coordination, please be proactive
- Would like to get this process online instead of going directly to Jeremy – this is in the works
- When looking at costs, installation costs also need to be included (contractors costs) – this will make things run more smoothly
- Would rather not handle things through a formal comment and response process, but please reach out more informally and proactively

VI. CURRENT INITIATIVES

Jeremy Dilmore gave an update on current initiatives in FDOT District Five.

- ICMS – PER – Comment response – on SOT (Signal optimization tools)
    - Documents moving forward into 3 rounds of design process
        - Will reach out for signal databases, want to have active data so it can be tested
            - Will send a consultant with a hard drive to download
- Operation contract
    - Continuing to get new performance measures
    - Focusing on maintenance
    - Seeing some detection issues are causing problems with operational efficiency
- Additional $10 million towards CV and more operational money to be given from central office
    - Looking to engage Central Office and have Central Office provide 100% of money for operations
    - Central Office wants outcomes from funding
        - working to have these outcomes easily shown to Central Office
- ReIP efforts
    - Working with Daytona Beach and Marion County to finish
    - Contract closing soon
        - If there are any more comments, please let Jeremy know because the contract expiration is a hard deadline that cannot be changed
- TSP phase 1 working well
    - Phase 2 in progress

  - Phase 3 currently advertised for next week (design build) – want it done in one package
- Controller changeouts
  - Many deliveries currently
  - Sent out communication to form a plan for coordination
  - MetroPlan Orlando & SCTPO – packaged and procurements through
  - 200 controllers and 70 cabinets that we'd like to get rid of
  - Coding into MIMS so tracking associated with it – data collection software is being created
  - FDOT new inventory will be added and everything slowly populated
- AAM contract is sunsetting soon
- ATMS Phase 4 – VHB was selected and then design will begin
- TMC
  - Construction under progress
    - Drywall going up; building under A/C
    - Tours will begin again soon
      - Turnpike first on the list
- Questions
  - Timeline for moving TMCs?
    - SR 417/SR 528 – 2 months
    - Then will begin working with others (City of Orlando, etc.)
    - Instead of central hub there will be 3 locations
  - Benton Bonney: Contacted the other day by a local movie producer; if you'd like to show off your TMC I can get you in touch with him

VII. TOUR OF ORANGE TECHNICAL COLLEGE (OTC) – MID FLORIDA CAMPUS FACILITIES

Michael Martucci of Orange Technical College gave a tour of the campus and the services they are able to offer in order to give Consortium members a better idea of how they can partner with the school.

VIII. NEXT MEETING – September 20, 2018 at Central Florida Expressway Authority

IX. ATTACHMENTS

- A – Sign in sheets
- B – Presentation Slides
- C – Meeting agenda

END OF SUMMARY

This summary was prepared by Jordan Crandall and 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 dwilliams@vhb.com *so they can be finalized for the files.*

TSM&O Consortium Meeting
July 26, 2018

NAME	AGENCY	E-MAIL ADDRESS
James Globig	Lake county	JGlobig@lakecountyfl.gov
Charlie Wetzel	Seminole Co	cwetzel@seminolecountyfl.gov
Steve Jones	City of Orlando	steven.jones@cityoforlando.net
John Whitman	FDOT	john.whitman@dot.state.fl.us
Roger Smith	Orange Co Traffic Eng	roger.smith@OCFL.NET
Scott Arnold	City of Melbourne	scott.arnold@mlbfl.org
H. Walker	FTE/Jacobs	hollis.walker@dot.state.fl.us
Soraya Saflicki	InNovo	ssaflicki@innovopartners.com
Eric Gordin	FDOT Turnpike	eric.gordin@dot...
RICHARD ATAMAN	BREVARD COUNTY	RICH.ATAMAN@BREVARDFL.GOV
ALISSA TORRES	ORANGE COUNTY TRANSPING	ALISSA.TORRES@OCFL.NET

TSM&O Consortium Meeting
July 26, 2018

NAME	AGENCY	E-MAIL ADDRESS
Larry Gobel	Lake County	lgobel@lakecountyfl.gov
Frank Yokiel	Orange Co.	frank.yokiel@ocfl.net
Crystal Mercedes	MetroPlan Orl.	cmercedes@metroplanorlando.org
Brent Poole	CFX	Brent.Poole@cfxway.com
Melissa Gross	InNovo Partners	mgross@innovopartners.com
Joshua Parker	FDOT	joshua.parker@dotistate.fl.us
Corrina Gumm	Brevard Co traffic	corrina.gumm@brevardFL.gov
Darren Greer	City of Daytona Beach	greerd@codb.us
Steven Bosser	SCTPC	steven.bosser@brevardfl.gov
Mike Martucci	OCPS - OTC - MPC	3564@ocps.net
Aung Thurain	Kimley Fleming	athurain@gfnet.com
Francis Franco	LSMPO	FFranco@LAKESUMTERMPO.COM
Sean Castello	Volusia City	Scastello@volusia.org
BOBBY MADDOX	VOLUSIA City	bmaddox@VOLUSIA.ORG

TSM&O Consortium Meeting
July 26, 2018

NAME	AGENCY	E-MAIL ADDRESS
Benton Bonney	Orlando	benton.bonney@cityoforlando.net
Glenn Roberson	City of Ocala	GMRoberson@Ocalafl.org

Welcome to the TSM&O Consortium Meeting

July 26, 2018

Transportation Systems Management & Operations

Meeting Agenda

1. Introduction
2. Signal Technician Program – Update
3. FDOT D5 10-Year TSM&O Request List – Update
4. CV Readiness Study – Implementation Plan
5. Token & Role Manager Demonstration
6. Local Agency Program (LAP) Process
7. Current Initiatives
8. Tour of Orange Technical College – Mid Florida Campus

Signal Technicians Program at Orange Technical College – Update

David Williams, VHB

Survey results so far

- **Safety Fundamentals**
- **AC Electronics**
- **DC Electronics**
- **Electrical Blueprint Reading**
- **Hand Tools**
- **Digital Multimeter**
- **Electrical Circuits**
- **Digital Circuits**
- **Resistors & Conductors**
- Microprocessors
- Analog Circuits
- Math for Technicians
- Semiconductor Devices
- DC Power Supplies
- Employability
- Relays, Timers, Time Delay Relays
- Transformers
- Overload/Overcurrent Protection & Monitoring

Survey results so far

- **IP addressing (IPv4/IPv6)**
- **IP Routing Technologies**
- **IP Services**
- **Networks and components**
- **Operation of data networks**
- **LAN Switching technologies**
- **IP Routing Technologies**
- **Network Troubleshooting**

- Network Device Security
- Troubleshooting VLANs, Trunking, and ACLs
- Wireless technologies, mobile security & attacks
- Threats and vulnerabilities

Survey results so far

- Basic router operation
- Setup/Configure VPN on desktop, tablet, and laptop platforms
- Professional ethics / legal responsibilities
- Leadership and teamwork skills
- Network architectural structure of LANs, fundamentals and roles of the network switch, router, and WAN
- Network Device Security
- Troubleshooting VLANs, Trunking, and ACLs
- Wireless technologies, mobile security & attacks
- Threats and vulnerabilities

Survey results so far

- ITS communications components
- Traffic Signal Phasing/Timing
- Signal Controllers, diagnostics
- Equipment Testing
- Technical writing/documentation
- Construction monitoring/inspection
- Mechanical (metal) connectors
- IMSA Level 1
- Single and multi-mode fiber
- Troubleshooting skills
- Working with bucket/rack trucks
- Construction zone safety
- Cabinet level operation
- Grounding

Survey results

- Was there anything missing from these lists?

Three Items Needed for Education Board Approval

1) Condensed, streamlined curriculum
2) Letters of Support from individual agencies
3) Commitment of Resources

Questions?

Following our meeting, staff will give us a tour of the campus facilities

FDOT D5 TSM&O Request List 2019-2028
Central Florida MPO Alliance

David Williams, VHB

FDOT TSM&O
Transportation Systems Management & Operations

Transportation Systems Management & Operations

CENTRAL FLORIDA TSM&O CONSORTIUM

Transportation Systems Management & Operations (TSM&O)

Integrated Corridor Management Systems (ICMS)

Jeremy Dilmore, FDOT District Five TSM&O Engineer
July 13, 2018

FDOT D5 TSM&O Request List

- Did not present at July 13th MPO Alliance meeting
  - Prioritized Projects List for Individual M/TPOs

- Not funded by FDOT

Florida Department of TRANSPORTATION

CV Readiness Study – Implementation Plan

Florida's Turnpike

July 26, 2018
District 5 TSMO Consortium Meeting

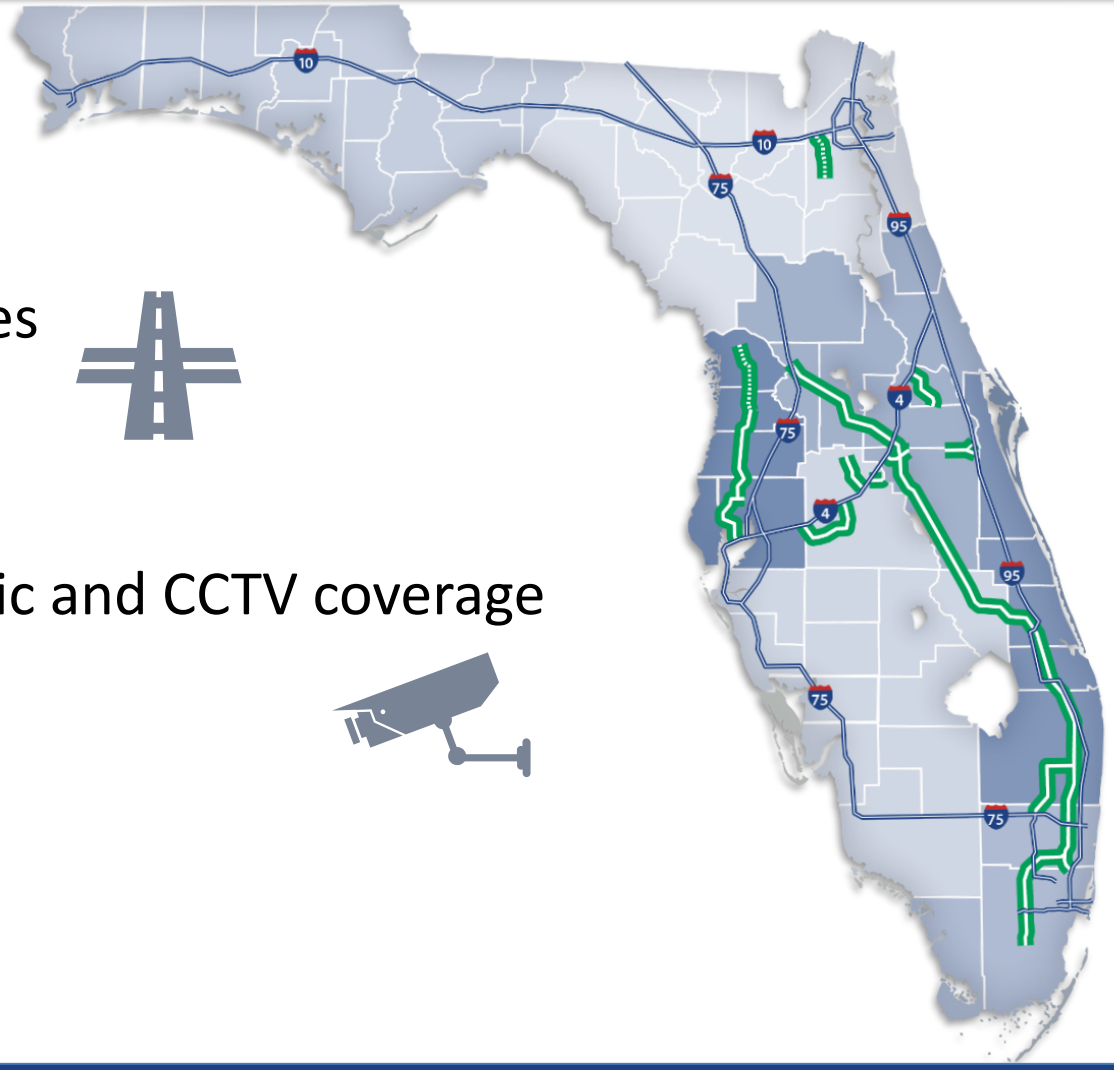
Purpose

- Understand current state of CV technology
- Determine deployment needs for Turnpike roadways
- Lessons learned from other deployments
- Assessment of the Turnpike's network
- Determine readiness of the Turnpike to deploy CV
- Propose key CV pilot projects as first phase

Turnpike System

- 511 Centerline Miles
- 153 Interchanges

- Complete fiber optic and CCTV coverage



Florida Connected Vehicle Initiative

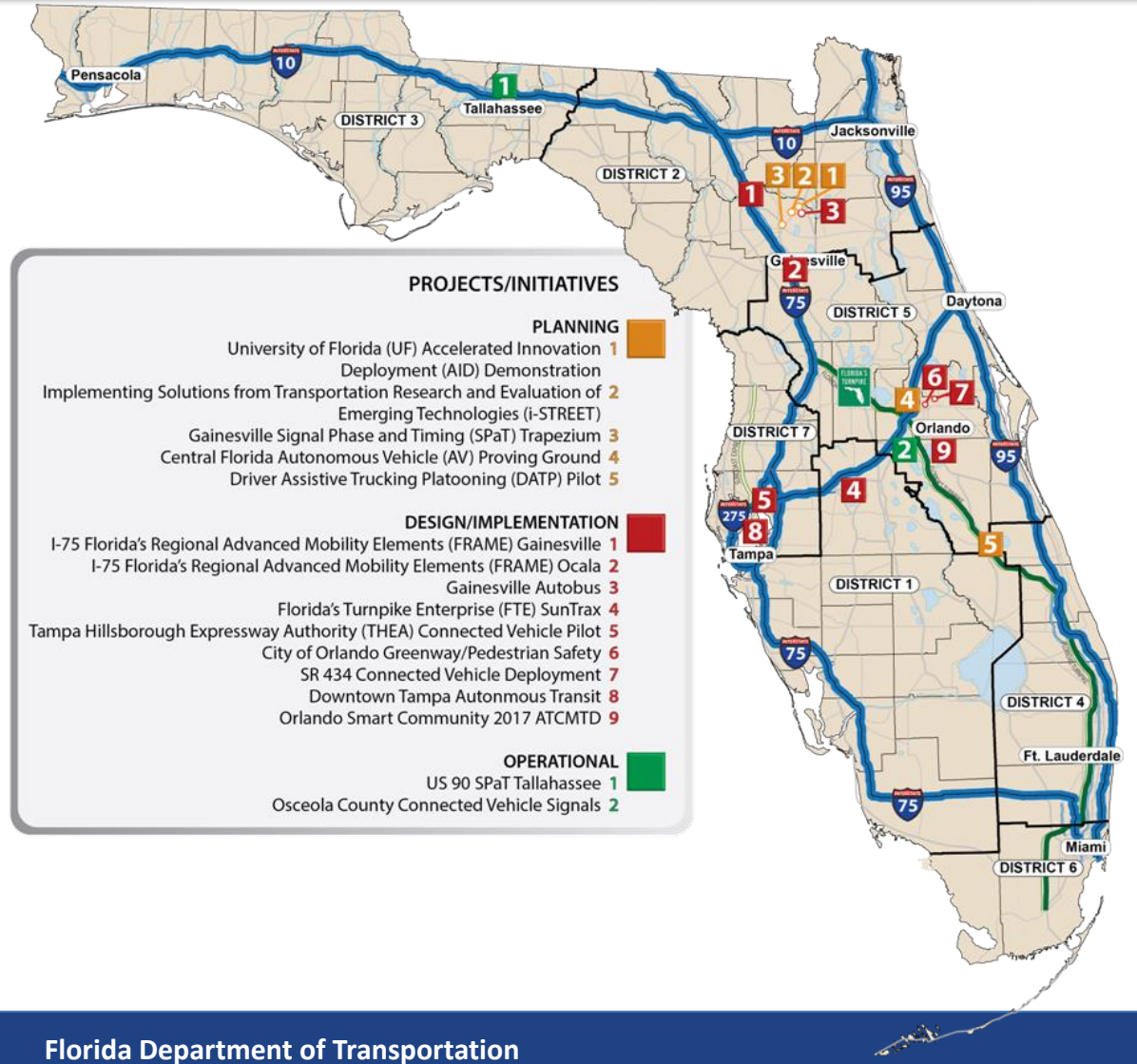
CF AV Proving Ground (4)

Driver Assistive Truck Platooning (DATP) Pilot (5)

I-75 FRAME (1)

FTE SunTrax (4)

I-4 FRAME (not shown)



Contract Overview

- Task Work Order (TWO) under ITS Continuing Services contract
- Metric is the consultant leading the TWO

- Services Provided:
  - State of the Industry Best Practices Technical Memo
  - Existing Operational Readiness Technical Memo
  - Ready-to-Deploy CV Application Evaluation
    - Including a Deployment Plan Technical Memo

Tasks and Deliverables

- Task 1: Best Practices Review (national and state)

  Deliverable: State of the Industry Best Practices Technical Memo

- Task 2: Existing Operational Readiness Evaluation
  - Roadway Infrastructure
  - Staffing Proficiency
  - System and Network Capabilities
  - Training Plan
  - Recommendations for Improvement
  - Gap Analysis
  - Security

  Deliverable: Existing Operational Readiness Technical Memo

Tasks and Deliverables

- Task 3: Ready-to-deploy CV applications Evaluation
  - Short-term (2-3 years) deployment plan
  - Mid-term (4-8 years) deployment plan

Deliverable: Ready-to-Deploy CV Application Evaluation and Deployment Plan Technical Memo

Matrix of CV Applications

Tasks and Deliverables

- Schedule
  - 210 calendar days after Notice to Proceed
- Submittals
- Meetings
  - FTE – 8 meetings including Kick-off meeting
  - Stakeholder Coordination – includes:
    - All TSM&O Engineers
    - Central Office
    - Other Districts
    - Planning Organizations
    - Internal Turnpike Stakeholders

QUESTIONS?

Token & Role Manager

Keith Smith, VHB

Current Initiatives

THANK YOU!

Next Consortium – September 20, 2018
(back at CFX)

TSM&O Consortium Meeting

MEETING AGENDA

Orange Technical College – Mid Florida Campus
2900 W Oak Ridge Rd
Orlando, FL 32809
Building 700

July 26, 2018; 10:00 AM-12:00 PM

1) WELCOME
2) BRIEF UPDATES
   - David Williams, VHB
3) CONNECTED VEHICLE (CV) READINESS STUDY
   - Eric Gordin, FTE
4) TOKEN & ROLE MANAGER DEMONSTRATION
   - Keith Smith, VHB
5) LOCAL AGENCY PROGRAM (LAP) PROCESS
   - Jeremy Dilmore, District Five TSM&O
6) CURRENT INITIATIVES
   - Jeremy Dilmore, District Five TSM&O
7) TOUR OF ORANGE TECHNICAL COLLEGE (OTC) – MID FLORIDA CAMPUS FACILITIES*
   - Michael Martucci, OTC – Mid Florida Campus

*With respect to everyone's time, we will make every effort to keep the Consortium meeting to its two-hour schedule, including the tour of the Mid Florida Campus facilities.