



CENTRAL FLORIDA TSM&O CONSORTIUM MEETING SUMMARY

Meeting Date: December 14, 2023 (Thursday) **Time:** 10:00 AM – 12:00 PM

Subject: TSM&O Consortium Meeting

Meeting Location: 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. TSM&O UPDATES

Jeremy Dilmore briefly provided a brief update on changes to staff at District Five Traffic Operations.

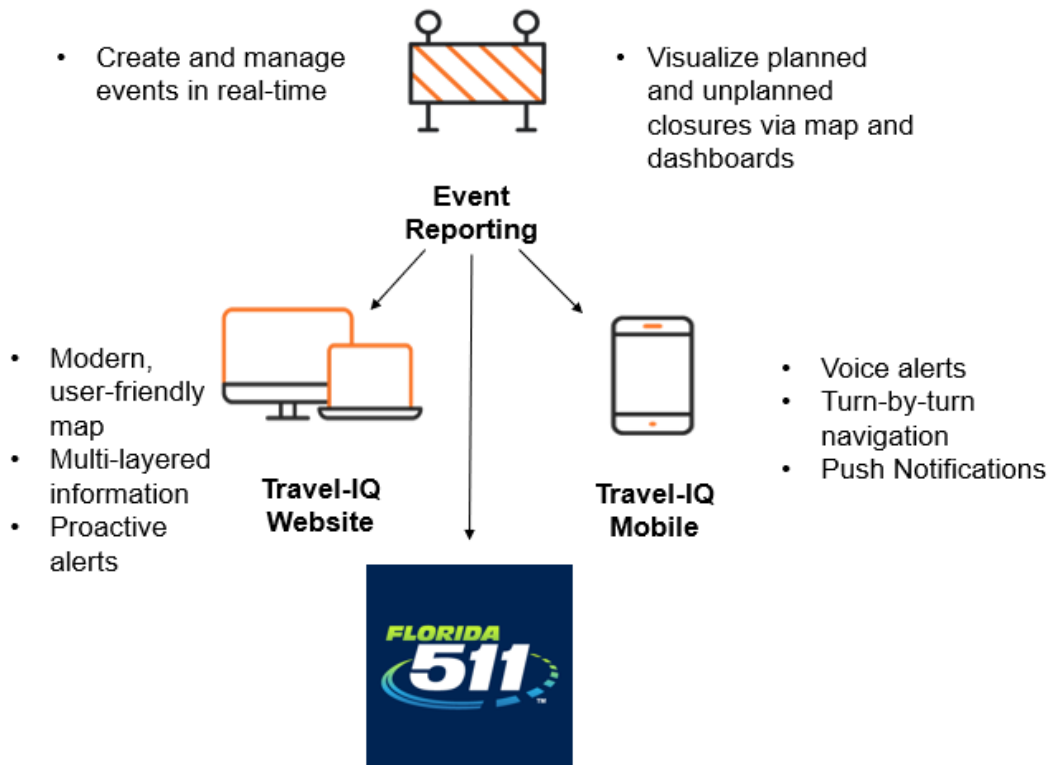
- TSM&O Production Manager
 - Tushar has shifted to Construction
 - Position advertised
- TSM&O Design Project Manager
 - Daniel Simpson
 - Heidi Trivett shifted to Maintenance
- TSM&O Construction Project Manager
 - Jennifer Sardonini is the new Construction PM
 - Previously Daniel Simpson
- ICM Operations I-75
 - Kyle Higgins (AECOM)
 - Previously Sheryl Bradley
- TSM&O Operations
 - John Lily is transitioning into this role
- TSM&O Engineer (Arterials) – Tricia Ballard
- TSM&O Maintenance and CEI – Lorena Cucek
- TSM&O RTMC Manager – Lauren Pearson
- TSM&O Pushbutton – Kevin Marquez
- TSM&O Retiming – Patrick White

III. TRAVEL-iQ

Jo Ann Oerter provided presented on the Travel-iQ system developed by Arcadis IBI Group.

- Travel-iQ is a North American-wide traffic event reporting and Advanced Traveler Information System (ATIS)
 - The platform allows agencies to managed planned and unplanned traffic events and road closures and communicate them to the public and other agencies
 - Software is currently used in 27 State and Provincial 511 systems, and in 9 cities/counties
- Limitations of current ATIS and processes include
 - Agency end-users
 - Redundant and tedious reporting
 - Outdated systems lack the ability to notify the public of real-time events
 - Information silos when different agencies use different systems
 - Long and costly deployment/transition periods
 - Public end-users
 - Crowd-sourced data can be unreliable
 - Limited awareness of verified data
 - Lack of relevant, timely information

Travel-iQ Solutions



- Travel-iQ system reports events to Travel-iQ website, Travel-iQ mobile app, and Florida 511
- The Travel-iQ system can be offered at low-cost or no-cost in states where IBI offers the

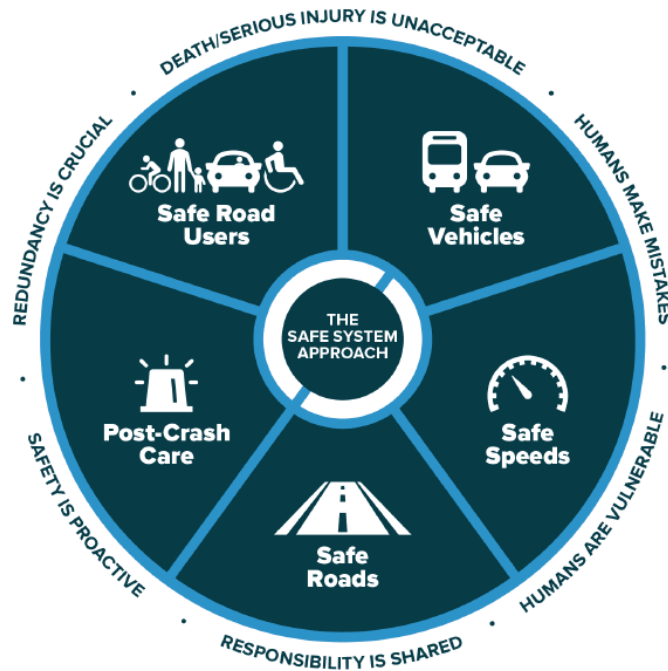
- 511 application
 - The system will enhance the existing 511 application
- The Travel-iQ system made available to FDOT. The Department had two requirements:
 - Cannot be stale or inaccurate data
 - Must provide accreditation to agencies providing the alerts
- The higher tiers of Travel-iQ allow for greater customization

IV. SAVING LIVES WITH CONNECTIVITY: A PLAN TO ACCELERATE V2X DEPLOYMENT

David Williams provided an overview of USDOT's *Saving Lives with Connectivity – A Plan to Accelerate V2X Deployment*.

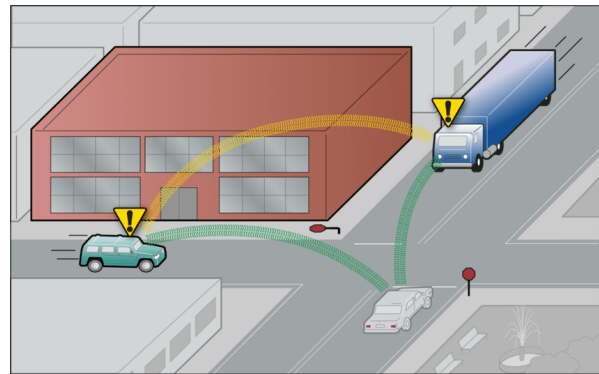
Saving Lives with Connectivity: A Plan to Accelerate V2X Deployment

- Draft published in October 2023 by USDOT
- Vehicle-to-everything (V2X) – infrastructure, vehicles, vulnerable road users (VRU)
- Identifies V2X technology as critical to reducing deaths and serious injuries
- Recent deployments have shown V2X benefits on a smaller scale
- The *Saving Lives with Connectivity* requires interoperable connectivity at scale
- Acknowledges V2X supports the Safe System Approach



- NRSS directed USDOT to advance deployment and use of V2X and similar technologies
 - 2019 – 36,355 motor vehicle fatalities
 - 2022 – 42,795 fatalities (+18%)
- Other benefits of V2X include enhanced mobility, improved efficiency, and reduced negative environmental impacts
- National V2X Deployment Plan

- Vision – enable safe, efficient, equitable, and sustainable transportation system through the national, widespread deployment of interoperable V2X technologies
- Mission – deploy **interoperable** V2X connectivity using dedicated 5.9 GHz spectrum and other available spectrum through collaboration across federal government, public sector, and private industry
- Describes how deployments can begin now
- Defines specific actions needed across stakeholder groups
- Identifies support and resources available to deployers
- Identifies priorities at the short-, medium-, and long-term levels
- Launches the [Connected Vehicle Deployer Resources](#) website
- CV Messages and Applications include
 - Basic Safety Message (BSM)
 - Signal Phase and Timing (SPaT)
 - MAP Message
 - Radio Technical Commission for Maritime Services (RTCM) – correction values for GPS coordinates to improve location information
 - Traveler Information Message (TIM)
 - Signal Request Message (SRM)
 - Signal Status Message (SSM)
 - Road Safety Message (RSM) – info about curve and work zone speed, lane closures, and other dynamic traveler information
- Goals and Targets
 - Short-term (2024-2026 – leading deployers are in operation)
 - Medium-term (2027-2029) – V2X deployer community growth
 - Long-term (2030-2034) – nationwide interoperable V2X operational
- V2X Benefits
 - Safety (Intersection Movement Assist, Left-turn Assist)
 - According to NHTSA, the implementation of these 2 applications alone could prevent:
 - 439,000 to 615,000 crashes
 - 13% to 18% of total
 - Save 987 to 1,366 lives
 - Save \$55B to \$74B
 - Emissions and Fuel Economy
 - V2X reduce emissions by up to 16%
 - Truck platooning can reduce emissions by up to 33%
 - A school bus program in Fulton County, GA experienced fuel savings of more than 10% due to signal priority (via V2X)
- V2X Challenges
 - Wireless spectrum is limited and in great demand
 - Low-latency, safety-related applications utilizing 30 MHz reserved under 5.9 GHz



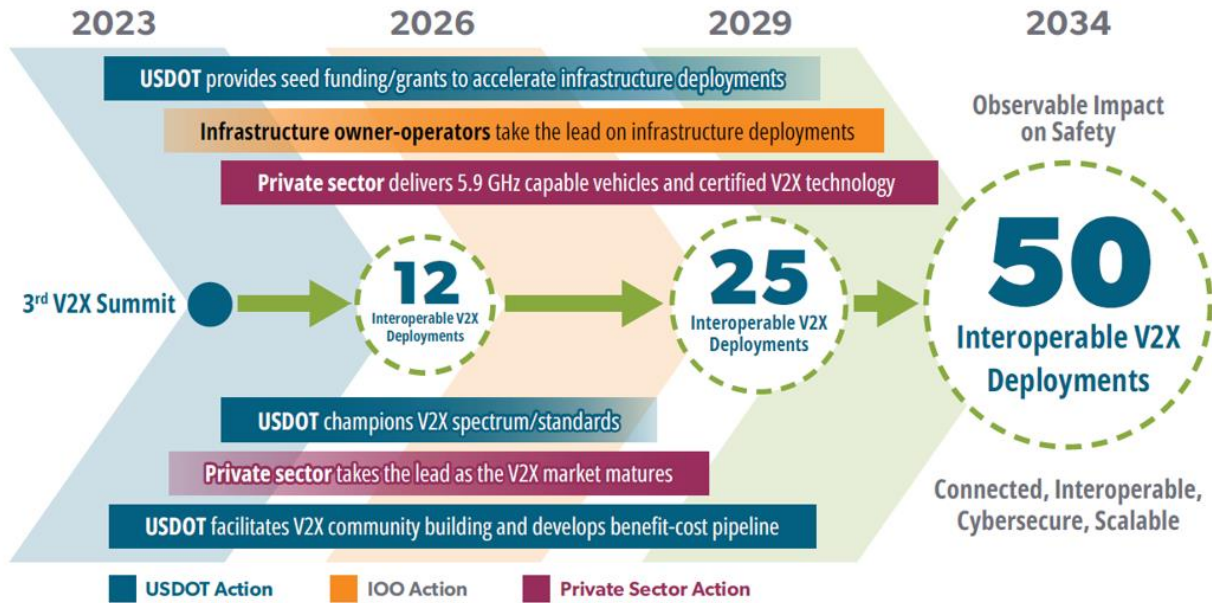
Source: GAO.

- o spectrum by FCC
- o Various cellular communication-based approaches have been deployed
 - Interoperability across multiple supplier ecosystems has proven difficult
- o Achieving interoperability requires close coordination across jurisdictions
- o OEMs will ultimately decide to what extent V2X devices are installed in new vehicles
- o Interoperability standards across device types, brands, models, etc is key
- o Public Agency capacity and funding challenges persist
 - ITS Deployment Survey 2023 is in development now
- o Privacy and Security
- o Long-term viability depends on near-term successes (new use cases, lessons learned, etc)
- 9 Key Focus Areas for the Interoperable V2X Deployment



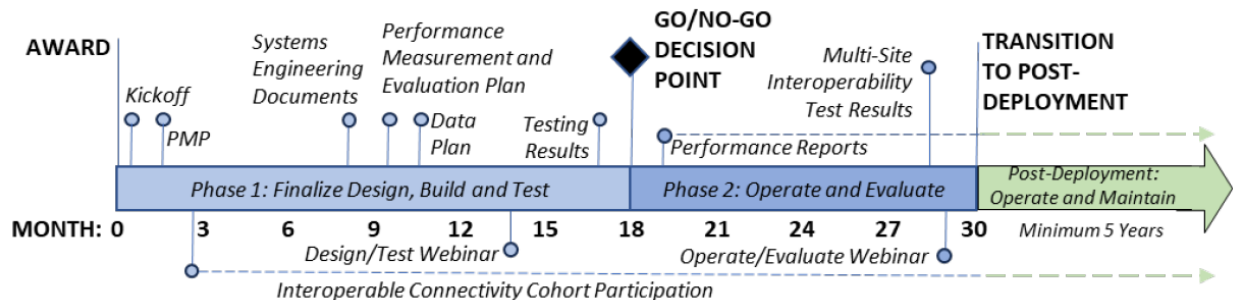
- The Deployment Plan identifies next steps for State, Local Governments, and Public Agencies
 - o Update investment and transportation plans to include V2X technology
 - o Deploy and operate interoperable, cybersecurity infrastructure-based V2X technologies and applications

- The V2X Deployment Plan identifies a goal of 50 interoperable V2X deployments by 2034, spurred on by seed funding/grants from USDOT



Accelerating V2X Deployment Notice of Funding Opportunity (NOFO)

- Based on the V2X Deployment Plan, USDOT published the Accelerating V2X Deployment NOFO in October 2023
- Goals to deploy, operate, document, and showcase integrated, advanced roadway deployments featuring applications enabled by interoperable wireless connectivity; improve system safety, enhance traveler mobility, improve efficiency of goods movement, mitigate environmental impacts, and address disparities in transportation equity
- Program funding - \$40M in FY24; 20% local match required
 - Likely 2 awards
- Applications due by January 17, 2024
- Two-phase timeline



- Florida’s Accelerated STatewide (FAST) CV Deployment
 - FDOT’s proposal to deploy V2X equipment and upgrade supportive systems

- Statewide – OBUs on Road Rangers, RSUs at unequipped interchanges, Enhancements to SunGuide and FL511
- Regional – OBUs on Fire and Rescue vehicles; OBUs on LYNX Transit
- Local – OBUs on Altamonte Springs AV Shuttle; Additional detection along SR 436 PedSafe route
- FAST CV Deployment will deploy proven technologies at a much larger scale, in keeping with the goals and objectives of the Accelerating V2X Deployment Plan and NOFO
- The proposal will leverage previous investments in SunGuide, SCMS, V2X DEP, and local CV deployments
- Draft documents are with Budget Office and Executive Office of the Governor for Review

USDOT Resources

- [ITS Deployment Evaluation](#)
 - This website provides a wealth of knowledge on ITS deployment benefits, lessons learned, statistics, and case studies
- Connected Vehicle Deployer Resources
- Smart Community Resource Center

Important Note on Connected Vehicle Deployments

- Prior to shipping CV devices, we must comply with:
 - FCC Permitting Process
 - SCMS Enrollment Process
- Please email Kyle Higgins and Jeremy to start the process
 - kyle.higgins@dot.state.fl.us
 - jeremy.dilmore@dot.state.fl.us
- Discussion:
 - Sheryl Bradley – The Eastern Transportation Coalition can provide letter for V2X grant application
 - Jeremy – that is much appreciated; David will follow up

V. COORDINATION WITH MAINTAINING AGENCIES

David Williams provided a brief update on upcoming coordination with Maintaining Agencies.

- Sending out Exhibit E in February; requesting comments/updates by May 31st
- Will be holding check-in meetings with Maintaining Agencies in first half of 2024
- Jared Smylie (Atkins) is reaching out to agencies, on behalf of the Department, to ensure their preferences and needs are included in ongoing designs
- FLASH Award
 - The District wants to acknowledge agencies and staff for deploying temporary signals...in a flash
 - Most recently, the City of Melbourne, City of Orlando, Marion County, and Orange County have all had successful temporary signal placements

VI. LICENSE PLATE READERS

David Williams and Tricia Ballard discussed the recent Florida Statute changes related to License Plate Readers (LPR).

- We've heard from various agencies that Law Enforcement is asking to install "monitoring cameras"
 - The recent changes to Florida Statutes only apply to LPRs
 - Automated License Plate Recognition System definition [FS 316.0777(2)(b)]
 - "...system of one or more mobile or fixed high-speed cameras combined with computer algorithms to convert images of license plates into computer-readable data."
 - "...may not be used to issue a notice of violation for a traffic infraction or a uniform traffic citation."

VII. IMSA TRAFFIC SIGNAL TECHNICIAN COURSES

David briefly discussed upcoming IMSA Traffic Signal Technician training courses.

- The District will host several IMSA courses in 2024
 - Led by Matthew Weisman, VP/Alternate Delegate, IMSA of Florida
- Each course will span 2 days; the second day will include a 100-question exam
- Prerequisite
 - FDOT TTC/MOT Course (Intermediate or Advanced) www.motadmin.com
 - IMSA Certificate won't be issued until MOT course is completed
 - You can take the IMSA course without having prereqs in place
- The IMSA courses will be discounted to \$265 per person per course to cover IMSA fees
- Course Dates
 - IMSA Traffic Signal Technician Level 1 Courses
 - January 9/10, 2024 – Sumter County Public Works
 - IMSA Traffic Signal Technician Level 2 Course
 - Likely in Spring or Summer 2024 – FDOT District 5 RTMC

VIII. SMART SIGNAL GUIDANCE AND NEXT STEPS

Jeremy Dilmore gave a brief update on Smart Signal guidance.

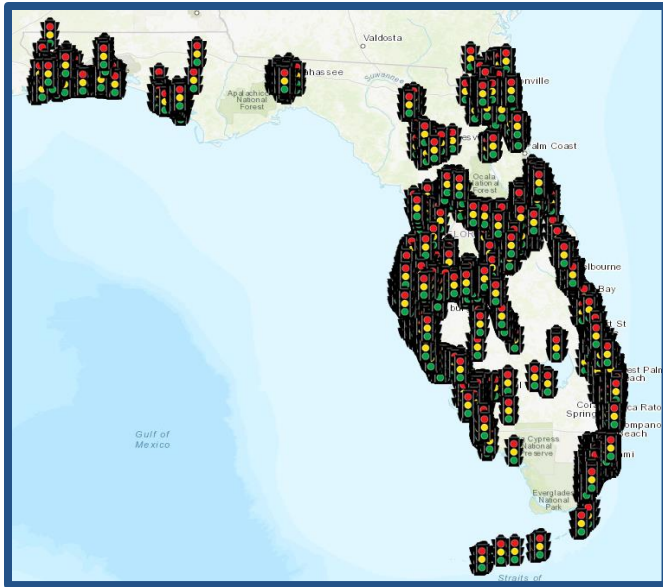
- The Smart Signal Guidance will become a statewide initiative
 - Instead of MSP, will go into state handbook, reducing extra efforts
- IMC camera component will be removed from Smart Signal standard due to budget constraints (except for widening projects)
- To incorporate Smart Signals statewide, the following infrastructure updates must be considered
 - Short-term
 - Migrate to ATC controller from legacy systems
 - Install additional detection including lane-by-lane stop bar and advance detection on approaches

- Mid-term
 - Broadband communication to intersections
 - Considered Edge and cloud computing capabilities for data storage and analytics
 - Universal use of ATSPMs
- Long-term
 - Increase coverage ATMS software to all SHS signals
 - Widespread deployment of CAV and other emerging technologies
- Smart Signal Initiative Workplan Steps
 - Develop Smart Signal Design Guide
 - Update Standard Specs (DevSpecs as necessary)
 - Update Standard plans
 - Update FDOT Design manual (FDM)
 - Update Traffic Engineering Manual (TEM)
 - Update Design Scope of Services and Staff Hour Estimation Guidelines (SHE)

IX. FLORIDA'S TRAFFIC SIGNAL CONTROLLER HEALTH MONITORING SYSTEM (TSC HMS)

Jeremy Dilmore presented on the Department's Traffic Signal Controller Health Monitoring System (TSC HMS).

- Florida Traffic Controller Spec 671 requires NTCIP support
 - NTCIP is a common standard for traffic controllers
 - Only available if communications are present (e.g., Interconnected and Monitored TS)
- Timeline
 - Phases 1-2 (Currently)
 - Real-time, statewide streaming data for arterials
 - Traffic signal status
 - Operational, flash, unverified/no communications
 - Data driven automation complimented with mobile field data collection
 - Traffic signal detector status
 - Operational, stuck on/off
 - Observe TSMCA agencies with detector failures
 - Phases 3-4 (Future)
 - ATSPMs
 - Derived analytics (configuration or timing plan optimization)
- Scale of Health Monitoring System
 - IMTS to be included in HMS
 - 8,879 signalized intersections on SHS
 - 6,789 IMTS (76.5%)
 - Out of 171 total maintaining agencies, 105 (61.4%) have IMTS



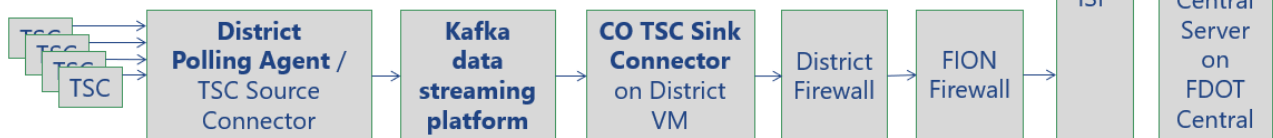
- Communications architecture options

Communications Architecture Options

Option 1: Central Office Polling Agent



Option 2: District Polling Agent



Option 3: LMA Application Programming Interface (API)



- D5 has been using Option 2; Miami Dade has been using Option 3
- Not asking the Central Florida Local Agencies to do anything different, just making them aware of the statewide initiative
- We'll provide documents as they are developed
- RED EXTEND LOCATIONS
 - FDOT has been testing out Red Extend to protect against red light runners
 - Do the Consortium attendees have any thoughts on where we should implement this?
 - Let us know if you've got a location in mind

X. CURRENT INITIATIVES

Jeremy Dilmore briefly provided an update on the current work efforts throughout District Five.

- **I-4 Express Lanes** – BTU development ongoing
- **Smart Work Zone** – mobilized in late November
- **I-4 FRAME** – focused on Package 1 (Tampa area)
 - Package 2 should start to happen in Orlando area in next few months
- **OBU** – coordinating MOUs with several Fire Departments for EVP
- **Signal Design** – D5 established new internal process for Signal Operating Plans
 - Seen a fair amount of issues with SOPs
 - After 60% plans, will hold internal meeting to review SOPs
 - Designers (FDOT or consultant staff)
 - Traffic Ops staff
 - Do locals want us to discuss anything else during these meetings?
- **AV Shuttle** – hoping to fully start up again in Spring 2024
- **Kiosks at UCF** – wooden prototype developed for more accessible kiosk
- **PedSafe II** – operational manual developed; will have an element in FL511 app
 - Will function similarly to RSU
 - Keeping an eye on project in New Jersey
 - Showing they can make the national standard for latency of 2 milliseconds
 - Putting high-latency applications onto FL511



XI. NEXT MEETING

- February 22, 2024

XII. 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 dwilliams@vhb.com so the meeting summary can be finalized.

Welcome to the TSM&O Consortium Meeting December 14, 2023



Meeting Agenda

1. FDOT District Five Updates
2. Travel IQ and FL511
3. Saving Lives with Connectivity:
A Plan to Accelerate V2X Deployment (FHWA)
4. Maintaining Agency Coordination
5. License Plate Readers
6. IMSA Traffic Signal Technician Courses
7. Smart Signal Guidance
8. Current Initiatives



FDOT District Five Updates

Jeremy Dilmore, FDOT District Five

Traffic Operations Staff Updates

- TSM&O Production Manager
 - Position advertised
- TSM&O Design Project Manager
 - Daniel Simpson
 - Previously Heidi Trivett
- TSM&O Construction Project Manager
 - Jennifer Sardonini is the new Construction PM
 - Previously Daniel Simpson
- ICM Operations I-75 – Kyle Higgins (AECOM)
 - Previously Sheryl Bradley

Updates to the Org
Chart forthcoming

Traffic Operations Staff Updates

- ICM Operations I-4 & I-95 – Dale Cody (Metric)
- TSM&O Engineer (Arterials) – Tricia Ballard
- TSM&O Operations – John Lilly
- TSM&O Maintenance and CEI – Lorena Cucek
- TSM&O RTMC Manager – Lauren Pearson
- TSM&O Pushbutton – Kevin Marquez
- TSM&O Retiming – Patrick White



TRAVELiQ

Case Study: Monroe County, NY

“We are very happy with Travel-iQ. It modernizes the way we share project information with the general public and integrates seamlessly with the NYSDOT 511 system...” “Travel-iQ advances and promotes our goal of teamwork and collaboration between agencies. We look forward to continuing to utilize Travel-iQ in the future.”

- Thomas Polech, Deputy Director of Transportation at Monroe County Department of Transportation (NY).

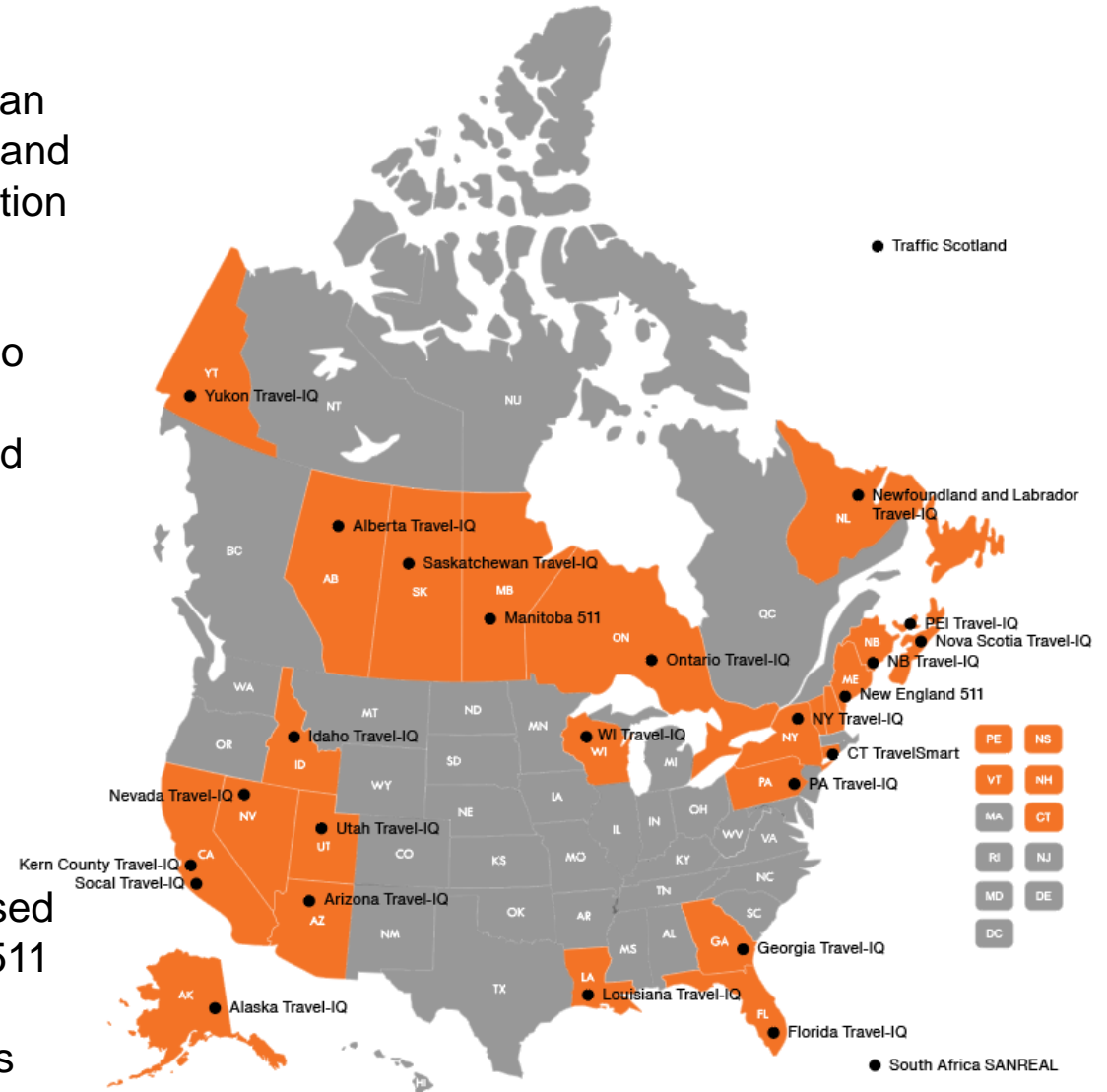
Intro to Travel-iQ

Travel-iQ is a North American wide traffic event reporting and Advanced Traveler Information System (ATIS).

Travel-iQ allows agencies to manage planned and unplanned traffic events and road closures and communicate them to the public and other local agencies.

Both “*Classic*” and “*Rapid*” deployments.

Our software is currently used in 27 State and Provincial 511 systems, 2 international deployments, and in 9 cities and counties.





“A man walked down a street with 99 phones in a wagon. Google Maps thought it was a traffic jam.”
-The Seattle Times

Common Limitations of Current ATIS and Processes

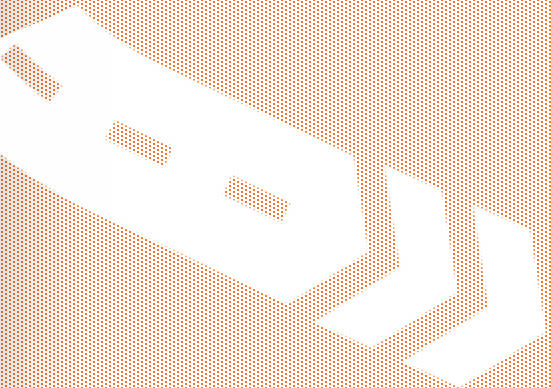
Many local agencies are constrained by inefficient reporting processes that inhibit their ability to effectively communicate to the traveling public

Agency End-Users

- Redundant and tedious reporting processes
- Out-of-date systems lack the ability to notify the public events real-time
- Information silos when different agencies use different systems
- Long and costly deployment / transition periods

Public End-Users

- Crowd-sourced data can be unreliable
- Limited awareness of agency-verified data
- Lack of relevant, timely information

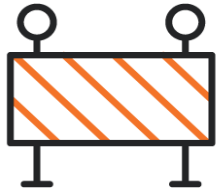


Travel-iQ Solutions

Travel-iQ is a modern, accessible event and road condition reporting platform

It consists of core modules that can be delivered together or independently:

- Create and manage events in real-time



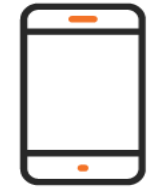
- Visualize planned and unplanned closures via map and dashboards

Event Reporting

- Modern, user-friendly map
- Multi-layered information
- Proactive alerts

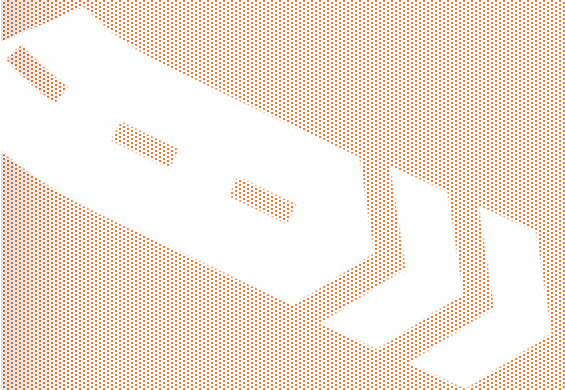


Travel-iQ Website



Travel-iQ Mobile

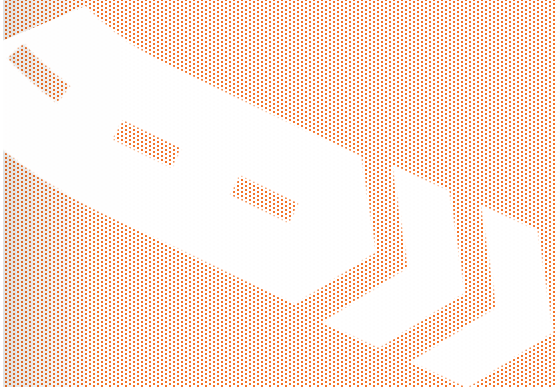
- Voice alerts
- Turn-by-turn navigation
- Push Notifications



Travel-iQ Deployment Options

Travel-iQ is an off the shelf, SaaS solution that follows a freemium deployment model.

Essentials	Essentials +	Advanced	Advanced +
Core Modules	Core Modules	Core Modules	Core Modules
Potential integration with 511	Data feed for supported API's	Data feed for supported API's	Integration of agency data
Map embedded on agency website	Push Agency events to Waze	Advanced reporting options	Agency branded website mobile app
Free	\$24,000 USD / annual	\$48,000 USD / annual	\$74,000 USD / annual



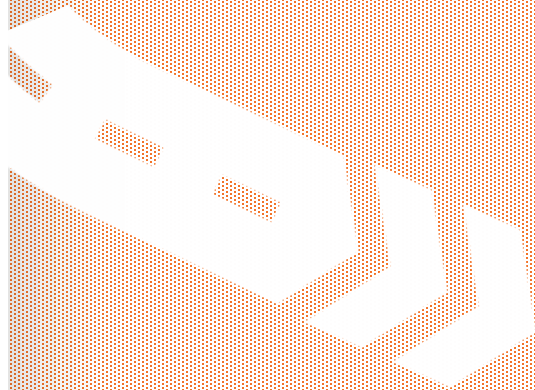


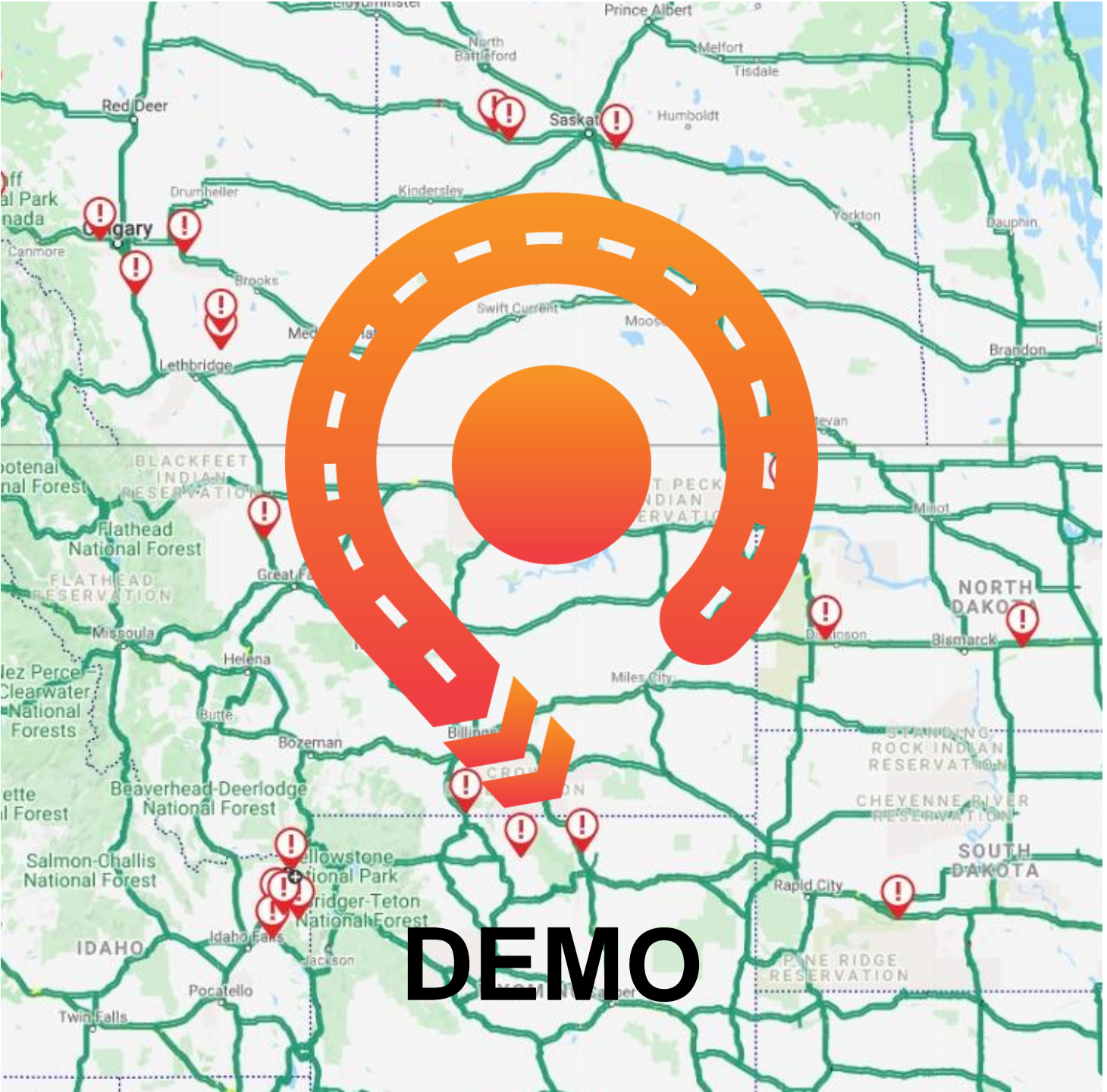
Arcadis is a global leader in the design, development, implementation, and operation of Advanced Traveler Information Systems (ATIS) in the US, Canada, and across the globe.

Arcadis Has:

- A dedicated ATIS team of over 40 developers and professional staff
- Our 511 traveler information services reach one in three people in North America
- ITS and ATIS software solutions deployed on five continents

Our platform is innovative, cost effective, high quality, reliable, and appropriately scaled to meet the needs of the needs of a local agency, as well as the transportation users in and throughout the region.





DEMO

Thank you!
<https://traveliq.co/>

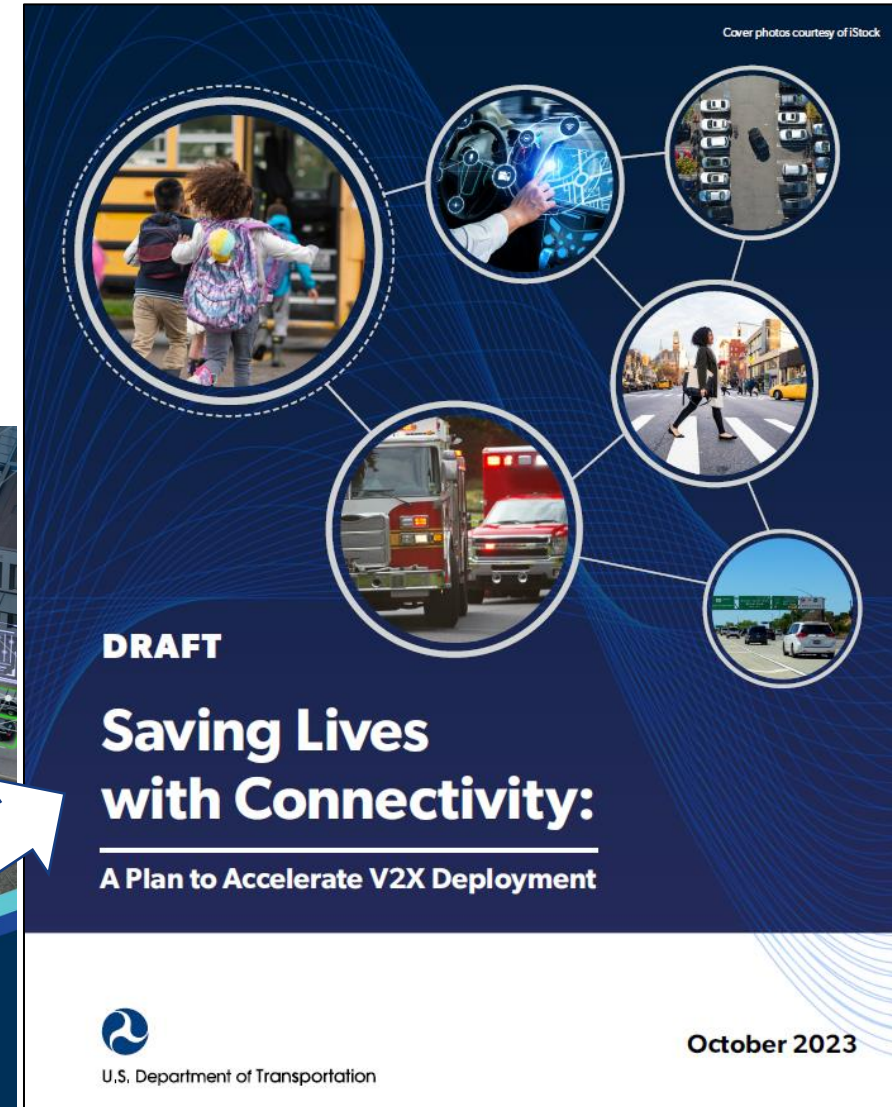
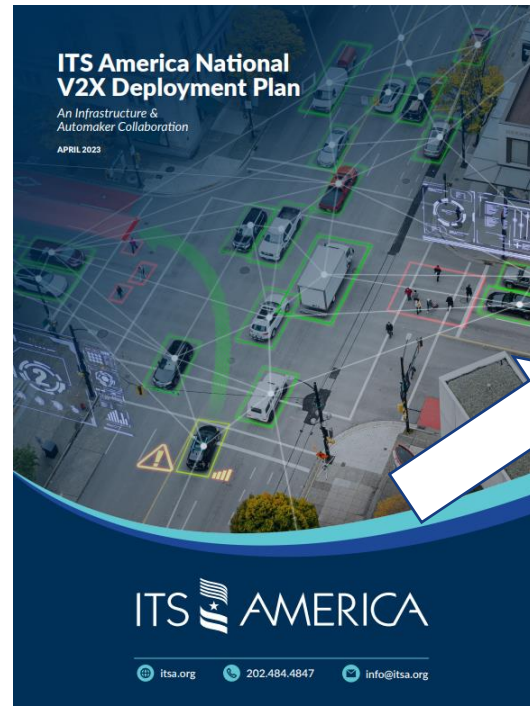


Saving Lives with Connectivity: A Plan to Accelerate V2X Deployment

David Williams, VHB

Saving Lives with Connectivity: A Plan to Accelerate V2X Deployment

- Draft published in October 2023 by USDOT
- Vehicle-to-everything (V2X)
 - Infrastructure, vehicles, vulnerable road users (VRU)
- Identifies V2X technology as critical to reducing deaths and serious injuries
- Recent deployments have shown V2X benefits on a smaller scale
- Requires interoperable connectivity at scale



Saving Lives with Connectivity: A Plan to Accelerate V2X Deployment



- V2X communication supports the *Safe System Approach* adopted by the **National Roadway Safety Strategy (NRSS)**
- The NRSS directed USDOT to advance the use and deployment of V2X and other technology
- 2019 → 36,355 motor vehicle fatalities
- 2022 → 42,795 fatalities (18% increase)

National V2X Deployment Plan

- Describes how deployments can start now
- Defines specific actions needed across stakeholder groups
- Identifies support and resources available to deployers
- Identifies short-, medium-, and long-term priorities
- Launches (separately) [Connected Vehicle Deployer Resources](#)

USDOT Supportive Actions

- Held V2X Deployment summits in August 2022 and April 2023
- Expedited waiver process for 14 requests to enable immediate V2X deployments
- Developed capacity-building resources, including the [Smart Community Resource Center](#) and the *Connected and Automated Vehicle Education (CAVe)-in-a-box* toolkit
- Established V2X peer group of 27 agencies
- Awarded 11 SMART / ATTAIN grants to V2X-related applications



National V2X Deployment Plan

- Vision

- Enable a safe, efficient, equitable, and sustainable transportation system through the national, widespread deployment of interoperable V2X technologies

- Mission

- Deploy interoperable V2X connectivity using dedicated 5.9 GHz spectrum and other available spectrum through collaboration across federal government, public sector, and private industry

National V2X Deployment Plan

- Basic Safety Message (BSM)
- Signal Phase and Timing (SPaT)
- MAP Message
- Radio Technical Commission for Maritime Services (RTCM)
- Traveler Information Message (TIM)
- Signal Request Message (SRM)
- Signal Status Message (SSM)
- Road Safety Message (RSM)

National V2X Deployment Plan

- **Goals and Targets**

- Short-term (2024-2026)
 - Leading deployers are in operation
- Medium-term (2027-2029)
 - V2X Deployer community growth
- Long-term (2030-2034)
 - Nationwide Interoperable V2X Operational

National V2X Deployment Plan

Short Term (2024–2026)

Infrastructure Deployments

- V2X deployed on 20% of National Highway System
- Top 75 metro areas have 25% of signalized intersections V2X enabled
- 12 interoperable, cybersecure deployments
- 20 grants to 10 states for 5.9 GHz band use

Vehicles

- 2 Original Equipment Manufacturers (OEMs) commit to 5.9 GHz capable vehicles by 2027 model year

Spectrum and Interoperability

- 2 SCMS providers demonstrate interoperable security credentials management
- 3 device suppliers and 2+ OEMs demonstrate interoperability
- FCC completes 2nd Report and Order on 5.9 GHz band

Benefits and Technical Assistance

- 3 case studies on deployed V2X benefits/costs
- 25 active Accelerating V2X Cohort members
- 10 regional hands-on training events



Strategic Focus Area	Goals	Milestones / Targets	Lead Stakeholders
Infrastructure Deployments	<ul style="list-style-type: none"> 20% of the National Highway System has V2X technology deployed for freeway-based applications Top 75 Metro areas have 25% of their signalized intersections V2X-enabled 	<ul style="list-style-type: none"> 12 corridor/regional deployments* with demonstrated interoperability and tested cybersecurity 20 grants awarded across at least 10 states that include the use of the 5.9 GHz band 	IOOs and their partners, primed by USDOT seed funding/grants
Vehicles	<ul style="list-style-type: none"> 5.9 GHz equipped vehicles from leading OEMs are either in production or with formalized commitment 	<ul style="list-style-type: none"> 2 OEMs have 5.9 GHz capable vehicles in production (or commit to do so by 2027 model year) 10 public fleet operators outfit vehicles with aftermarket safety devices 	Private sector (OEMs, aftermarket safety device vendors in coordination with public sector fleet operators)
Spectrum	<ul style="list-style-type: none"> 5.9 GHz spectrum finalized by the FCC with all rules/provisions in place, affirming a long-term spectrum commitment 	<ul style="list-style-type: none"> 5.9 GHz band final rules (FCC 2nd R&O) formally completed 2 V2X use cases demonstrated utilizing the 5.9 GHz band 2 V2X use cases demonstrated utilizing spectrum beyond the 5.9 GHz band 	USDOT champions for V2X community
Interoperability	<ul style="list-style-type: none"> All standards required for interoperability in 5.9 GHz band published Initial standards and architecture extending interoperability beyond 5.9 GHz band established 	<ul style="list-style-type: none"> 3 device suppliers and 2 OEMs demonstrate interoperability among products in an operational deployment 2 SCMS providers demonstrate interoperable security credentials management 5 certified devices on the market 	Private sector, with USDOT and IOO support
Benefits and Technical Assistance	<ul style="list-style-type: none"> Technical assistance programs help deployers to design, build, operate and maintain interoperable, cybersecure V2X Foundational educational materials, V2X benefit/cost case studies widely available 	<ul style="list-style-type: none"> 3 case studies documented on operational benefits and costs 25 active members in Accelerating V2X Cohort spanning 10 states 10 regional interoperable connectivity hands-on training events 	USDOT acts as clearinghouse, sponsors community-building activity

Short-term



National V2X Deployment Plan

Medium Term (2027–2029)

Infrastructure Deployments

- V2X deployed on 50% of National Highway System
- Top 75 metro areas have 50% of signalized intersections V2X enabled
- 25 interoperable, cybersecure deployments
- V2X installed in 40% of the nation's intersections

Vehicles

- 5 vehicle models are 5.9 GHz capable
- 3 active deployments generate Infrastructure Owner-Operator (IOO) data used by 2 OEM production vehicles
- 4 suppliers, 3 OEMs demonstrate interoperable connectivity

Spectrum and Interoperability

- 5 V2X use cases demonstrated in the 5.9 GHz band
- 5 V2X use cases demonstrated beyond the 5.9 GHz band
- 20 public agencies demonstrate interoperability
- 2 providers utilize interoperable SCMS credentials
- 10 certified devices on the market

Benefits and Technical Assistance

- 6 use cases (2 involving vulnerable road users) document V2X safety benefits
- 50 active Accelerating V2X Cohort members author progress report



Strategic Focus Area	Goals	Milestones / Targets	Lead Stakeholders
Infrastructure Deployments	<ul style="list-style-type: none"> 50% of the National Highway System has V2X technologies deployed for freeway-based applications Top 75 Metro areas have 50% of their signalized intersections V2X-enabled 	<ul style="list-style-type: none"> 25 corridor/regional deployments* deployments with demonstrated interoperability and tested cybersecurity 40% of the nation's intersections have V2X technology installed across large, mid-size and rural communities 	IOOs and their partners, leveraging Bipartisan Infrastructure Law (BIL) resources
Vehicles	<ul style="list-style-type: none"> Work with NHTSA to explore data-driven strategies that could effectively incentivize interoperable systems and accelerated deployment OEM production vehicles utilize IOO data Interoperable connectivity data exchanges support early vehicle automation use cases 	<ul style="list-style-type: none"> 5 vehicle models are 5.9 GHz capable, including 2+ heavy/commercial vehicle models 3 active deployments generate IOO data used by 2 OEM production vehicles 4 suppliers, 3 OEMs demonstrate interoperable connectivity 	Private sector, USDOT leads internal NHTSA coordination
Spectrum	<ul style="list-style-type: none"> Use cases beyond 5.9 GHz spectrum are well-defined and shared widely 	<ul style="list-style-type: none"> 5 V2X use cases demonstrated utilizing the 5.9 GHz band 5 V2X use cases demonstrated utilizing spectrum beyond the 5.9 GHz band 	Private sector, with USDOT and IOO support
Interoperability	<ul style="list-style-type: none"> Reference implementation for interoperable connectivity developed and delivered Reliable, scalable device certification processes utilized by multiple vendors. 	<ul style="list-style-type: none"> 20 public agencies demonstrate interoperable connectivity SCMS credentials are in active interoperable use from 2 providers 10 certified devices on the market 	Private sector, with USDOT and IOO support
Benefits and Technical Assistance	<ul style="list-style-type: none"> Report published documenting the cost-benefits of investing in V2X tech ITS community delivers a plan update on its progress towards national deployment 	<ul style="list-style-type: none"> 6 use cases (2 involving vulnerable road users) document V2X safety benefits 50 active members of USDOT Accelerating V2X Cohort author progress report, spanning 25 states 	USDOT acts as clearinghouse, facilitates community

Medium-term



National V2X Deployment Plan

Long Term (2030–2034)

Infrastructure Deployments

- V2X fully deployed on National Highway System
- Top 75 metro areas have 85% of signalized intersections V2X enabled
- 50 interoperable, cybersecure deployments
- Interoperable 5.9 GHz operations across 50 states
- V2X installed in 75% of the nation's intersections

Vehicles

- 6 OEMs have 5.9 GHz capable production vehicles for safety use cases
- 20 vehicle models are V2X capable

Spectrum and Interoperability

- 5 V2X use cases operational in the 5.9 GHz band in all 50 states
- 5 V2X use cases operational beyond the 5.9 GHz band in 5 states
- 20 certified devices dominate deployed V2X technology base

Benefits and Technical Assistance

- 10 deployments in operation for 5 years streaming benefits/cost data
- 75 active Accelerating V2X Cohort members sponsor pooled fund projects



Strategic Focus Area	Goals	Milestones / Targets	Lead Stakeholders
Infrastructure Deployments	<ul style="list-style-type: none"> V2X interoperable connectivity deployed widely, seen as a fundamental element of system operations, and functions within a mature ecosystem featuring all stakeholders The National Highway System is fully deployed for freeway-based applications Top 75 Metro areas have 85% of their signalized intersections V2X-enabled 	<ul style="list-style-type: none"> 50 corridor/regional deployments* with demonstrated interoperability and tested cybersecurity Interoperable 5.9 GHz operations demonstrated across 50 states 75% of the nation's intersections have V2X technology installed across large, mid-size and rural communities 	IOOs and their partners, leveraging program funding
Vehicles	<ul style="list-style-type: none"> Adoption of interoperable connectivity by infrastructure owners/operators and OEMs is widespread, including vehicle automation cases where applicable 	<ul style="list-style-type: none"> 6 OEMs have 5.9 GHz capable production vehicles employing safety-related use cases 20 vehicle models are 5.9 GHz capable, including 12+ heavy/commercial vehicle models 	Private Sector (OEMs) and their partners
Spectrum and Interoperability	<ul style="list-style-type: none"> Interoperability realized for use cases both within and beyond the 5.9 GHz spectrum, including vehicle automation where applicable Reference implementation for interoperable connectivity enhanced and maintained Certified devices dominate dynamic V2X technology base 	<ul style="list-style-type: none"> 5 V2X use cases operational in the 5.9 GHz band in all 50 states 5 V2X use cases operational in spectrum beyond the 5.9 GHz band in 5+ states 20 certified devices dominate deployed V2X technology base 	Industry acts as champion for the V2X community
Benefits and Technical Assistance	<ul style="list-style-type: none"> National benefits and costs pipeline established drawing from on data streaming from operational systems 	<ul style="list-style-type: none"> 10 deployments in operations for 5+ years streaming benefits and cost data 75 active members of USDOT Accelerating V2X Cohort sponsor ongoing pooled fund projects spanning 45 states 	USDOT acts as clearinghouse, partners with pooled fund partners

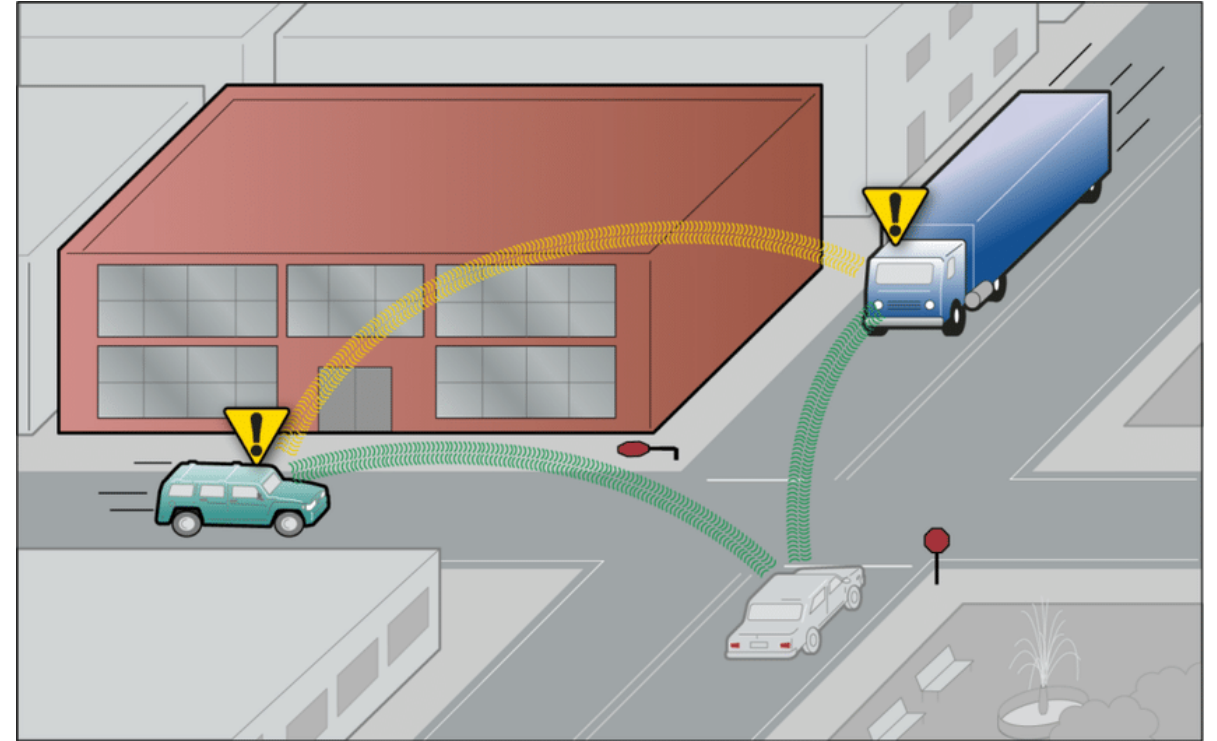
Long-term



V2X Benefits

- **Safety**

- Intersection Movement Assist (IMA)
- Left-Turn Assist (LTA)



Source: GAO.

V2X Benefits*

- **Emissions and Fuel Economy**

- Improved mobility and reduced congestion
- Truck platooning
- Fuel savings



*Stay tuned

V2X Challenges

- **Spectrum Use**

- Wireless spectrum limited and in great demand
- Low-latency, safety-related applications utilizing 30 MHz reserved under 5.9 GHz spectrum by FCC
- Various cellular communication/based approaches have been deployed
 - Interoperability across multiple supplier ecosystems has proven difficult

V2X Challenges

- **Coordination Across Jurisdictions**

- Achieving interoperability requires close coordination across government and industry
- USDOT continues to update the NITSA to enable V2X expansion

- **Private Industry Participation**

- OEMs will ultimately decide the extent to which V2X devices are installed in new vehicles
- Interoperability standards across device types, brands, models, etc.

V2X Challenges

- **Public Agency Capacity and Funding**
 - ITS Deployment Survey 2023 edition – ongoing
- **Privacy and Security**
- **Near-term Successes**
 - Long-term viability depends on near-term successes
 - New use cases, Lessons Learned, Best Practices
 - Test procedures, Industry guidance



Systems Engineering Processes

Critical for risk management and ensuring the right system is being developed to meet transportation needs.



Wireless Technologies

Need to utilize current licensed (5.9 GHz, cellular, satellite) and unlicensed (Wi-Fi) spectrum and stay abreast of future advancements.



Standards & Architecture

Protocols for transmitting and processing messages need to be defined clearly and with documented specifications.



Cybersecurity

A cybersecurity profile must be maintained that enables planned interoperable connectivity deployment.



Trust & Credential Management

A Security Credential Management System is needed to authenticate and sign messages to establish trust.



V2X Certification

Devices must be tested to ensure conformity to key industry standards, requirements, and functionality.



Policies

Evolving policies include standards, communications, security, privacy, and data governance.



Spectrum Governance

The licensed ITS band and additional spectrum options may be governed differently.



Outcome / Benefit Framework

The network effect and the technology adoption life cycle are critical factors for advantageous benefit/cost ratios.

Interoperable V2X Deployment Key Focus Areas



Major Stakeholders

USDOT

Show federal leadership by hosting events and documenting a national vision and action plan for deployment.

Provide funding and investment to accelerate V2X deployments.

- Launch a new program focused on V2X investment in 2023.
- Promote use of discretionary grant programs like ATTAIN, SMART, and SS4A grants to launch V2X deployments.

Convene and facilitate stakeholders to share information / best practices.

- Establish an Accelerating V2X Cohort and document benefits, costs, and lessons learned.
- Fund detailed technical assistance training at conferences, annual meetings, and regional events.
- Operate training and equipment loan programs.
- Fund the Connected and Automated Transportation Coalition program.
- Update websites and the Smart Community Resource Center.
- Host regular webinars for training and to engage stakeholders as Plan is finalized and implemented.
- Enable interoperability through coordination with stakeholder groups and standards-related activities.
- Publish a final National V2X Deployment Plan in early 2024.
- Organize and deliver a 4th V2X Summit in 2024, specifically providing a venue for states and private industry to register their commitments to actions aligned with the plan.

Provide support for standards, architecture, and testing to accelerate interoperability.

- Conduct additional spectrum testing to provide data to FCC/NTIA to ensure release of FCC's Second Report and Order on C-V2X.
- Work with NHTSA to explore data-driven strategies that could effectively incentivize interoperable systems and accelerated deployment.
- Assess rules and guidance to ensure alignment with Plan.

FCC

Work with USDOT and industry to determine rules for use of 5.9 GHz 30 MHz spectrum allocation to ITS services.

NTIA

Coordinate and convey federal (USDOT) interests in spectrum decisions and rules to FCC.

OEMs

Develop, test, and deploy interoperable V2X safety applications.

- Initiate deployment of C-V2X technology and safety applications in new vehicles of all types (including fleet vehicles).
- Deploy interoperable safety and non-safety applications utilizing 5.9 GHz and other spectrum approaches.
- Actively partner with IOOs to enable national rollout of interoperable applications in production vehicles.
- Support precompetitive R&D and standardization.
- Collaborate on message sets and standards for interoperability.
- Provide sustained input to FCC regarding impact of V2X technologies.

Automotive Suppliers

Develop V2X-enabled vehicle components and applications for OEMs to include in production vehicles.

Support precompetitive R&D and standardization.

Collaborate on message sets and standards for interoperability.

States, Local Governments, Tribes, and Public Agencies

Update investment and transportation plans to include V2X technology.

Deploy and operate interoperable, cybersecure infrastructure-based V2X technologies and applications.

- Leverage federal seed funding to inform and test interoperability.
- Collaborate on message sets and standards for interoperability.
- Work with local emergency services, transit, school bus, and other public sector vehicle fleets to enhance vehicle participation.
- Ensure interoperability is a routine element of state long-range and Metropolitan Planning Organization (MPO) plans.
- Participate in national events to remain up-to-date on V2X technology.

Transit Operators

Deploy and operate on-board and center-based V2X applications to enhance transit safety, efficiency, and performance.

Freight Operators

Deploy V2X applications that provide internal return-on-investment, including safety and efficiency applications and driver support.

App Developers

Design and develop applications that utilize connectivity.

Service Providers

Develop and operate supporting services that enable interoperable connectivity applications.

ITS Equipment/Software Vendors

Develop infrastructure-based components and software to fulfill public agencies' interoperable connectivity needs.

Design/Integration/Deployment Consultants

Provide support for public agencies to design, procure, integrate, and deploy solutions for interoperable connectivity.

Security Credential Providers

Provide security credential-related services (i.e., SCMS, certificates) to enable trust among interoperable connectivity entities and applications.

Test Certification Providers

Provide testing and certification services to enable trust in interoperable connectivity component functionality, performance, and standards conformance.

Standards Development Organizations

Develop standards to realize interoperability and support cooperative applications.

Trade and Industry Associations

Provide industry stakeholder feedback to inform USDOT and provide expertise.

Communications Providers

Build, operate, and maintain private communications networks to provide communications services to customers.

States, Local Governments, Tribes, and Public Agencies

Update investment and transportation plans to include V2X technology.

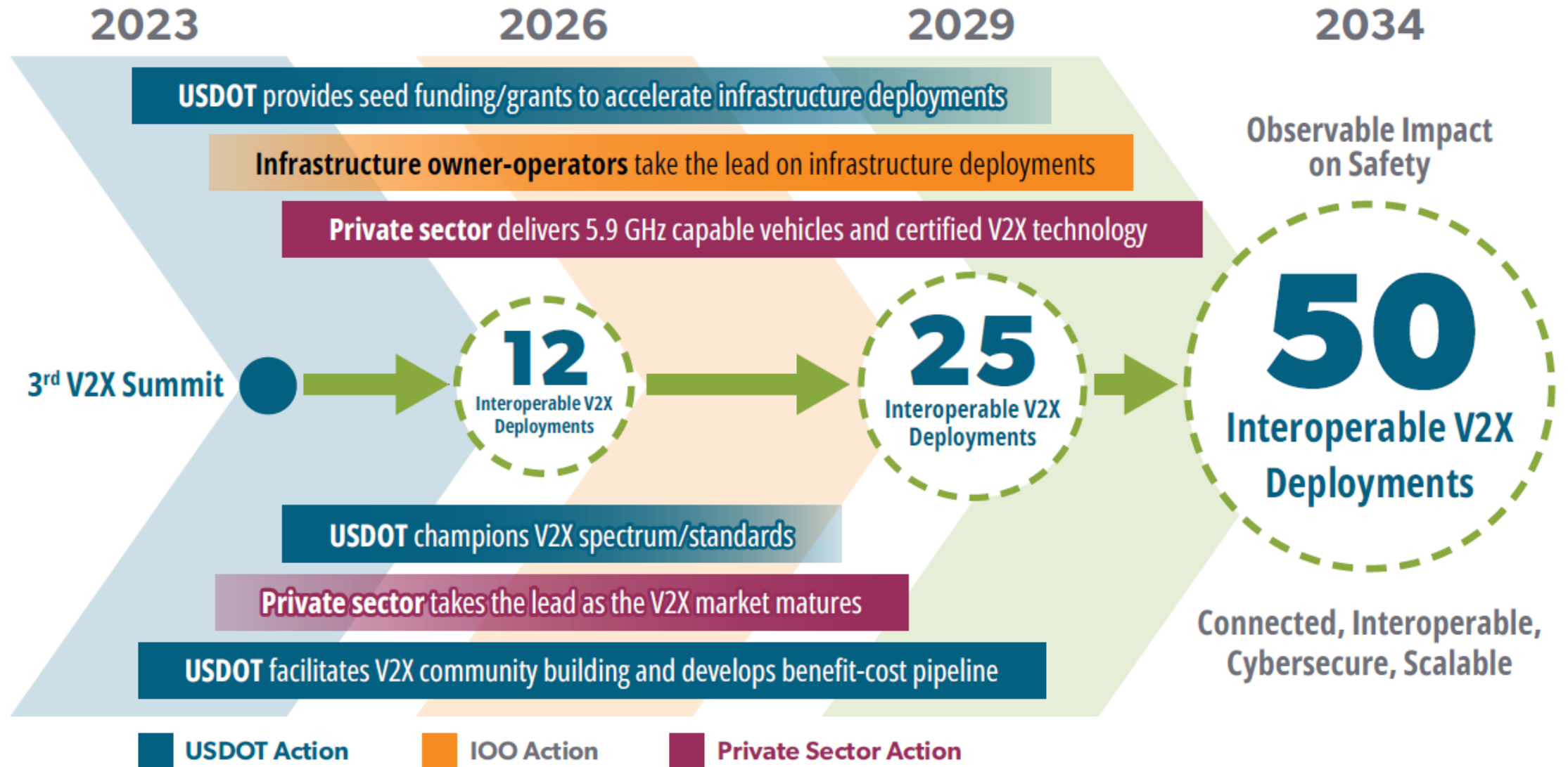
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- Ensure interoperability is a routine element of state long-range and Metropolitan Planning Organization (MPO) plans.
- Participate in national events to remain up-to-date on V2X technology.

Potential USDOT-sponsored Activities

Technical	Stakeholder Engagement	Professional Capacity Building
<ul style="list-style-type: none">■ Funding■ Mapping tool and technical support■ Architecture and standards development support■ Wireless interference testing■ Research on cybersecurity needs, connected vehicle analysis, modeling, simulations, digital infrastructure, and cooperative automation■ Project evaluation tools (and decision support resources)	<ul style="list-style-type: none">■ Summits and workshops to provide updates on the National V2X Deployment Plan and share information and best practices■ Documented best practices■ Pooled fund studies■ Coordination with USDOT modal administrations and federal agencies■ Stakeholder engagement with industry associations	<ul style="list-style-type: none">■ Training■ Help desk■ Equipment loan program■ Cohorts and peer exchange programs■ Website and resource center

A Plan to Accelerate V2X Deployment



Accelerating V2X Deployment NOFO

- **Grant Program Goal**

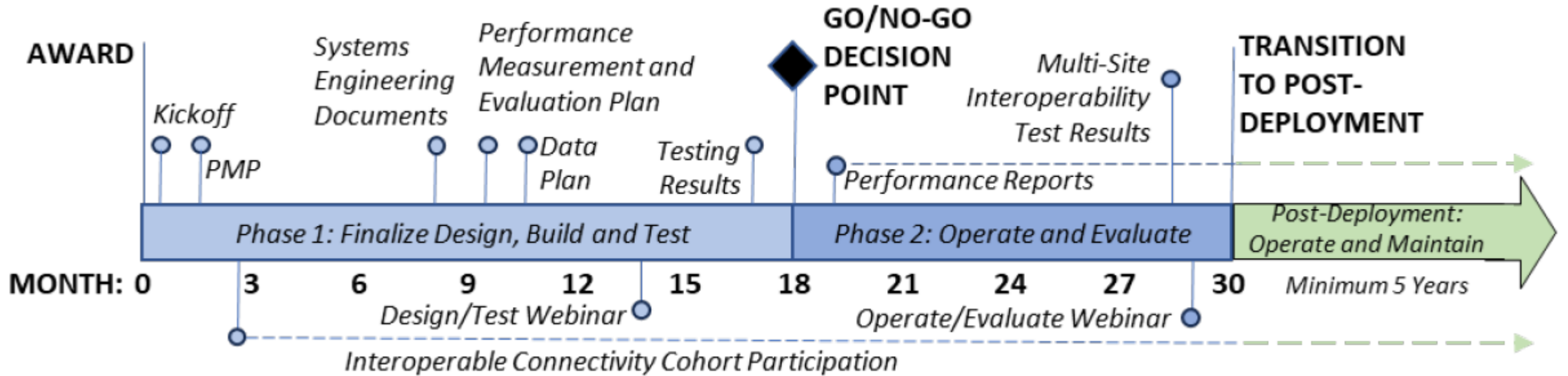
- Deploy, operate, document, and showcase integrated, advanced roadway deployments featuring applications enabled by interoperable wireless connectivity
- Improve system safety, enhance traveler mobility, improve efficiency of goods movement, mitigate environmental impacts, and address disparities in transportation equity

- **Program Funding** – \$40 Million for FY24

- 20% local match required

- **Number of awards** – likely 2 awards

Accelerating V2X Deployment NOFO



- Applications Due by January 17, 2024

Florida's Accelerated Statewide (FAST) CV Deployment

- Proposal to deploy V2X equipment and upgrade supportive systems
 - Statewide
 - OBUs on Road Rangers
 - RSUs at unequipped interstate interchanges
 - Enhancements to SunGuide and FL511
 - Regional
 - OBUs on Fire and Rescue vehicles
 - OBUs on LYNX transit
 - Local
 - OBUs on Altamonte Springs AV Shuttle
 - Additional detection along SR 436 PedSafe route

Florida's Accelerated Statewide (FAST) CV Deployment

- Leveraging previous investments and lessons learned
 - SunGuide, SCMS, V2X DEP, local deployments
- Significant stakeholder coordination across FDOT (CO/districts) and local agencies
- Draft documents already submitted to Budget Office and Executive Office of the Governor for review

ATTAIN NOFO (formerly ATCMTD)

- Advanced Transportation Technology and Innovation (ATTAIN) Program
 - Previously ATCMTD grant
- Applications Due by February 2, 2024
- Program Funding – \$120 million in FY24
 - 20% local match required

USDOT Resources

- ITS Deployment Evaluation
 - <https://www.itskrs.its.dot.gov/>
- Connected Vehicle Deployer Resources
 - https://www.pcb.its.dot.gov/CV_deployer_resources.aspx
- Smart Community Resource Center
 - <https://www.its.dot.gov/scrc/index.html#/>

ITS Deployment Evaluation Statistics

- 50% of drivers given a WZ or Winter Weather alert reduced their speed (Wyoming CV Pilot)
- 79% of participants that experienced End-of-Ramp deceleration warning application found it helpful when approaching queues (THEA CV Pilot)
- CV Speed Limit warnings increased speed compliance by 16% (NY Pilot test)
- CV warnings increased compliance of school zone speed limits from 18% to 56% (Smart Columbus)
- Red light warnings prevented some crashes, especially when speeds exceeded 20mph more than 50' from intersection (Smart Columbus)
- Based on survey results, 62% of private vehicle participants said they would recommend CV technology to friends and family (Smart Columbus)



Important Note on CV Deployments



- Prior to shipping CV devices, we must comply with:
 - FCC Permitting Process
 - SCMS Enrollment Process
- Please email Kyle Higgins and Jeremy to start the process
 - kyle.higgins@dot.state.fl.us
 - jeremy.dilmore@dot.state.fl.us
 - david.williams2@dot.state.fl.us



Coordination with Maintaining Agencies

David Williams, VHB

Coordination with Maintaining Agencies

- Sending out Exhibit E in February
- Requesting comments/updates by May 31st
- Check-in meetings with agencies in first half of 2024

Exhibit "E"

Traffic Signal Maintenance and Compensation Agreement Roles and Responsibilities

The following table describes the roles and responsibilities, as agreed to by the Department and Maintaining Agency, for general maintenance tasks associated with the Traffic Signal Maintenance and Compensation Agreement.

Maintenance Category	Responsible Agency
Traffic Signals	Local Agency
Signal Interconnection and Monitoring	Florida Department of Transportation
Intersection Control Beacon	Local Agency
Pedestrian Flashing Beacon	Local Agency
Emergency Fire Department Signal	Local Agency
Speed Activated Warning Display	Local Agency
Illuminated Street Name Signs	Local Agency
Blank Out Sign	Local Agency
Traffic Warning Beacon	Local Agency
Travel Time Detector	Florida Department of Transportation
Uninterruptible Power Supply	Local Agency
Connected Automated Vehicle Devices	Florida Department of Transportation
Pedestrian Hybrid Beacon	Local Agency
Arterial Dynamic Message Sign	Florida Department of Transportation
Passive Pedestrian Detection	Local Agency
Traffic Monitoring Camera (Video Detection)	Local Agency
In-Roadway Warning Lights	Local Agency
Closed-Circuit Television	Florida Department of Transportation
Metadata	Florida Department of Transportation
Mid-Block Microwave Detection	Florida Department of Transportation
Signal Preemption	Local Agency
Firewall	Florida Department of Transportation
Servers	Florida Department of Transportation



Coordination with Maintaining Agencies

- Jared Smylie (Atkins) is reaching out to agencies to ensure their preferences and needs are included in ongoing designs

Maintaining Agencies – FLASH Award

- Temporary Signal Placements
 - City of Orlando
 - City of Melbourne
 - Orange County
 - Marion County
- We want to acknowledge agencies and staff for deploying temporary signals ... in a flash



Questions?



License Plate Recognition (LPR) Camera Systems

David Williams, VHB

License Plate Readers

- What has changed?
 - Florida Statute 316.0777 was amended and signed into law
 - FS 316.0777 (2)(b) was created to authorize License Plate Readers (LPR) within the right-of-way of a road on the State Highway System on standalone poles
 - At the discretion of FDOT
- Went into effect on July 1, 2023



License Plate Readers

- LPR installations must be authorized through a **General Use Permit** in accordance with Florida Administrative Code 14-20.010
- The permit applicant must be a Law Enforcement Agency



- Applications
 - Submitted by authorized agency representative
 - Agency letterhead, signed by Chief Executive
 - Requesting installation of an LPR
 - Authorizing individual to submit permit application on agency's behalf
- <https://osp.fdot.gov/>

What about Existing LPR cameras on the R/W

- No new cameras are permitted on FDOT infrastructure
- Existing cameras can be grandfathered in, but expectation is they will be “upgraded” to adhere to statutes.
 - Permit must still be submitted
- Other unauthorized existing locations may be permitted if they meet Placement and Installation guidelines
 - If devices don’t meet guidelines, they should be removed or relocated by Agency
- Location and Coordinate Information is essential

Other Questions

- Heard from various agencies that Law Enforcement is asking to install “monitoring cameras”
 - The recent changes to Florida Statutes apply to LPRs only
 - Automated License Plate Recognition System [FS 316.0777 (2)(b)]
 - ... “system of one or more mobile or fixed high-speed cameras combined with computer algorithms to convert images of license plates into computer-readable data.”
 - ... “may not be used to issue a notice of violation for a traffic infraction or a uniform traffic citation.”



Questions?

<https://osp.fdot.gov/>



IMSA Traffic Signal Technician Courses

David Williams, VHB

IMSA Traffic Signal Technician Courses

- District Five will hold several IMSA courses in 2024
 - Matthew Weisman, *VP/Alternate Delegate, IMSA of Florida*
- Each course will span 2 days
 - Day 2 will include 100-question exam
- Prerequisite
 - FDOT TTC/MOT Course (intermediate or advanced) www.motadmin.com
 - IMSA Certificate won't be issued until MOT course is completed
- Discounted to \$265 per person per class (covers IMSA fees)
 - Payment to Ultra Engineering (Check, Credit Card, PO, etc.)
 - Due day of exam

IMSA Traffic Signal Technician Courses

- **Traffic Signal Technician Level 1 courses**
 - January 9/10, 2024 – Sumter County Public Works (319 E Anderson Ave. Bushnell, FL 33513)
 - January 22/23, 2024 – FDOT D5 RTMC (4975 Wilson Rd. Sanford, FL 32771)
- **Traffic Signal Technician Level 2 course**
 - Likely February/March 2024 – FDOT D5 RTMC (4975 Wilson Rd. Sanford, FL 32771)

IMSA Traffic Signal Technician Courses

- If you are interested in any of these upcoming courses, please reach out to:
 - Tricia Ballard – tricia.ballard@dot.state.fl.us
 - Matthew Weisman – matthew.weisman@dot.state.fl.us
 - David Williams – david.williams2@dot.state.fl.us



Questions?



Smart Signal Guidance and Next Steps

Jeremy Dilmore, FDOT District Five

Smart Signal Guidance

- Smart Signal Guidance will become statewide initiative
- IMC camera component will be removed from Smart Signal standard due to budget constraints (except for widening projects)



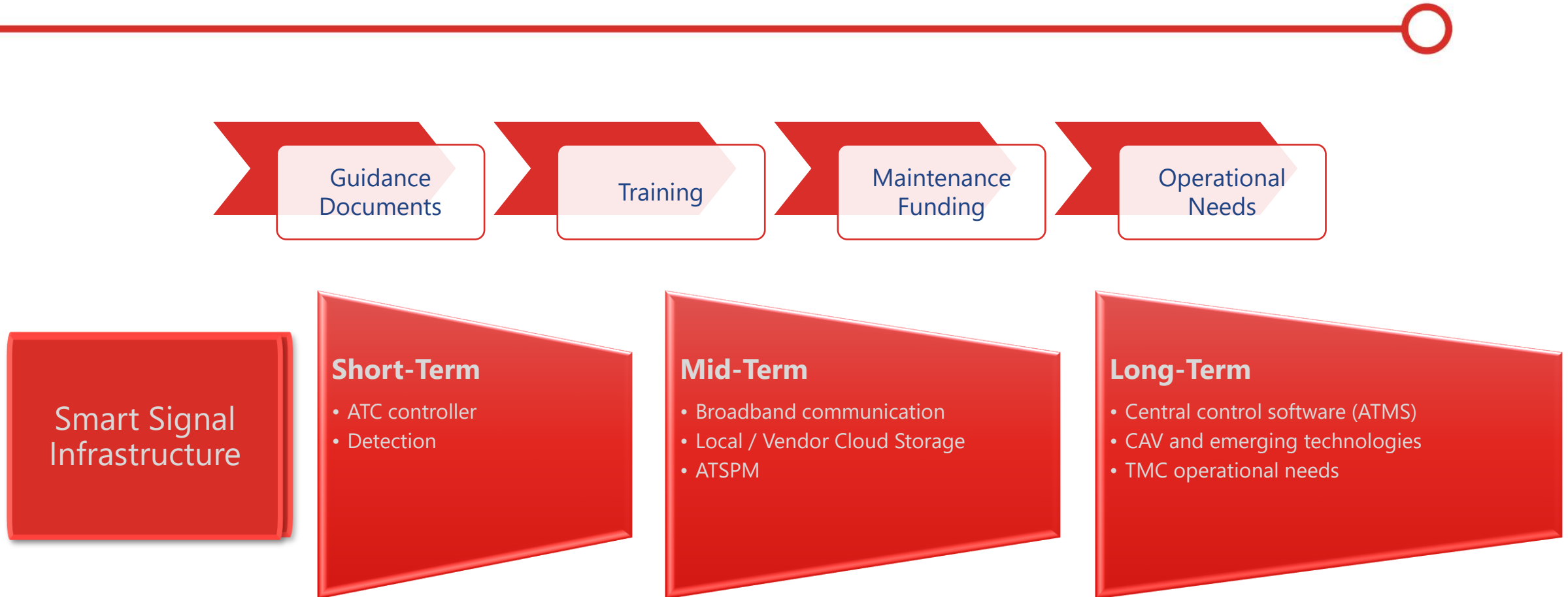
Mainstreaming Traffic Signal and CAV Technologies

Jeremy Dilmore, PE

District 5 TSM&O Engineer
Florida Department of Transportation

December 6th, 2023

Infrastructure Deployment Needs



Smart Signal Initiative Workplan Steps

Develop Smart Signal Design Guide

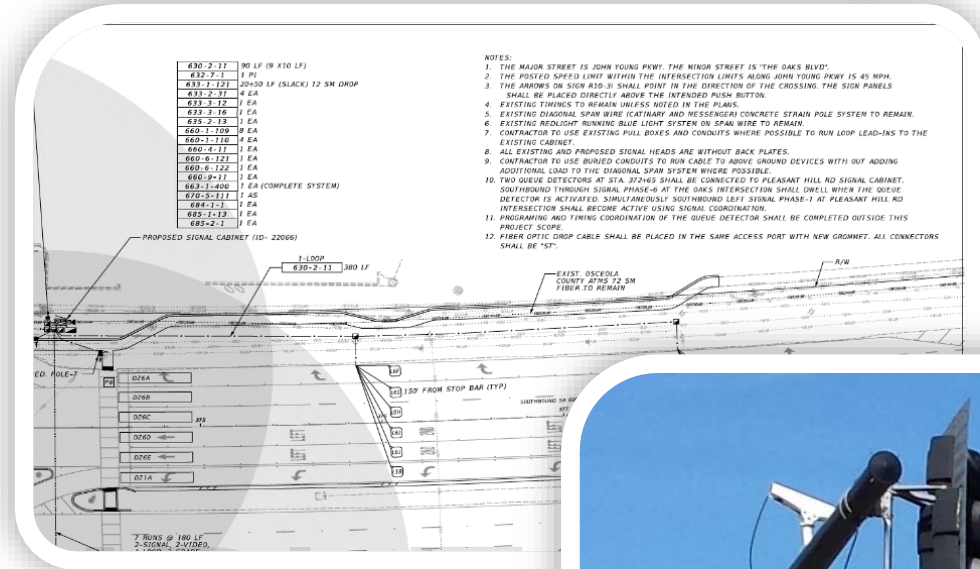
Update Standard Specs (DevSpecs as necessary)

Update Standard Plans

Update FDOT Design Manual (FDM)

Update Traffic Engineering Manual (TEM)

Update Design Scope of Services and Staff Hour Estimation Guidelines (SHE)



Next Steps: Smart Signals Mainstreaming

1) **Year 1** - Examine concept internally with TEO and District Traffic Operations
Smart Signals Design Guide (Proposed to share outline with District 5 for feedback)
Select proposal level(s) of where guidance is to be deployed (Proposal A-F)
-Develop design guide with district feedback at milestones during STAMP WG

2) **Year 2** - FDM, SHE, TEM, Standard Plan and Standard Specs
Coordinate with other offices on standards and guidance updates
Daniel Strickland and Derek Vollmer (Standard Specifications)
Rick Jenkins (Standard Plans)
DeWayne Carver (FDM)
Ryan Buck (SHE)
Mariano Amicarelli (TEM)



Florida's Traffic Signal Controller Health Monitoring System (TSC HMS)

Jeremy Dilmore, PE

District 5 TSM&O Engineer
Florida Department of Transportation

December 6th, 2023

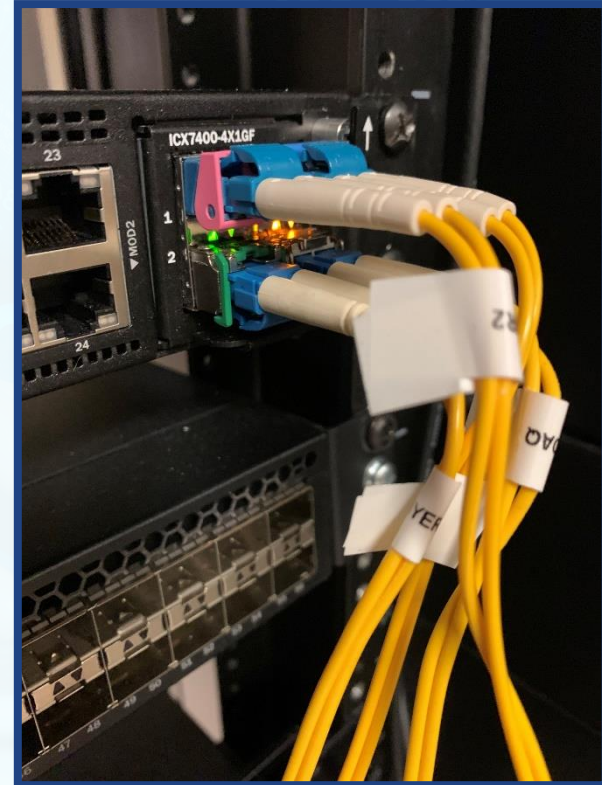
National Transportation Communications for ITS Protocol (NTCIP) 1202

- Florida Traffic Controller Spec 671 requires NTCIP support

- NTCIP is a common standard for traffic controllers

- Traffic signals deployed in disparate local networks

- Only available if communications are present (IMTS)



System Outcomes



Phases 1-2 - Current



Real-time, statewide streaming data for arterials



Traffic Signal Status



Traffic Signal Detector Status



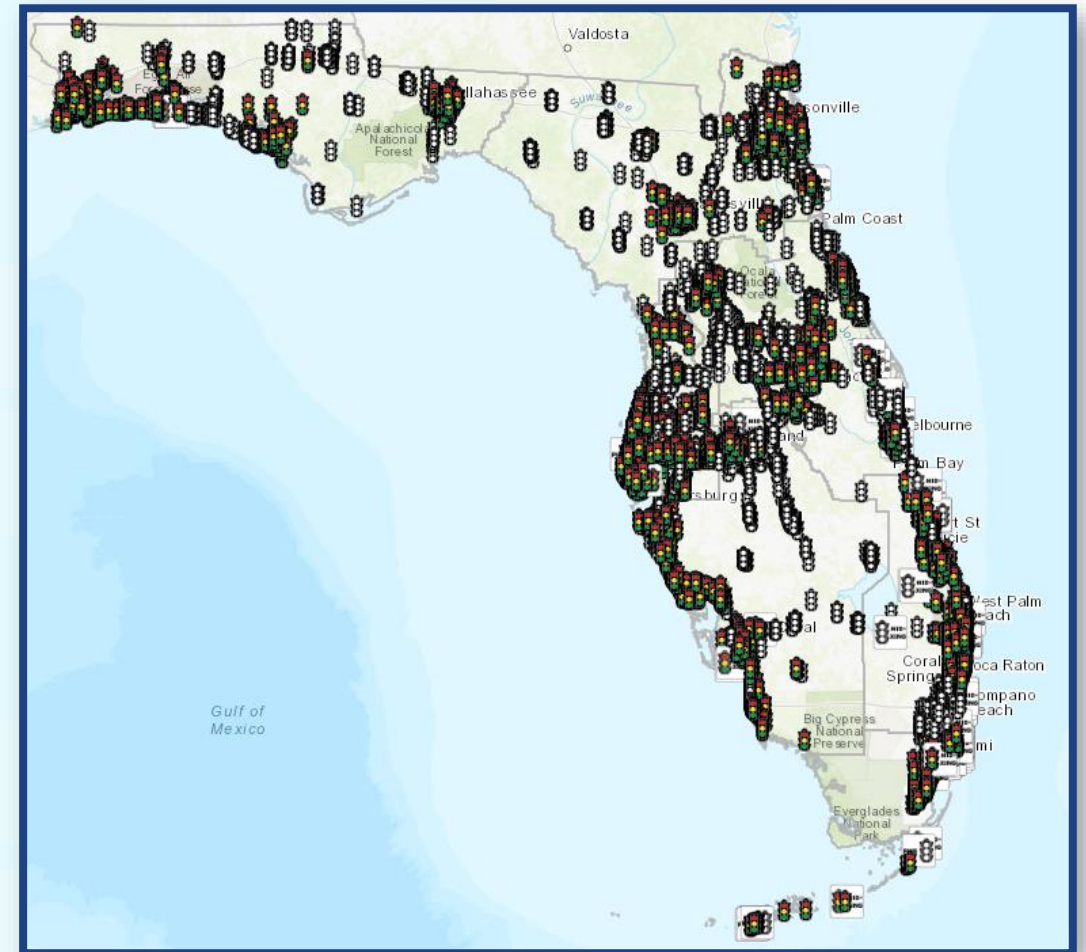
Phases 3-4 - Future




Automated Traffic Signal Performance Measures





Derived analytics



Scale of Health Monitoring System (HMS)

 Interconnected & Monitored Traffic Signal (IMTS) to be included in the HMS

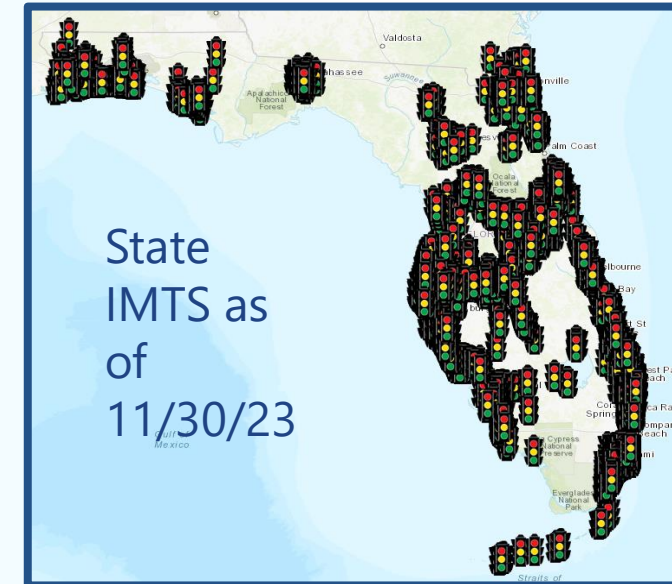
 8,879 Signalized Intersections

 6,789 IMTS (76.5% of SHS signalized intersections)

 105 of 171 total Maintaining Agencies have IMTS

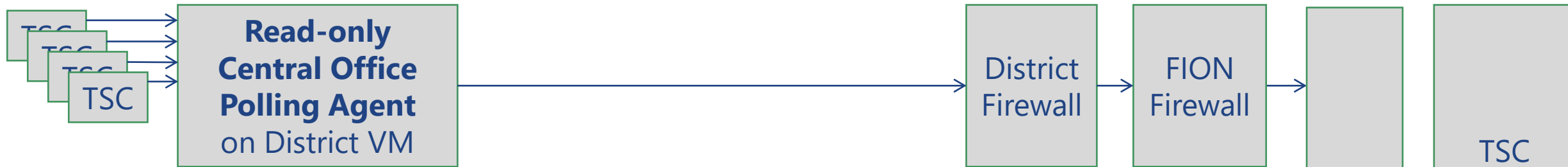
District	Agencies with IMTS	IMTS Count
1	29	920
2	17	869
3	16	705
4	8	749
5	20	1,129
6	2 (inc. D6 Monroe Ops)	1,378
7	13	1,039
TOTALS	105	6,789

Top 10 Agencies by Number of IMTS		
District	Maintaining Agency	IMTS Count
6	Miami-Dade County	1,339
4	Palm Beach County	466
2	City of Jacksonville	459
7	City of Tampa	254
	Hillsborough	
7	County	226
5	Orange County	222
7	Pinellas County	217
5	Seminole County	187
1	Lee County	184
5	City of Orlando	179

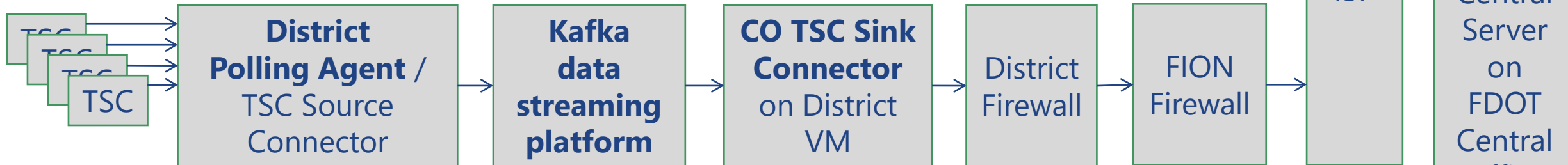


Communications Architecture Options

Option 1: Central Office Polling Agent



Option 2: District Polling Agent



Option 3: LMA Application Programming Interface (API)



Static Web Application – GUI Screenshot

FDOT Traffic Signal Controller Viewer [Home](#) [Controller Preferences](#) [Accessibility](#) [API](#) [Logout testUser](#)

Filter on map

District	Agency	Signal	Status	Location
D6	Miami Dade County	114	Healthy	SR 953 / LeJeune Rd&Altara Av
D6	Miami Dade County	113	Bridge Preempt	Allison Rd& 63 St
D6	Miami Dade County	112	Healthy	Ali Baba Av&NW 27 Av
D6	Miami Dade County	111	Healthy	Alhambra Cir S&US 1
D6	Miami Dade County	110	Healthy	Alhambra Cir&LeJeune Rd
D6	Miami Dade County	109	In Flash	Alhambra Cir&Bird Rd
D6	Miami Dade County	108	Healthy	Adventure Av& J. F. Kennedy Cswy
D6	Miami Dade County	107	Healthy	Abbott Av&Indian Creek Dr
D6	Miami Dade County	106	Healthy	Abbott Av& 72 St
D6	Miami Dade County	105	Healthy	Abbott Av& 71 St

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Miami Dade County, FDEP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA Powered by Esri

Red Extend Location



- FDOT has been testing out Red Extend to protect against red light runners
- Where should we do this?
- Only working Iteris Vector; Wavetronix Advance



Current Initiatives

Jeremy Dilmore, FDOT District Five

Current Initiatives

- I-4 Express Lanes
- I-4 FRAME
 - D5 Project section has been let
 - Coordination with local agencies and device configuration underway
- OBU Deployment
 - Coordinating MOUs with several Fire Departments for EVP

Current Initiatives

- PedSafe II
 - Phase 1 construction complete; awaiting material delivery for Phase 2
 - Developing Operational Manual



Current Initiatives

- AV Shuttle
 - Hoping to fully start up in Spring 2024
- Kiosks at UCF
 - Wooden prototype developed for more accessible kiosk

Current Initiatives

- Smart Work Zone
 - Mobilized in late November





THANK YOU!

Next Consortium – February 8, 2024



TSM&O Consortium Meeting

MEETING AGENDA

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

December 14, 2023
10:00 AM-12:00 PM

- 1) WELCOME
- 2) DISTRICT UPDATES
 - Jeremy Dilmore, FDOT District Five TSM&O
- 3) TRAVEL IQ AND FL511
 - Jo Ann Oerter, Arcadis/IBI Group
- 4) SAVING LIVES WITH CONNECTIVITY: A PLAN TO ACCELERATE V2X DEPLOYMENT
 - David Williams, VHB
- 5) MAINTAINING AGENCY COORDINATION
 - David Williams, VHB
- 6) LICENSE PLATE READERS
 - David Williams, VHB
- 7) IMSA TRAFFIC SIGNAL TECHNICIAN COURSES
 - Jeremy Dilmore, FDOT District Five TSM&O
- 8) SMART SIGNAL GUIDANCE
 - Jeremy Dilmore, FDOT District Five TSM&O
- 9) CURRENT INITIATIVES
 - Jeremy Dilmore, FDOT District Five TSM&O