TSM&O CONSORTIUM MEETING SUMMARY

Meeting Date:	May 28, 2020 (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 within Central Florida. Jeremy Dilmore gave a short introduction and outlined the meeting agenda.

II. ORANGE COUNTY TRANSPORTATION TECHNOLOGY IMPROVEMENTS – WHITE PAPER

Alissa Torres and Hazem El-Assar (Orange County) gave a presentation on the *Orange County Transportation Technology Improvements White Paper* detailing the improvements Orange County is making and seeking to make using transportation technology.

- Funding Initiative
  - Mayor Demings' policy vision
    - Announced one-cent sales tax referendum in 2019
    - Part of effort to make Orange County an "Experimental Prototype Community of Tomorrow" through innovation and inclusion
    - Commitment to extensive public outreach
  - Presented to Central Florida TSM&O Consortium in October 2019
    - Estimated $596M in annual revenues — 51% from tourists
    - Early in public outreach/project development processes
  - Consultant contract to support project development
    - Transit coordination with LYNX
    - Roadway CIP, maintenance, and bike/ped safety projects — including state/municipal
      - Total projected costs to 2040: $14.15B
      - Total current funding (5-year CIP): $1.25M
      - Total unfunded needs: $12.9B
  - White paper identified TSM&O needs for the County
    - Authored by Orange County Traffic Engineering and Transportation Planning staff

            - In cooperation with FDOT and MetroPlan
        - County's existing system and recent accomplishments
        - Regional ITS Master Plan projects and recommended County projects
        - Brief case studies of national innovators and best practices
            - Goal of applying best practices to project development
    - Public outreach
        - Received 11,000 completed online surveys
            - Top transportation improvement priorities for survey respondents:
                1. Building a mass transit system (to include buses, trains, etc.) (59.2%)
                2. Maintaining and repairing existing roads (49.7%)
                3. Improving traffic signal timing (42.4%)
                4. Improving SunRail system (41.6%)
                5. Widening existing roads (37.7%)
                6. Improving intersections (37.4%)
        - Almost 4,000 comments and recommendations
        - Seven Town Halls, including one online
        - 200+ community/stakeholder meetings
    - Current status: Initiative suspended in April 2020 due to pandemic-related economic concerns
- Recommended Projects from White Paper
    - Countywide signal improvements
        - Span-wire to mast arm upgrades with mounted video detectors, new signal head, and reflective backplates
        - Transit Signal Priority on key arterial routes
        - Dynamic Flashing Yellow Arrow
        - CCTV expansion
        - Fiber optic, controller, and network upgrades
    - Adaptive signal control
        - Currently have adaptive signal control on 88 intersections in Orange County
        - Looking to add adaptive signal control to intersections on SR 436, SR 50, US 192, Universal Blvd
    - Smart incident detection
    - TSMO dashboard
        - Incorporating ATSPM data
    - Automated pedestrian/bicycle/vehicle detection
        - PedTrax using Iteris video detection
        - Automated bi-directional counts and speed data
        - Potential use of Miovision
    - Countywide Connected Vehicle (CV) readiness
        - Building on MetroPlan's study
    - Communication infrastructure asset management documentation
        - Using ITS
    - CV travel alerts
        - Glance TravelSafely App that is free to download

            - Display of signal timing
            - Emergency vehicle alert
            - Red light running warning
            - Curve warning/reduce speed
            - Pedestrian crossing detection
            - Bus/transit priority
        - Connects the user's phone to infrastructure and other road users
        - Audible warnings
    - Contract with TTS executed for Countywide deployment
    - Passive pedestrian detection in key corridors
    - Expansion of FDOT's PedSafe
        - Americana Boulevard
        - Texas Avenue
        - Rio Grande Avenue
        - Oak Ridge Road
        - Orange Blossom Trail
        - John Young Parkway
    - Corridor Management
        - Integrated Corridor Management—SR 417, SR 429, SR 528, and Turnpike in coordination with FDOT
        - Smart Work Zone for construction projects
        - Smart streetlights in coordination with utility companies
        - Electric vehicle charging stations
    - Orange County Convention Center projects
        - Traffic Management Center
        - CAV upgrades
        - Dynamic message signage/wayfinding
        - Permanent ped/bike counters
        - Fiber optic upgrades
        - AV shuttle pilot project – Between buildings and parking areas
            - RFP already issued
    - Mobility hub concepts at gateway, community, and local scale
        - Flexible mix of mobility options
        - Bike/car share, ride hailing pickup zones, electric vehicle charging, other services and amenities
        - Provide seating, lighting, transit shelters, WiFi, power outlets, and safety measures
        - Would require extensive public input on locations, services, design
    - Coordination with other agencies needed
        - LYNX plan for kiosks, OUC mobility hubs
        - Assumptions based on FDOT ATTAIN kiosk, Lake Nona BUILD project, Broward MPO
    - Smart City Accelerator
        - Assist companies developing emerging technologies through grants

        - Help to create cluster of CAV companies, like Luminar, with higher-wage jobs
        - Builds on prior County investments in UCF, National Entrepreneur Center
    - Transitioning to Innovation Lab concept—in development
        - Led by County's Chief Innovation & Emerging Technologies Officer
        - Focus includes other areas, not just transportation
        - Physical facility and projected $2M in funding
- Moving Forward
    - Orange County is committed to developing technology-based, state-of-the-art infrastructure and partnerships with other local/state agencies as a major part of this
    - Transportation Initiative
        - Next option would be November 2022 general election
        - County continues to assess conditions
        - Monitor any related changes in 2021 legislative session
    - Public outreach
        - Initiative suspended before meetings on recommended funding allocation/projects
        - Need community input on projects and current preferences post-pandemic
        - Significant uncertainty in travel behavior that may last 6 to 24 months per Susan Shaheen (2020)
    - Agency concept and strategy—key element of best practices
    - Evaluate and update policies/procedures to address Initiative's volume and types of projects
        - Design-Build and other models (Project Delivery Working Group)
        - Procurement, selection, and MWBE
        - Contracts and invoicing
        - Real estate acquisition and settlement
        - Capital Improvements Program prioritization
        - Adopted Transportation Sales Tax procedures from prior effort
        - Sidewalk policy
        - Staffing and proficiencies
    - County CAV white paper to help define overall planning, policy, and agency needs
    - Comprehensive Plan update to year 2050
        - County Transportation Element update
        - Reviewing ACES approach now for Element
        - Coordinate with 2045 Metropolitan Transportation Plan (MetroPlan Orlando) on ITS, CAV, other technology
    - Orange County Code updates for transportation technology
        - Curb zone and automated delivery/personal delivery devices

Discussion:

Q: What percentage of the projected 2040 budget is dedicated to TSM&O?

A: Of the total $14.2B, 2% of the projected cost of the initiative is for dedicated TSM&O projects, however, all roadway improvement projects will include TSM&O so the final percentage of cost dedicated to TSM&O will be higher.

Q: Can you explain how Broward County comes into this?

A: We have been looking to their development of mobility hubs for inspiration and guidance, particularly in how they have conducted public outreach and calibrated the mix of services offered in mobility hubs to be appropriate for public needs. Mobility hubs have to be precisely calibrated with meaningful community input in order to function well.

Q: Will plans include workforce and skilled design training?

A: Yes, some of this is will be addressed in the CAV white paper, including recommended job descriptions and skillset needs. It will also address critical up-skill and re-skill needs for the workforce.

Q: Can this white paper be passed on to consultants?

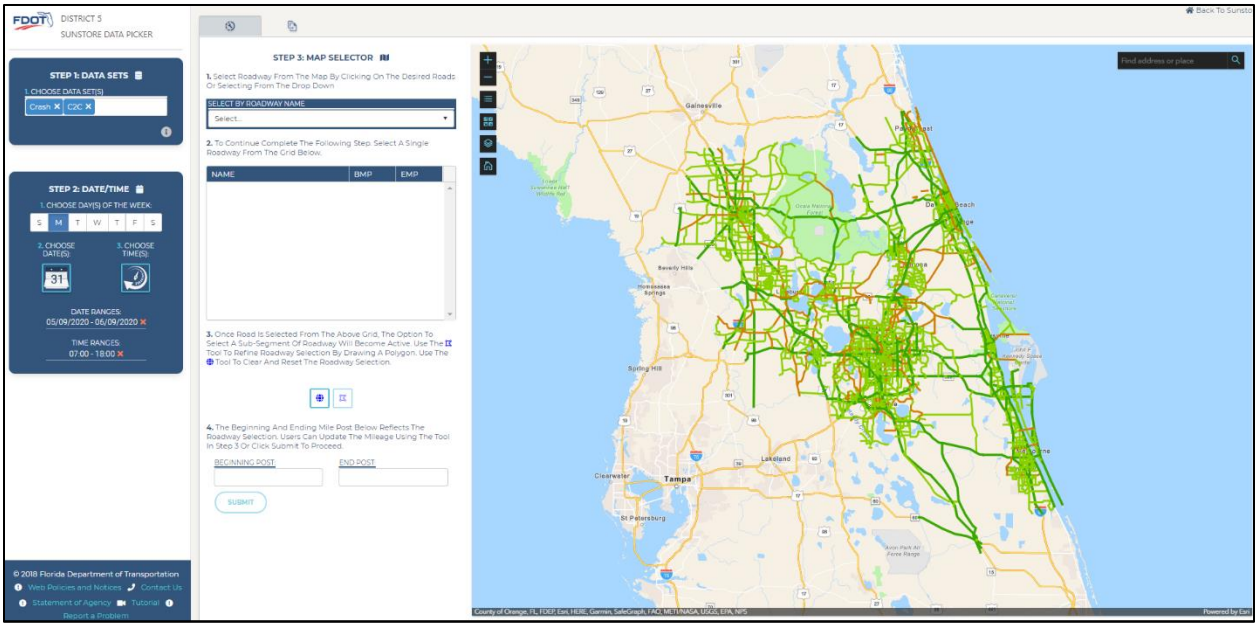
A: Yes.

Comment: It will be important moving forward to educate the public about TSM&O and about what transportation technology really is.

Comment: This is fantastic! I am definitely interested in the white paper! I believe that you have set the standard for others to follow in updating comp plans! I love "The Code is the new Concrete"!

III. DATA PICKER – UPDATE AND DEMONSTRATION

Jeremy Dilmore gave an update on the SunStore Data Picker and demonstrated its use. To browse through all of the tools and data platforms available from FDOT District Five, please visit http://www.cflsmartroads.com/tools.html



- Updated Data Picker – https://sunstore.cflsmartroads.com/
  - Pulls volume data as well as speeds
  - Incorporating SIIA data

    - You will need a login to access; this is not to restrict access, but to track users and the use of data.
    - There is an upcoming change in the data sets; will be presenting ATSPM data as well as FDOT TMC data and MVDS data for the interstates.
- Focus Areas:
    - Key corridors
        - Routes of Significance – high AADT
        - Priority Corridors (Detour routes) – higher capacity, location, avoiding schools/neighborhood as possible
    - Follow with fuller network
    - Please let us know we if missed something
- Key Questions
    - Where are we going to improve Signal Efficiency?
    - What does it take to be CV Ready?
    - Where do I stand?
- Automated Traffic Signal Performance Metrics
    - Developed a naming standard
    - Developed a workflow
    - Have deployment group
    - MPOs stepped up with funding
    - Have cloud hosted software
- Next Steps
    - Increasing functionality of software
    - Maintenance Alerts, Incident Detection, Queue estimation, Latent Demand
    - Releasing a new RFP within next few months

IV. DEMONSTRATION OF TRAFFOP ATSPM SYSTEM

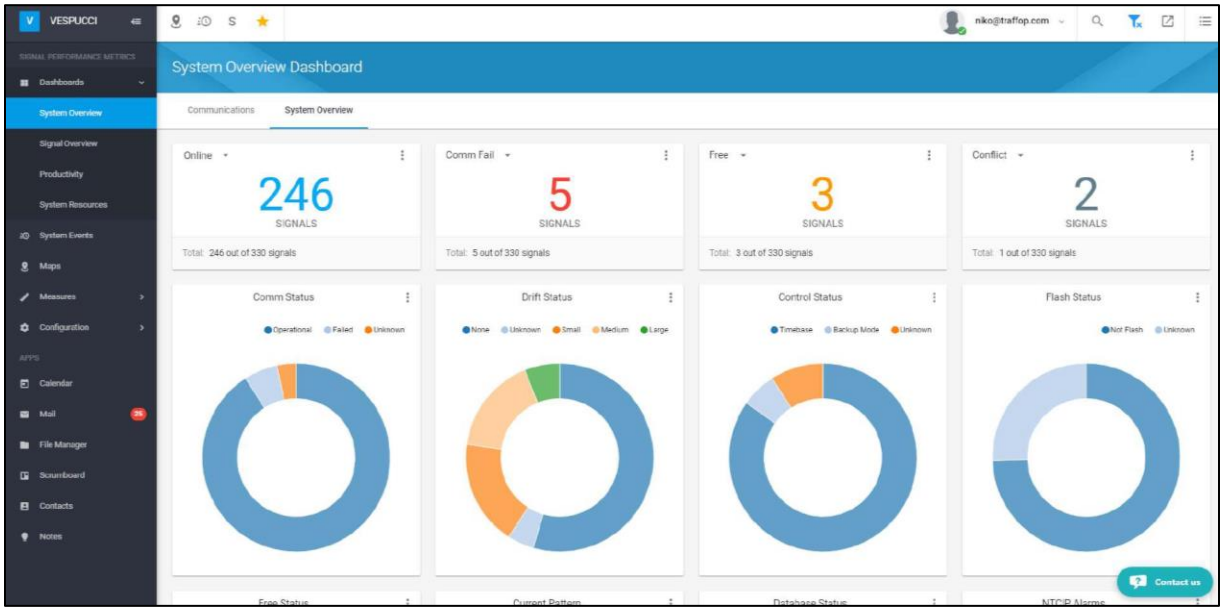
Sasa Mitrovic (Traffop) introduced and demonstrated the uses and functions of the new ATSPM System developed for District Five.

- https://spm.traffop.com/login
- https://atspm.cflsmartroads.com/ATSPM/
- Current problems with signal timing:
    - Traffic controllers have many parameters and it is easy to get them wrong
    - Current ATMS Systems are not built to measure operational performance
    - Anecdotal evidence does not provide a good measure of signal operations
- ATSPM tool pulls the data stored to the signal controller (that would otherwise disappear) and stores it in the cloud.
    - Data is hosted on the cloud in Azure; this enables access to a data-intensive solution through a simple internet browser
- The tool can be used to view many interactive charts, including signal performance, Purdue diagrams, Traffic volumes over time, corridor performance, etc.
    - All ATSPM tool charts are interactive and can be exported to Excel.

- By introducing a performance-based approach, agencies can better citizen complaints, identify impactful signal timing changes, and produce reports that document improvements.
- Goal to accelerate the adoption of ATSPMs by providing intuitive, effective and robust performance software

Notes:

- FDOT has been very happy with the Traffop ATSPM tool. The run times for data retrieval have improved significantly.



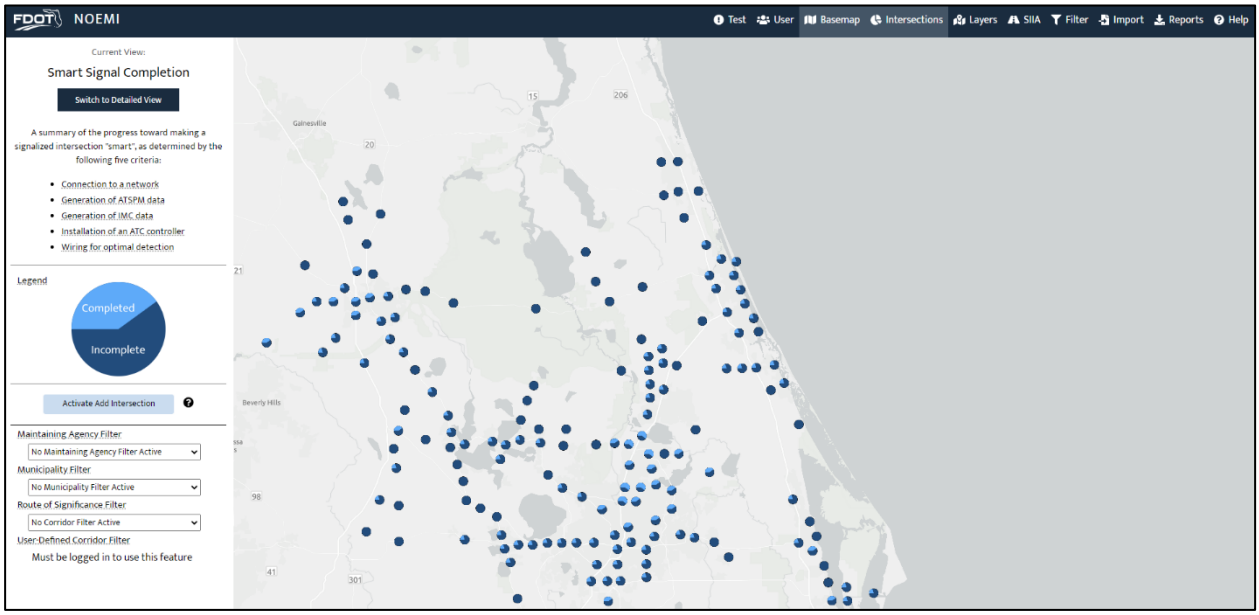
- Any new signals with an ATC network connection can be joined into the system – this is the new FDOT standard. ATC controllers are not brand specific. We're happy to work with you on getting connected.
    - Examples of ATC Controllers:
        - Siemens – M60
        - Econolite – Cobalt
        - Intelight – X3
- The system is cloud-hosted, and you will need a login. This is available to any county or city; you can request it either by using the form on the ATSPM website or by emailing Jeremy or David.

V. *NOEMI* FOR CAV READINESS - UPDATE

Jeremy Dilmore presented on the NOEMI tool and demonstrated its use.

- http://noemi.cflsmartroads.com/
- What we need from you
    - Acting conduit for acquiring hardware
    - Collecting information on signals
        - Signalized Intersection Inventory Application or SIIA
        - Collecting after upgrading controller, cabinet, detection

- This populates MIMS
  - Provides a basis of data for locals on some roads
- Heard there is a desire to connect MIMS to different asset maintenance tools
- ATC Controllers
  - Be willing to work with them
  - Database conversions – generally handled by consultant, but need someone to test



  - Deployment via contractor or agency forces
  - Please consider whether you want a standard for effective channels from loops at intersections.
  - (ATC controllers are not absolutely necessary to make this work, but they help a lot)
- Interconnected Signals – about to be the big push
- Detector Data Maintenance
  - Getting functioning detectors is the biggest focus of the work to be done
  - Standard helps, big time (Earlier consortium meeting, Brevard County developed for their Synchro Green Needs)
  - Detector distance from stop bar
  - Channel
  - Phase

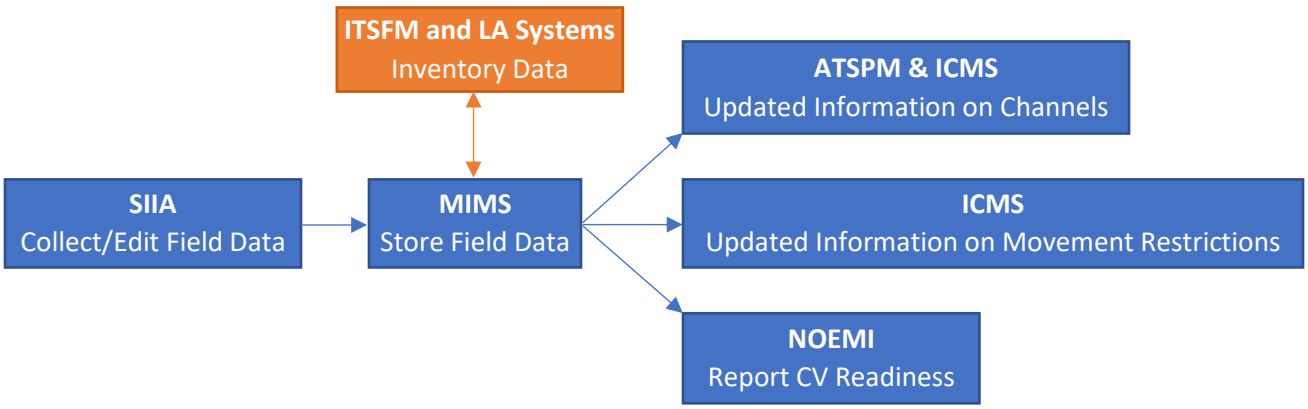
- What does it take to be CV-ready?
  - ATC Controller
  - Interconnected Signal
  - Intersection Data
  - Larger Cabinet (preferred)
- NOEMI Functionality:
  - Available Layers:
    - Municipalities

        - SIS
        - FDOT Fiber Optic Network
        - Routes of Significance
        - Detour Routes
    - "Smart" signals determined by five characteristics:
        - Connection to a network
        - Generation of ATSPM data
        - Generation of IMC data
        - Installation of an ATC controller
        - Wiring for optimal detection
    - Filters can be set to show the overall status of smart signal completion or a detailed view of the status of each of the five smart signal characteristics.
    - Two types of login available:
        - Editors
            - Can import new intersection and signal data from SIIA
                - Rules are available in NOEMI to facilitate data imports
            - Can edit data for intersections and signals already in NOEMI
            - Can save unique views of the map/symbols to return to later
        - Viewers
            - Not able to import or alter data
    - Some modifications still need to be made
        - Still missing some corridors in Lake County, but looking to add them soon
        - Meeting with MPOs to confirm corridors.
    - KML files will be made available to the agencies

VI. SIIA FOR INTERSECTION DATA COLLECTION – UPDATE

Jeremy Dilmore gave an update on the Signalized Intersection Inventory Application (SIIA).

- https://mims.cflsmartroads.com/siia/
- SIIA – MIMS – NOEMI Workflow:



- Integration Across Applications/Software
    - SIIA and MIMS – Data entry relating to signal updates

  - SIIA and MIMS data feeds into NOEMI
  - Updates are being automated between SIIA and ATSPM
  - Trafop's site is updated manually, but based on data collected from these other applications
- Questions for follow-up:
  - If we had a data exchange, could agencies connect to this?
  - Can API information or vendor contact be sent to David?

Discussion:

Q: Can SIIA data be integrated within ITSFM?

> **A:** Yes; SIIA feeds into MIMS, which is linked to ITSFM. We are working on providing information for ITSFM to be operated. This is still a work-in-progress but Central Office wants to see it happen.

Q: Is SIIA ready for access by maintaining agencies?

> **A:** SIIA is ready for access. NOEMI is now ready as well.

Q: Would Brevard be interested to see if you can pull in data from the inventory platform?

> **A:** Yes, Brevard and Orlando both. Please send over your API info, either by dropping it off or having us come pick it up.

Note: Please submit your preference for inventory exchange to either Jeremy or David.

Comment: The inventory will also enhance MPO's ability to plan for investments.

VII. CURRENT INITIATIVES

Jeremy Dilmore gave an update on current initiatives in the Central Florida region.

- Technology Application Partnerships for Local Agencies (TAPs-LA)
  - Eligible Applicants:
    - City Government, County Government, Transit Agencies, Air/Port Authorities
  - Final version sent out June 1, 2020
    - [please reach out to David Williams if you did not receive]
  - "Table 6 shows the TAPs-LA implementation and project schedule. This is tentative and subject to change based on a District's plans." (page 11 of draft final)
    - As the document has not been released yet, expect the schedule to be modified

Table 1: TAPs-LA Implementation and Project Selection Schedule

Item	Due Date
Districts receive TAPs-LA document	May 26, 2020
Districts begin TAPs-LA local agency engagement	June 1, 2020
DTOEs receive proposals	July 15, 2020

DTOEs send recommended proposals to Central Office	August 3, 2020
Central Office selects projects proposals	September 4, 2020
Districts and Central Office work on getting the funds into the Work Program for state roads; local agency secures funding for local roads	September 8 through December 31
Districts and local agencies implement projects	January 4, 2021

    - Please contact Jeremy Dilmore or David Williams if you or an eligible partner agency are interested in submitting a TAPs-LA project
- V2X Data Exchange Platform was just advertised
- Integrated Corridor Management (ICM)
    - Connecting to local agency ATMS data
        - Received from Intelight and Trafficware. Econolite is close to sending.
        - Working with Orange, Seminole, and Osceola counties
    - Expected date for completion, going live, and implementing system: November 2020
    - Mesoscopic model for the greater Orlando area – operational model that cannot be scaled up (developed by Cambridge Systematics)
- TSP
    - Phase 3 almost complete
    - Phase 2 has been having issues with the hardware
        - Phase 3 will be implemented before Phase 2
- Route Mode Choice Engine (RMCE)
    - Preliminary design of OBU emulator was received
    - RMCE still moving along
        - Open Trip Planner portion of RMCE expected by end of year
- Volusia County Adaptive Signal Control projects are in progress (CST phase).
    - Lots of change orders coming through lately
- ATTAIN
    - PedSafe
        - Received permission for changes
        - PedSafe deployment underway at UCF campus
        - In talks with FHWA to convert DSRC radios to CV2X
            - Parts will be available at the end of the year for the 2nd phase
- Broadcasting Permission
    - District Two is following the application of RSU over channel 180
    - Will send the information, if permission is received, to turn on DSRC radios and use one channel for broadcasting
        - Will also send out any new information on CV2X

VIII. NEXT MEETING

- July 23, 2020

IX. ATTACHMENTS

- A – Presentation Slides
- B – Meeting agenda

END OF SUMMARY

This summary was prepared by Amanda Johnson 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 the summary can be finalized.*

Welcome to the TSM&O Consortium Meeting

May 28, 2020

Transportation Systems Management & Operations

Meeting Agenda

1. Welcome
2. Orange County Transportation Technology Improvements White Paper
3. Data Picker – Update and Demonstration
4. ATSPM Tool – Demonstration
5. NOEMI for AV Readiness – Update
6. SIIA for Intersection Data Collection – Update
7. Current Initiatives

Source: National Governors Association, 2018.

Transportation Technology White Paper

FDOT District 5 TSM&O Consortium—May 28, 2020

Hazem El-Assar, PE, Orange County Traffic Engineering

Alissa Barber Torres, PhD, FAICP, CLTD, Orange County Transportation Planning

Funding Initiative

ORANGE COUNTY | NEWS

Orlando Sentinel

Mayor Jerry Demings calls for 1-cent sales-tax hike to pay for Lynx, SunRail, other transportation projects

By STEPHEN HUDAK | ORLANDO SENTINEL | MAY 16, 2019 | 2:42 PM

Orange County Mayor Demings commits to better public transit in first mayoral address

Posted By Joey Roulette on Thu, May 16, 2019 at 2:57 pm

ORLANDO WEEKLY

ORANGE COUNTY GOVERNMENT FLORIDA

Jerry Demings Wants Orange County to Vote on Sales Tax Increase for Transportation Projects

By **MIKE SYNAN** - 05.29.19

Florida Daily

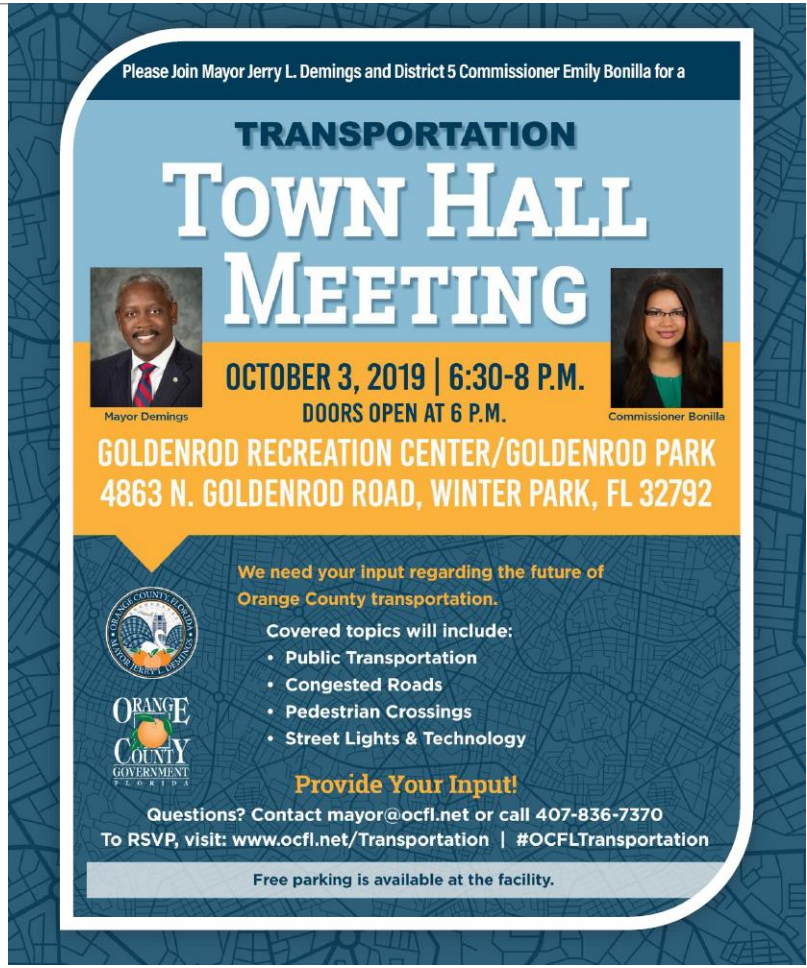
New Orange County **Mayor Jerry Demings** is wasting no time making his mark on the office as he has proposed a tax increase.

The former sheriff announced he will send a one percent sales tax increase–an additional penny of every dollar spent–referendum to Orange County voters. The additional revenue will be used for transportation needs. A single penny sales tax hike in Orange County could potentially raise as much as $635 million a year for leaders to spend on transportation. By comparison, Volusia County can raise about $90 million a year by raising the sales tax 1 percent. Osceola County estimates a penny sales tax increase would bring in about $65 million a year. Both of those counties tried to increase sales taxes in referendums held in May and the voters overwhelmingly rejected the proposals.

Demings believes Orange County will be different.

Funding Initiative

- Mayor Demings' policy vision
  - Announced one-cent sales tax referendum in 2019
  - Part of effort to make Orange County an "Experimental Prototype Community of Tomorrow" through innovation and inclusion
  - Commitment to extensive public outreach
- Presented to FDOT District 5 TSM&O Consortium in October 2019
  - **Estimated $596M in annual revenues**—51% from tourists
  - Early in public outreach/project development processes



Funding Initiative

- Consultant contract to support project development
  - Transit coordination with LYNX
  - Roadway CIP, maintenance, and bike/ped safety projects—including state/municipal
  - **Total unfunded needs of $12.9B**
- White paper identified TSM&O needs
  - Authored by Traffic Engineering and Transportation Planning staff
  - County's existing system and recent accomplishments
  - Regional ITS Master Plan projects and recommended County projects
  - Brief case studies of national innovators and best practices

Table ES-1. Summary of Future Transportation Needs (in $1,000s)

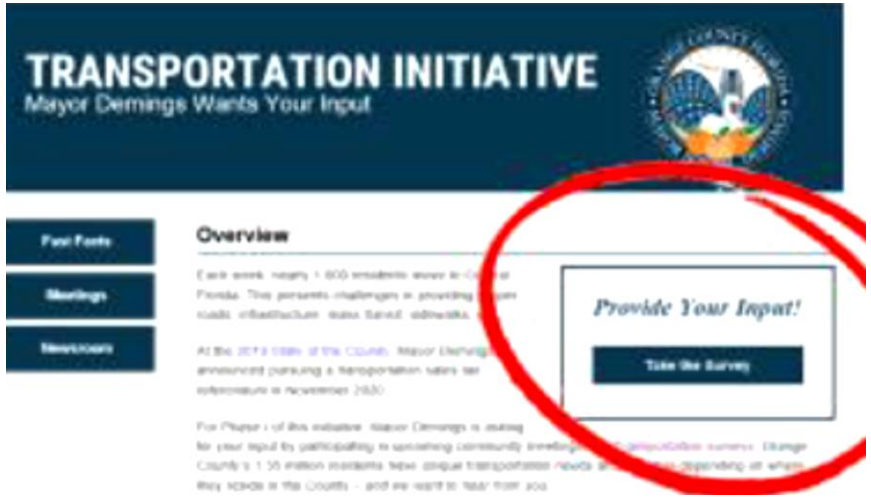
#	PROGRAM CATEGORY	CURRENT FUNDING (5-YEAR CIP)	UNMET COSTS TO 2040	TOTAL PROJECTED COSTS TO 2040
I	**Transit**	**N/A**	**$5,604,000**	**$5,604,000**
II	**Roadways**	**$550,400**	**$5,074,270**	**$5,624,670**
	– County	$519,400	$2,789,600	$3,309,000
	– State	$31,000	$729,800	$760,800
	– Municipal	N/A	$1,554,870	$1,554,870
III	**Safety**	**$171,900**	**$1,422,200**	**$1,594,100**
	– County	$94,400	$1,390,700	$1,485,100
	– State	$77,500	$31,500	$109,000
IV	**Management & Operations**	**$531,000**	**$800,000**	**$1,331,000**
	County Total	$1,144,800	$10,584,300	$11,729,100
	State Total	$108,500	$761,300	$869,800
	Municipal Total	N/A	$1,554,870	$1,554,870
	GRAND TOTAL	**$1,253,300**	**$12,900,470**	**$14,153,770**

Total Transportation Initiative Projected Costs to 2040 **$14.2 Billion**

Source: HDR, April 2020.

Funding Initiative

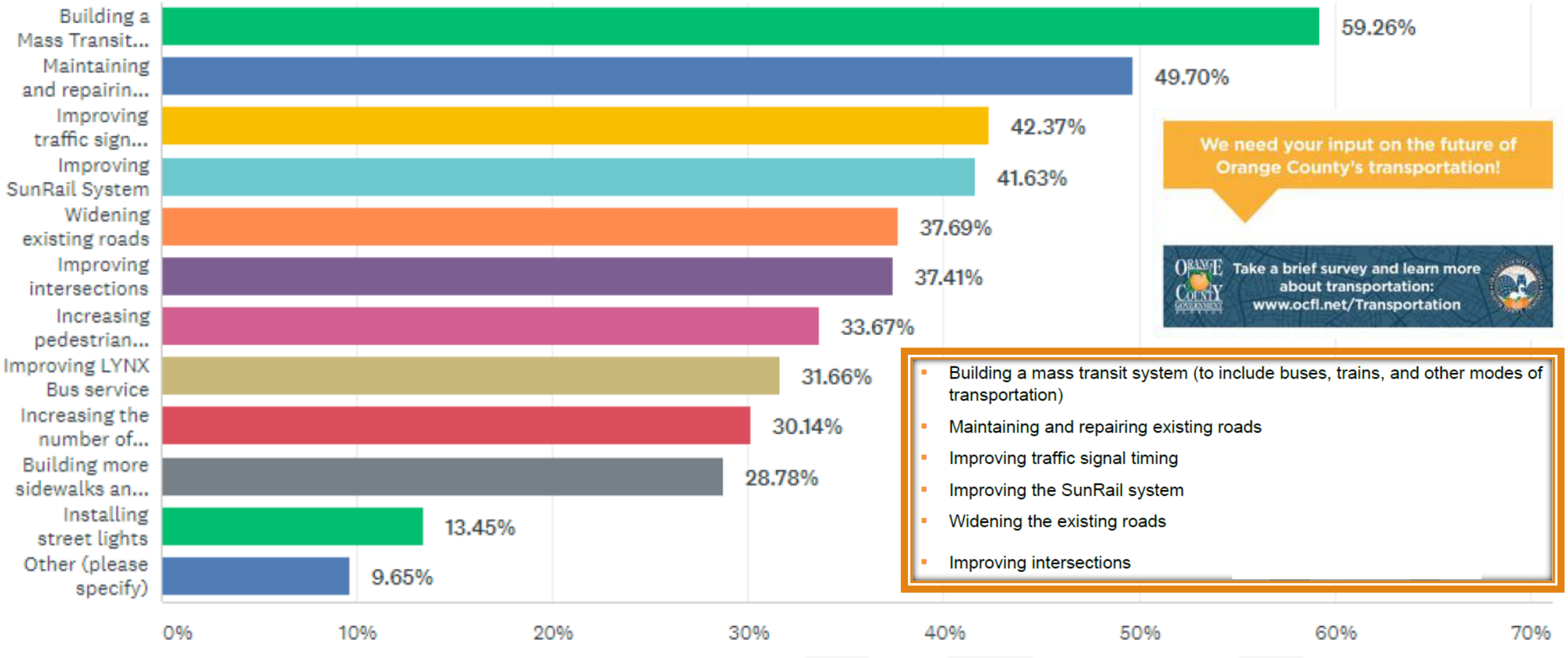
- Public outreach
  - Received 11,000 completed surveys
  - Almost 4,000 comments and recommendations
  - Seven Town Halls, including one online
  - 200+ community/stakeholder meetings



- Current status
  - Initiative suspended in April 2020 due to pandemic-related economic concerns

What do you believe are the top priorities for improving transportation in Orange County? (choose your top 5)

Answered: 10,243 Skipped: 455



We need your input on the future of Orange County's transportation!

Take a brief survey and learn more about transportation: www.ocfl.net/Transportation

- Building a mass transit system (to include buses, trains, and other modes of transportation)
- Maintaining and repairing existing roads
- Improving traffic signal timing
- Improving the SunRail system
- Widening the existing roads
- Improving intersections

Recommended Projects

Facility	Current #	Funded #	Total Current + Funded #	# Needed
Miles of fiber	290	10	300	50
CCTV cameras	128	100	228	100
UPS battery back-up	111	0	111	100
Bluetooth detectors	63	0	63	200
Adaptive signals	88	12	100	100
CV-ready school zone flashers and radar signs	305	100	405	50
Dynamic Message Signs	10	0	10	40
Intersections with communication	528	40	568	20
ATC signal controller	240	200	440	160
Intersections with EV preemption	436	0	436	0
Intersections with TSP + EV preemption	58	30	88	500

Recommended Projects

- Countywide signal improvements
  - Span-wire to mast arm upgrades with mounted video detectors, new signal head, and reflective backplates
  - Transit Signal Priority on key arterial routes
  - Dynamic Flashing Yellow Arrow
  - CCTV expansion
  - Fiber optic, controller, and network upgrades
- Adaptive signal control
  - SR 436, SR 50, US 192, Universal Blvd

Recommended Projects

- Smart incident detection
- TSMO dashboard
- Automated pedestrian/bicycle/vehicle detection
  - PedTrax using Iteris video detection
  - Automated bi-directional counts and speed data
  - Potential use of Miovision

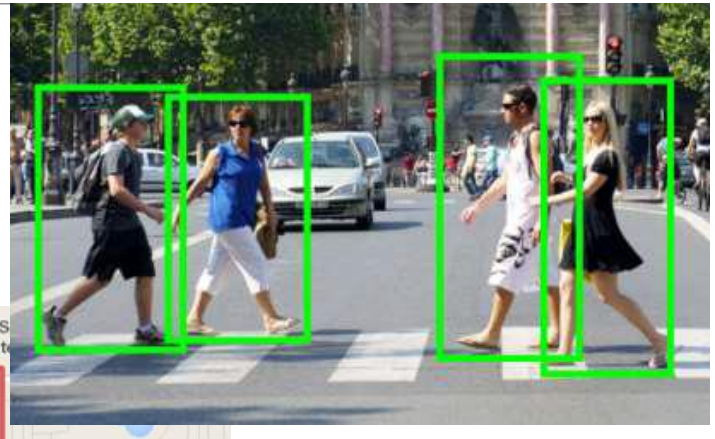
Recommended Projects

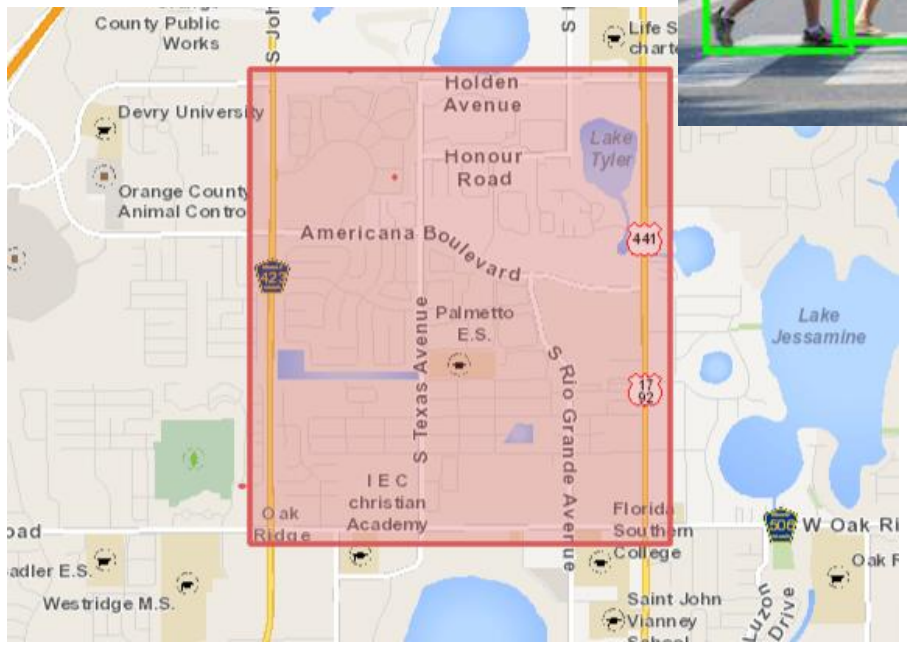
- Countywide Connected Vehicle (CV) readiness
- Communication infrastructure asset management documentation
- CV travel alerts
  - Glance TravelSafely App that is free to download
  - Connects the users phone to infrastructure and other road users
  - Audible warnings
- Contract with TTS executed for Countywide deployment

- Display of signal timing
- Emergency vehicle alert
- Red light running warning
- Curve warning/reduce speed
- Pedestrian crossing detection
- Bus/transit priority

Recommended Projects

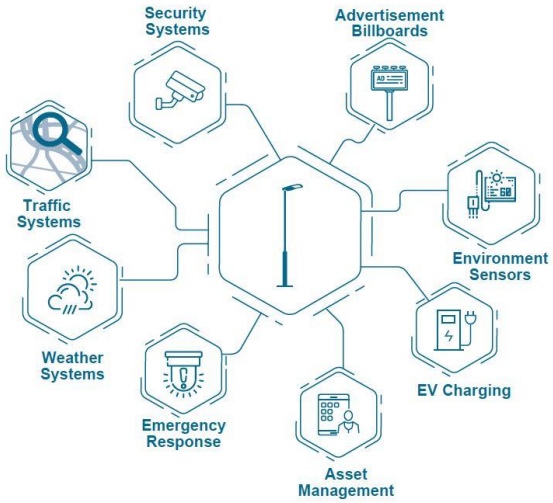
- Passive pedestrian detection in key corridors
- Expansion of FDOT's PedSafe
  - Americana Boulevard
  - Texas Avenue
  - Rio Grande Avenue
  - Oak Ridge Road
  - Orange Blossom Trail
  - John Young Parkway

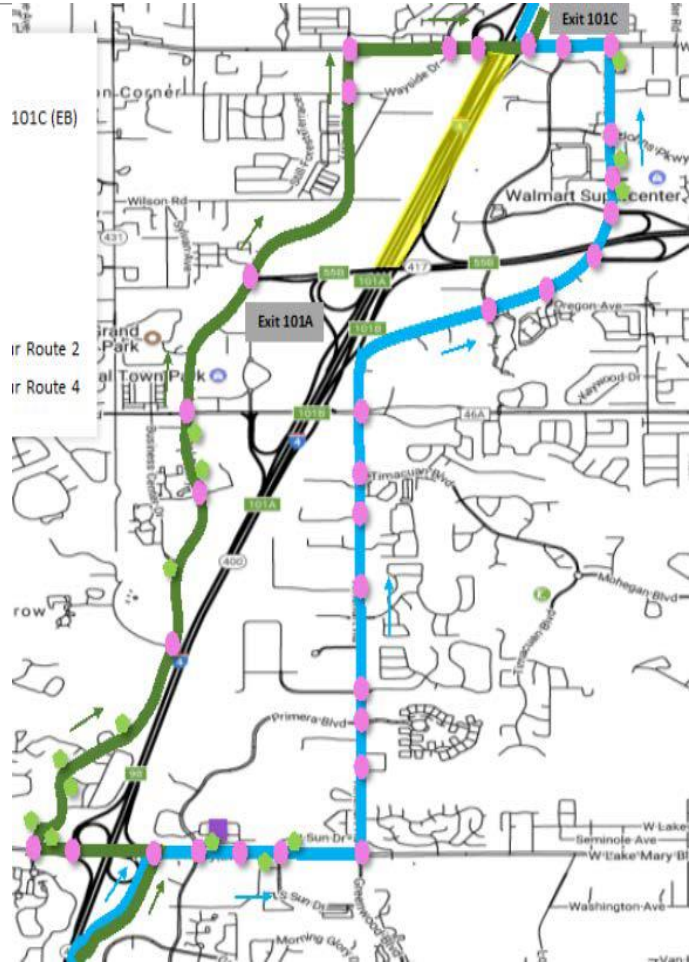




Recommended Projects

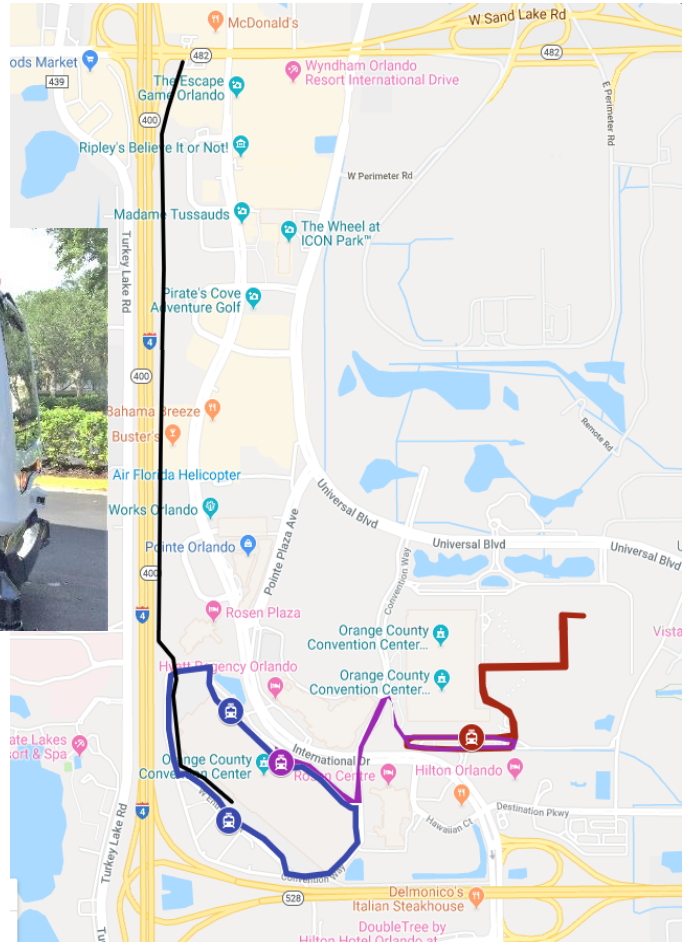
- Corridor Management
  - Integrated Corridor Management—SR 417, SR 429, SR 528, and Turnpike in coordination with FDOT
  - Smart Work Zone for construction projects
  - Smart streetlights in coordination with utility companies
  - Electric vehicle charging stations





Recommended Projects

- Orange County Convention Center projects
  - Traffic Management Center
  - CAV upgrades
  - Dynamic message signage/wayfinding
  - Permanent ped/bike counters
  - Fiber optic upgrades
  - AV shuttle pilot project
    - Between buildings and parking areas



Recommended Projects

- Mobility hub concepts at gateway, community, and local scale
  - Flexible mix of mobility options
  - Bike/car share, ride hailing pickup zones, electric vehicle charging, other services and amenities
  - Provide seating, lighting, transit shelters, WiFi, power outlets, and safety measures
  - Would require extensive public input on locations, services, design
- Coordination with other agencies needed
  - LYNX plan for kiosks, OUC mobility hubs
  - Assumptions based on FDOT ATTAIN kiosk, Lake Nona BUILD project, Broward MPO

Source: San Diego Association of Governments, 2019.

1 | TRANSIT AMENITIES

- ENHANCED TRANSIT WAITING AREAS
- PASSENGER LOADING ZONES
- REAL-TIME TRAVEL INFORMATION

2 | PEDESTRIAN AMENITIES

- WALKWAYS
- CROSSINGS

3 | BIKE AMENITIES

- BIKEWAYS
- BIKE PARKING
- BIKESHARE

4 | MOTORIZED SERVICES & AMENITIES

- DEDICATED TRANSIT LANES
- RIDEABLES
- ELECTRIC BIKE & SCOOTERSHARE
- CARSHARE
- ON-DEMAND RIDESHARE
- MICROTRANSIT
- NEIGHBORHOOD ELECTRIC VEHICLE (NEV)
- ELECTRIC VEHICLE CHARGING
- SMART PARKING
- FLEXIBLE CURB SPACE

5 | SUPPORT SERVICES & AMENITIES

- WAYFINDING
- PACKAGE DELIVERY
- MOBILE RETAIL SERVICES
- UNIVERSAL TRANSPORTATION ACCOUNT

Recommended Projects

- Smart City Accelerator
  - Assist companies developing emerging technologies through grants
  - Help to create cluster of CAV companies, like Luminar, with higher-wage jobs
  - Builds on prior County investments in UCF, National Entrepreneur Center
- Transitioning to Innovation Lab concept—in development
  - Led by County's Chief Innovation & Emerging Technologies Officer
  - Focus includes other areas, not just transportation
  - Physical facility and projected $2M in funding

Moving Forward

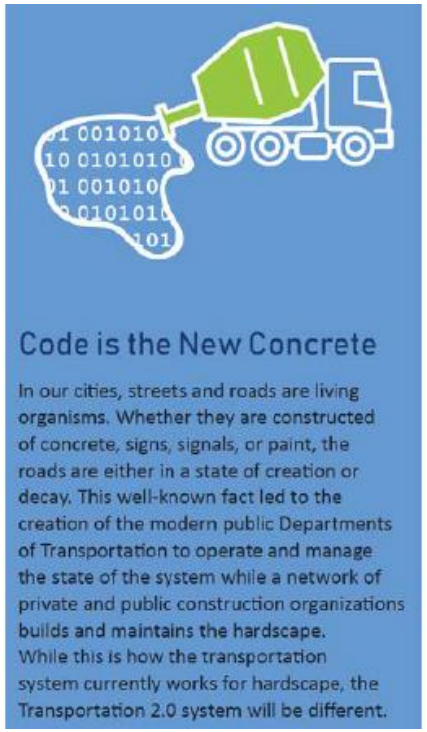
"The County, in collaboration with FDOT, MetroPlan Orlando, LYNX, local governments, Central Florida Expressway Authority, and the private sector, will plan the development and operation of viable and financially feasible transportation systems on a local and regional scale that use state-of-the-art and energy-efficient infrastructure, vehicles, materials, technologies, and methodologies, where economically feasible."

Orange County 2010-2030 Comprehensive Plan, Transportation Policy T3.4.1

Moving Forward

- Transportation Initiative
  - Next option would be November 2022 general election
  - County continues to assess conditions
  - Monitor any related changes in 2021 legislative session
- Public outreach
  - Initiative suspended before meetings on recommended funding allocation/projects
  - Need community input on projects and current preferences post-pandemic
  - Significant uncertainty in travel behavior that may last 6 to 24 months per Susan Shaheen (2020)
- Agency concept and strategy—key element of best practices

> *"We need to change our mindset as … government agencies in recognizing that our roadways have shifted from brick and mortar to electrical to data infrastructure."*
>
> *Vik Bihde, Smart Mobility Manager (former Chief Traffic Management Engineer), City of Tampa*



Transportation Technology STRATEGY

1 Build a solid data foundation.

POLICY RECOMMENDATIONS

1. Define what can be shared.
2. Adopt privacy principles.
3. Develop a standard data sharing agreement.
4. **Create a regional blueprint for system integration.***
5. Establish design guidelines for digital infrastructure.

TODAY (0-2 years)

1. Inventory available data.°
2. Create a wishlist for other data sets + prioritize.°
3. Create a data analysis bench contract + grow internal capacity.°
4. Develop a roadmap for new data resources.

TOMORROW (3-5 years)

1. Make the data easier to use with data dictionaries and other tools.
2. Adopt APIs + other tools to streamline sharing.

FUTURE (6+ years)

- Leverage data to manage a more flexible transportation system with public + private service providers.

2 Leverage tech + design for a better transportation experience.

POLICY RECOMMENDATIONS

1. Create ATSAC 3.0.
2. Enforce congestion-busting rules for safety.
3. Adopt a customer bill of rights and metrics for transportation happiness.
4. Require corridor + building designs that serve multiple modes.
5. Eliminate parking minimums.
6. Rethink parking garages.
7. Stop widening roads.

TODAY (0-2 years)

1. **Code the curb to optimize access.***
2. Develop customer-centered requirements for public services.
3. Integrate real-time data + tech into urban design and planning processes.
4. Publish data on EV charging station locations.
5. **Advance fleet conversion to greener fuel.***

TOMORROW (3-5 years)

1. Create a unified wayfinding program.
2. Route transit by demand where suitable.
3. Expand ExpressPark citywide.
4. Introduce a portal for employers to manage transit benefits.

FUTURE (6+ years)

- Create a universal fare system for LA.

3 Create partnerships for more shared services.

POLICY RECOMMENDATIONS

1. Update regulations to include new transportation modes.
2. Make it easier to work with the City + provide a level playing field.
3. Adopt a new transportation demand management (TDM) ordinance for developments.

TODAY (0-2 years)

1. **Develop a shared mobility action plan.**
2. Form a multi-discipline mobility assessment team to understand changes + data needs.
3. **Designate an innovation pilot project manager.*°**

TOMORROW (3-5 years)

1. Bring sharing to City Hall through carsharing, bikesharing + carpooling platforms.
2. Launch a mobility lab.

FUTURE (6+ years)

- Implement Mobility as a Service.

4 Establish feedback loops for services + infrastructure.

POLICY RECOMMENDATIONS

1. Become a more responsive service provider by enabling feedback + measuring impact.
2. Establish a project evaluation standard.

TODAY (0-2 years)

1. Create a user experience working group.
2. Investigate new tools for the ongoing evaluation of infrastructure conditions.
3. Engage the entire community on infrastructure assessments.
4. Partner and support a marketing campaign on shared mobility.

TOMORROW (3-5 years)

1. Streamline LADOT online content + launch a project dashboard.
2. Prepare the workforce for changes driven by innovation in transportation tech.
3. Adopt multi-modal smart fare system.

FUTURE (6+ years)

- Develop a methodology to move to Infrastructure as a Service.

5 Prepare for an automated future.

POLICY RECOMMENDATIONS

1. **Call for mobility innovation in California.**
2. Collaborate regionally to promote interoperability.
3. Launch a taskforce on data monetization strategies.
4. Advocate for new approaches to financing infrastructure projects.

TODAY (0-2 years)

1. **Develop a business plan for a city AV fleet.***
2. Create a dedicated staff position focused on connected and automated vehicle tech.
3. **Implement blind spot detection systems for public transit vehicles.***
4. Expand LADOT connected bus technologies fleet-wide.
5. Invest in lane markings that enhance effectiveness of lane departure warning and prevention systems.

TOMORROW (3-5 years)

1. Create better access to ATSAC data and enhance transparency of network prioritization for planning.
2. Develop an AV road network along transit and enhanced vehicle networks.
3. Launch a Data as a Service program to provide real-time infrastructure data to connected vehicles.

FUTURE (6+ years)

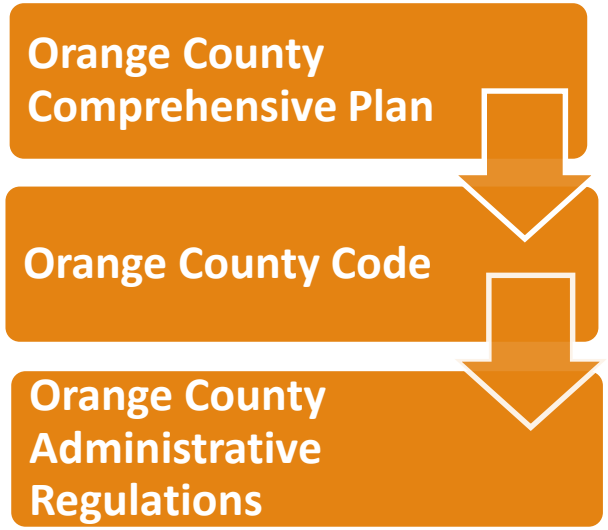
- Convert the public transit vehicle fleet to fully automated.

° Action proposed for bench contracts. ** Action already planned or underway.*

Sources: Nyczepir, 2018; City of Los Angeles, 2018.

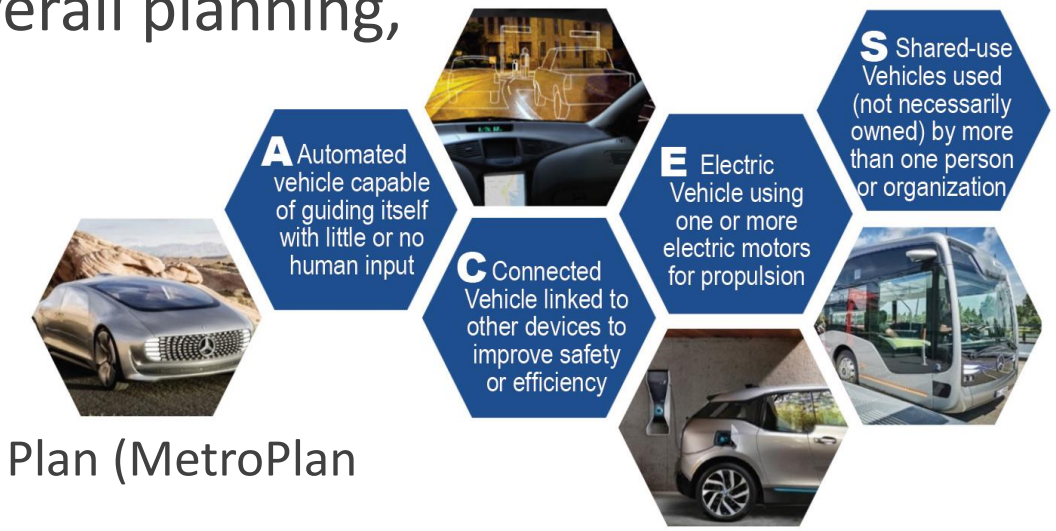
Moving Forward

- Evaluate and update policies/procedures to address Initiative's volume and types of projects
  - Design-build and other models (Project Delivery Working Group)
  - Procurement, selection, and MWBE
  - Contracts and invoicing
  - Real estate acquisition and settlement
  - Capital Improvements Program prioritization
  - Adopted Transportation Sales Tax procedures from prior effort
  - Sidewalk policy
  - Staffing and proficiencies



Moving Forward

- County CAV white paper to help define overall planning, policy, and agency needs
- Comprehensive Plan update to year 2050
  - County Transportation Element update
  - Reviewing ACES approach now for Element
  - Coordinate with 2045 Metropolitan Transportation Plan (MetroPlan Orlando) on ITS, CAV, other technology
- Orange County Code updates for transportation technology
  - Curb zone and automated delivery/personal delivery devices



Source: FDOT, 2018.

Source: National Governors Association, 2018.

Transportation Technology White Paper

FDOT District 5 TSM&O Consortium—May 28, 2020

Hazem El-Assar, PE, Orange County Traffic Engineering

Alissa Barber Torres, PhD, FAICP, CLTD, Orange County Transportation Planning

Data Picker

Jeremy Dilmore, District Five TSM&O

Data Picker

- Updated Data Picker
- Pulls volume data as well as speeds
- Incorporating SIIA data

- http://www.cflsmartroads.com/tools.html

Where Are We Focusing?

- Key corridors
  - Routes of Significance – high AADT
  - Priority Corridors (Detour routes) – higher capacity, location, avoiding schools/neighborhood as possible
- Follow with fuller network
- Please let us know we if missed something

See Google Earth KML

Key Questions

- Where are we going to improve Signal Efficiency?
- What does it take to be CV Ready?
- Where do I stand?

Signal Efficiency

- Automated Traffic Signal Performance Metrics
  - Developed a naming standard
  - Developed a workflow
  - Have deployment group
  - MPOs stepped up with funding
  - Have cloud hosted software
- Next Steps
  - Increasing functionality of software
  - Maintenance Alerts, Incident Detection, Queue estimation, Latent Demand
  - Releasing a new RFP within next few months

ATSPM Demonstration

- Cloud ATSPM Service

  https://spm.traffop.com/login

  http://www.cflsmartroads.com/projects/future_projects.html

ATSPM Tool Demonstration

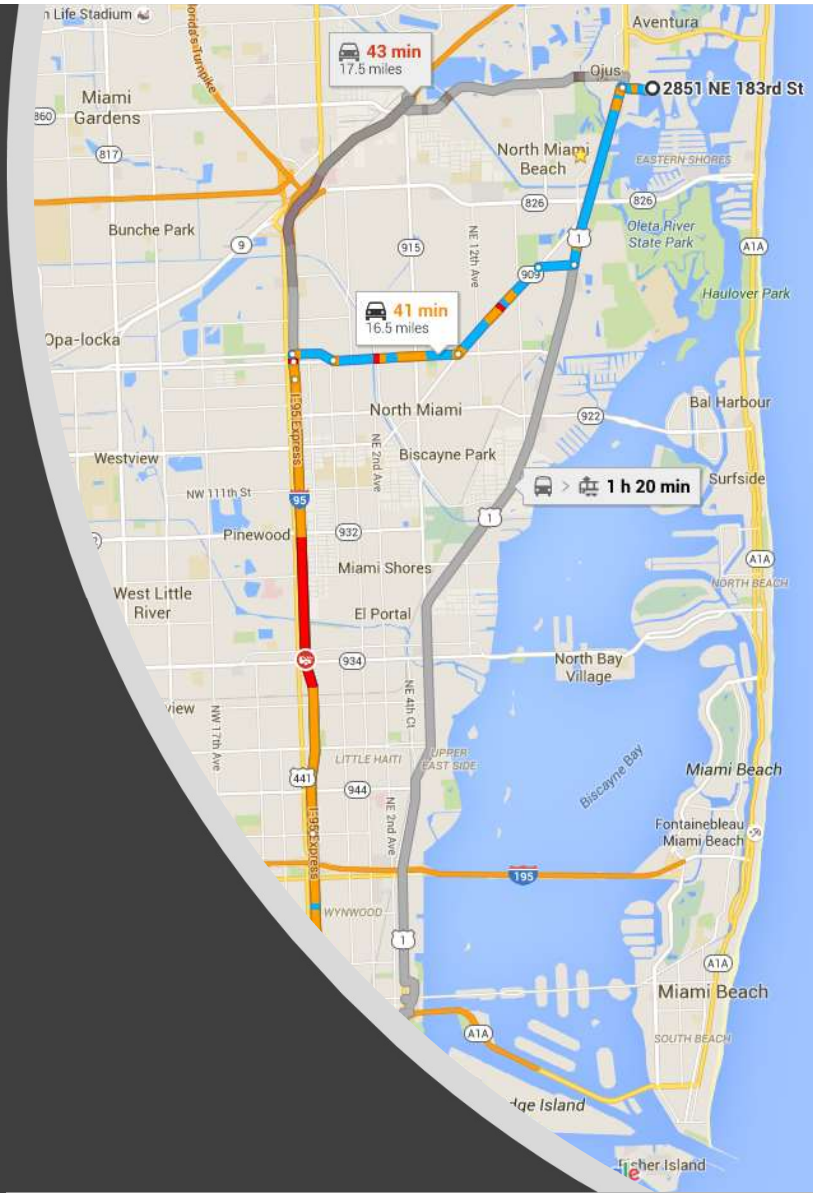
Sasa Mitrovic, Traffop

traffop

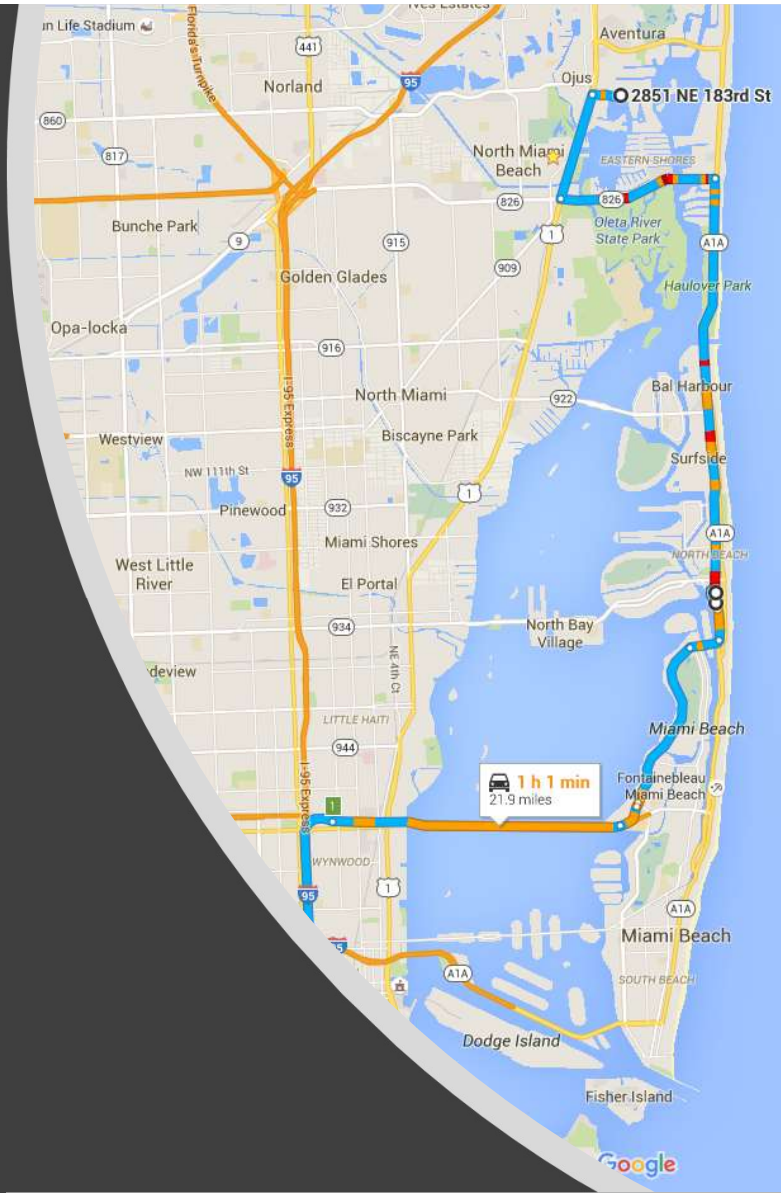
Dynamic Data | Smart Insights

Sasha

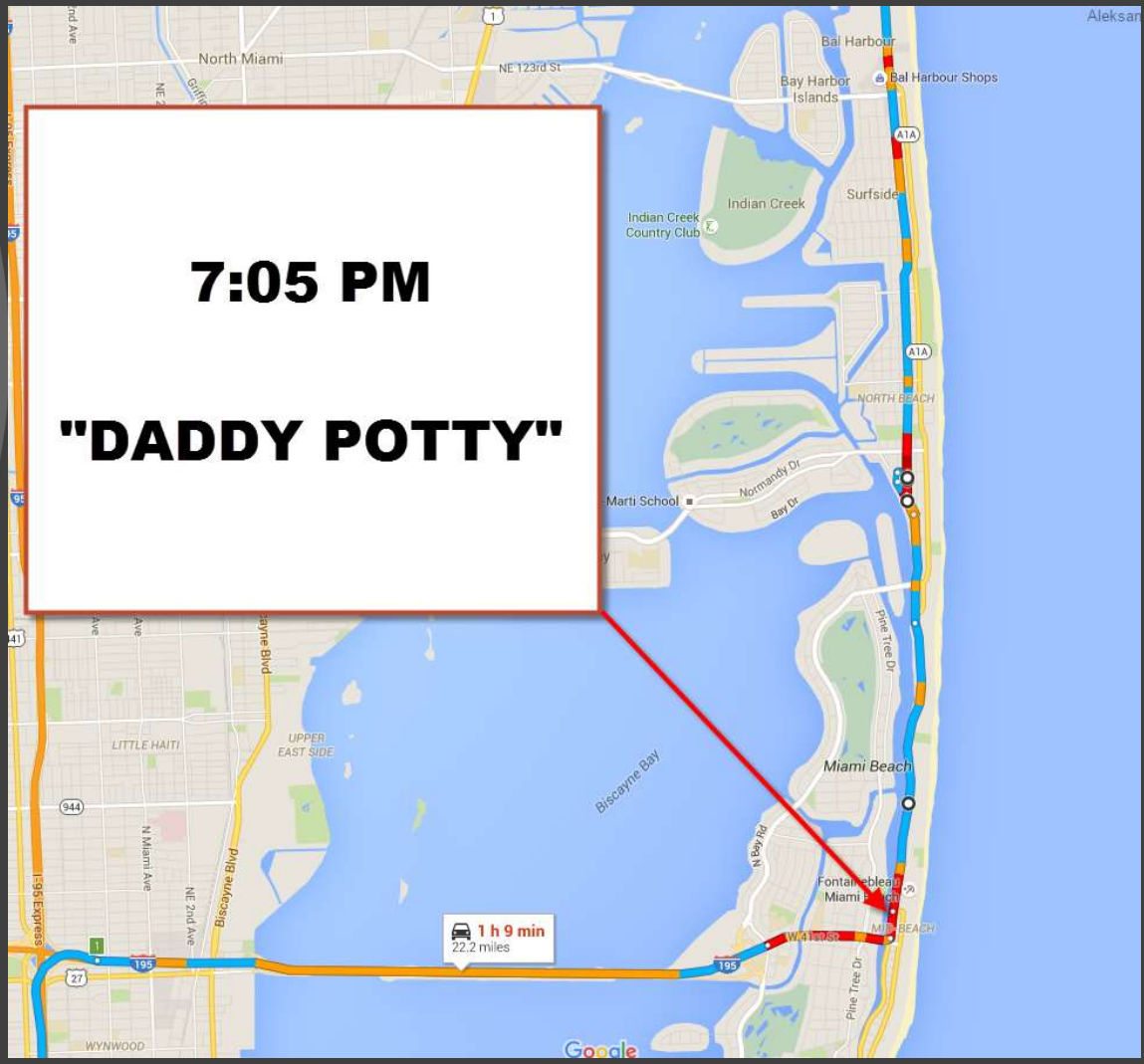
I-95 was congested



Decided to go around

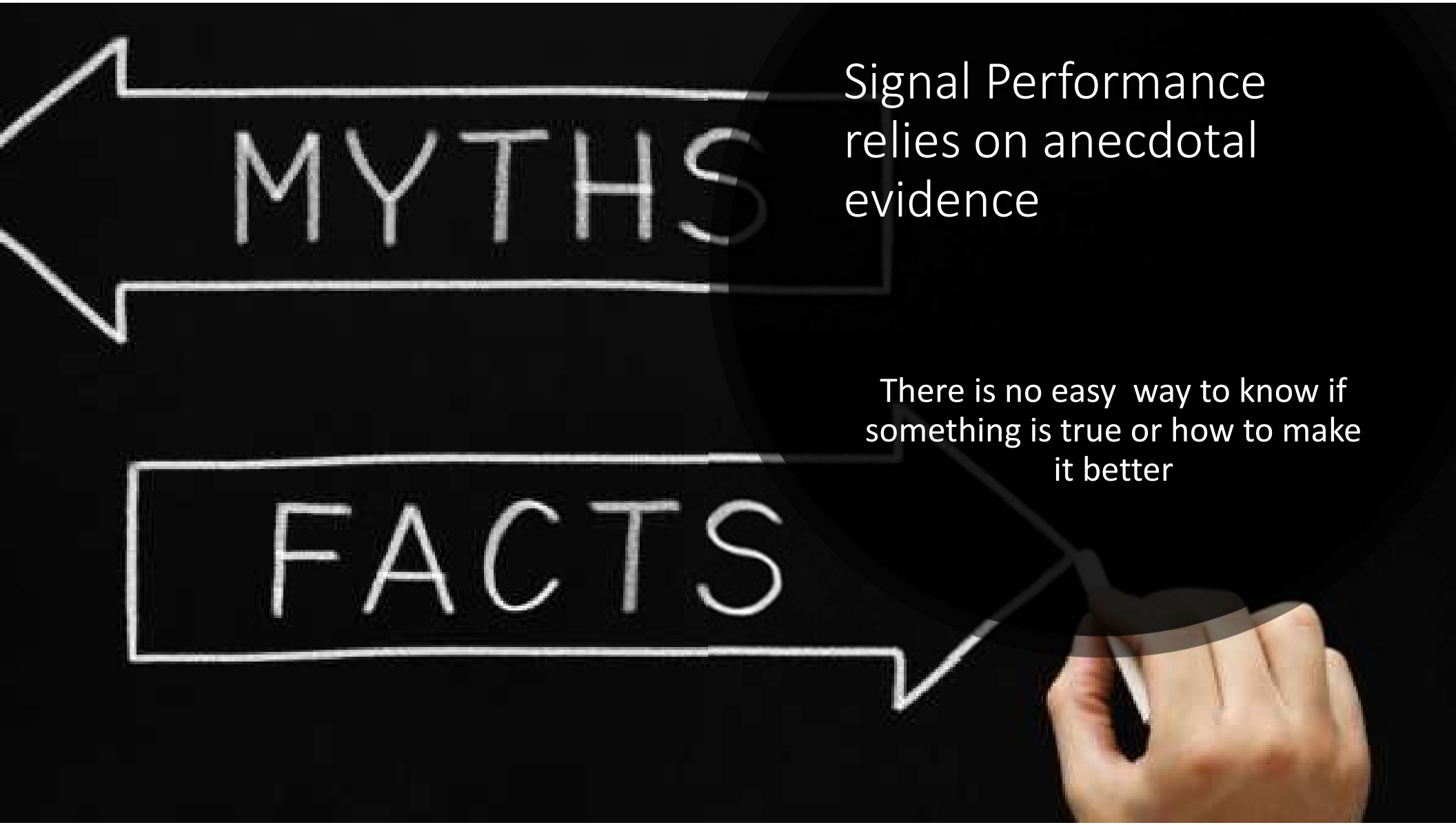


Alarm


7:05 PM
"DADDY POTTY"
North Miami
NE 123rd St
Bal Harbour
Bal Harbour Shops
Bay Harbor Islands
Indian Creek
Indian Creek Country Club
Surfside
NORTH BEACH
Normandy Dr
Bay Dr
Marti School
Pine Tree Dr
LITTLE HAITI
UPPER EAST SIDE
Biscayne Bay
Miami Beach
Biscayne Blvd
N Miami Ave
NE 2nd Ave
I-95 Express
N Bay Rd
1 h 9 min
22.2 miles
WYNWOOD
Google

First Sentence


194 73rd St
Miami Beach, Florida
Street View - May 2014
Collins Av
73rd St
Collins Ave



Signal Performance relies on anecdotal evidence

There is no easy way to know if something is true or how to make it better

Optimal signal timing doesn't just happen

1

Traffic controllers have many parameters. It is easy to get them wrong

2

Current ATMS systems are not built to measure operational performance

3

Anecdotal evidence is not a good measuring stick


What engineers really need is to be empowered by data

01

Imagine a performance reporting that is not anecdotal

02

Imagine a system that is smart

03

Imagine a system that tells you how well your signal is optimized and what you can do to make it better

Make it easy

By having everything on the cloud in Azure, we can take a very data-intensive solution that is complex for customers to manage and turn it into an offering that they only need an Internet connection with a browser to access.

DRAFT GUIDEBOOK

to the

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP)

on

Project 03-122: Performance-Based Management of Traffic Signals

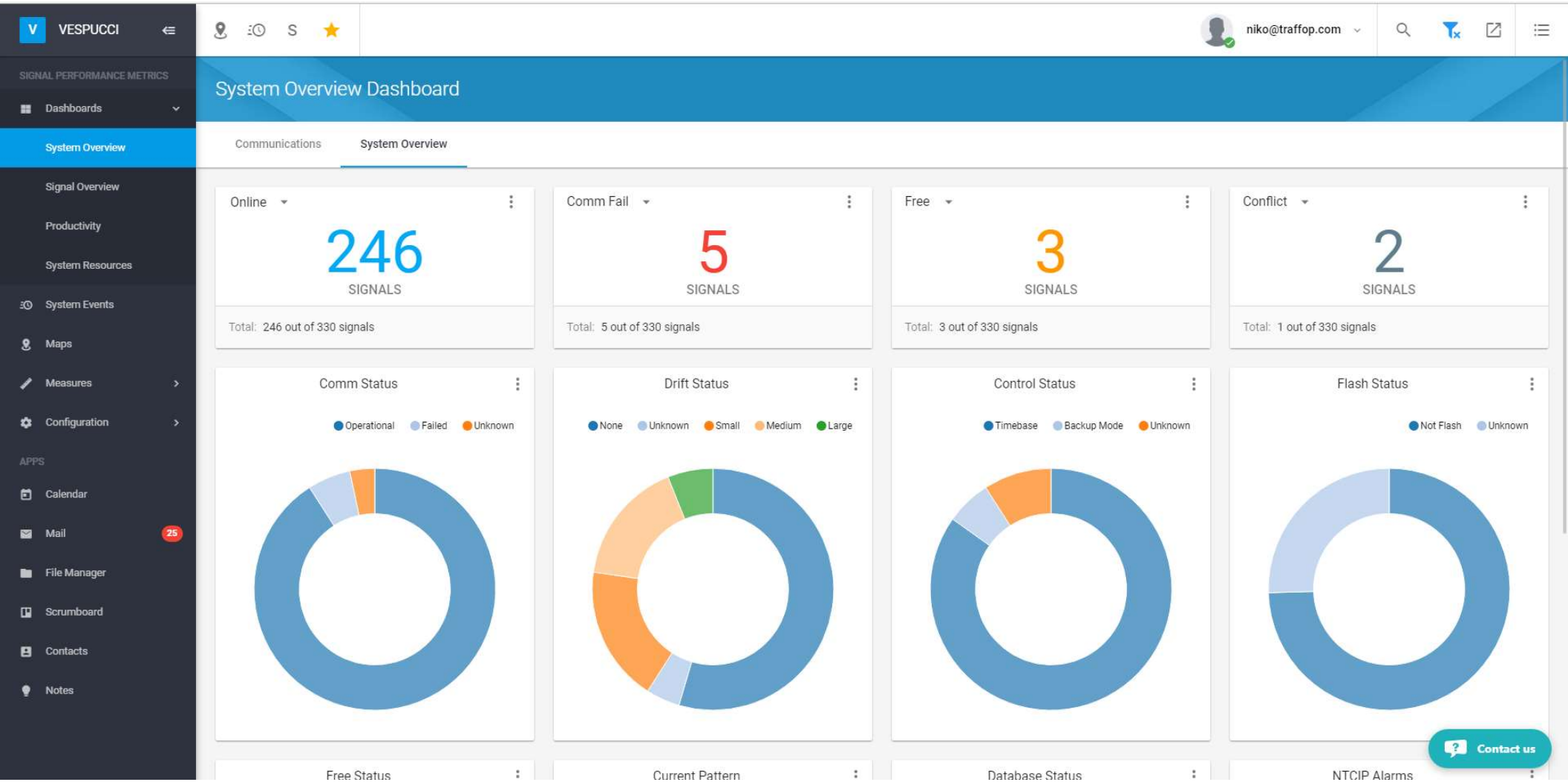
By introducing a performance-based approach, agencies can better address citizen complaints, identify impactful signal timing changes, and produce reports that document improvements.

Technological advances have significantly impacted how transportation professionals manage and operate transportation systems.

The ability to collect large amounts of data at signalized intersections has led to the development of dozens of performance measures.

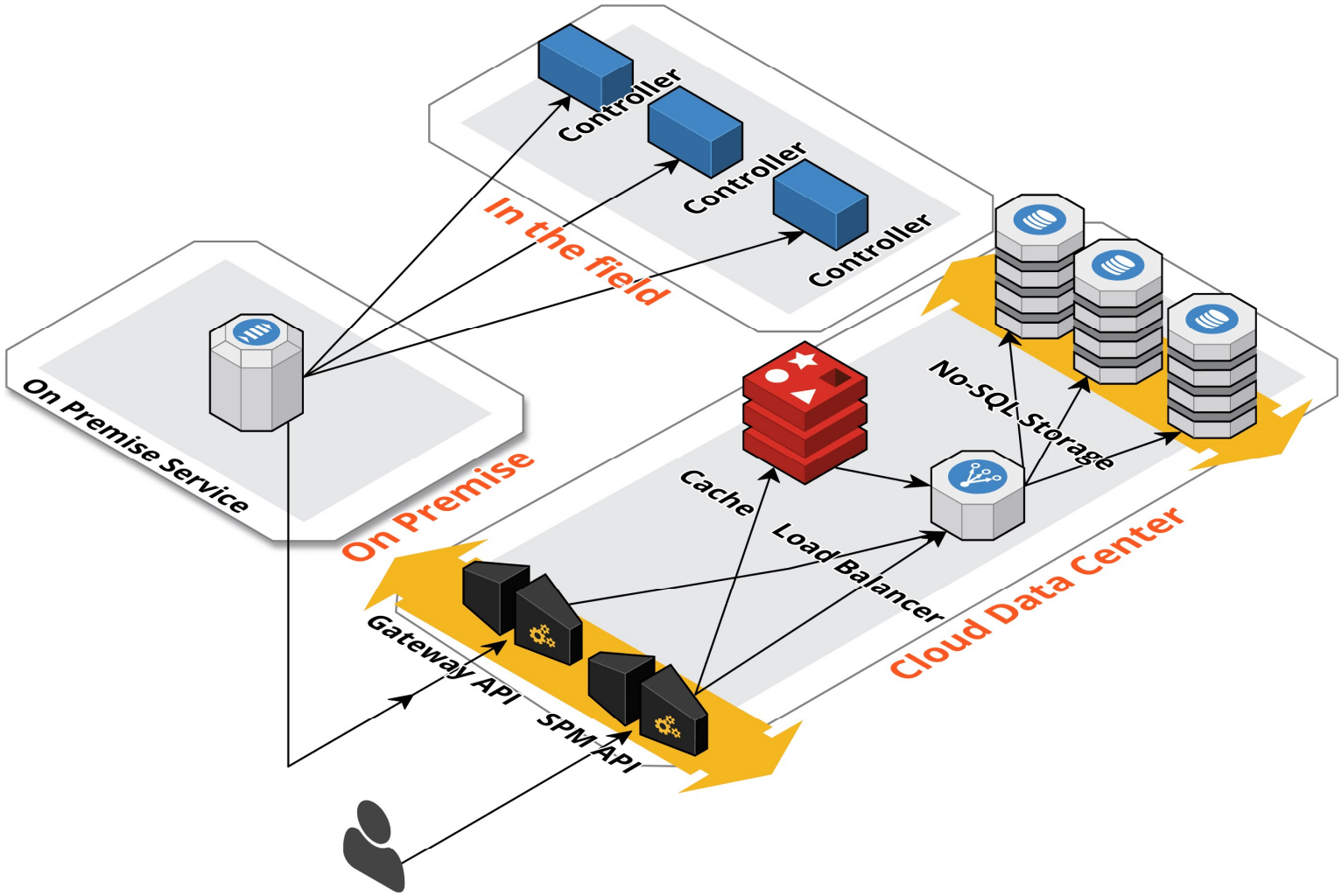
These metrics can help agencies make better informed, data-driven decisions. However, the sheer number of available metrics may be **overwhelming**.

Our goal is to accelerate the adoption of ATSPMs by providing intuitive, effective and robust performance software.


VESPUCCI
SIGNAL PERFORMANCE METRICS
Dashboards
System Overview
Signal Overview
Productivity
System Resources
System Events
Maps
Measures
Configuration
APPS
Calendar
Mail
25
File Manager
Scrumboard
Contacts
Notes
niko@traffop.com
System Overview Dashboard
Communications
System Overview
Online
246
SIGNALS
Total: 246 out of 330 signals
Comm Fail
5
SIGNALS
Total: 5 out of 330 signals
Free
3
SIGNALS
Total: 3 out of 330 signals
Conflict
2
SIGNALS
Total: 1 out of 330 signals
Comm Status
Operational
Failed
Unknown
Drift Status
None
Unknown
Small
Medium
Large
Control Status
Timebase
Backup Mode
Unknown
Flash Status
Not Flash
Unknown
Free Status
Current Pattern
Database Status
NTCIP Alarms
Contact us

Need

New technologies for monitoring arterial performance measures generate a lot of data; however, understanding the significance of the data by gleaning the critical information, requires summarizing the data into a concise, easy to understand format that shows trends and patterns.


Controller
Controller
Controller
In the field
On Premise Service
On Premise
Cache
No-SQL Storage
Load Balancer
Gateway API
SPM API
Cloud Data Center

Contact me

sasa@traffop.com

What We Need From You

- Acting conduit for acquiring hardware
- Collecting information on signals
  - Signalized Intersection Inventory Application or SIIA (pronounced “See ya!”)
  - Collecting after upgrading controller, cabinet, detection
- This populates MIMS
  - Provides a basis of data for locals on some roads
- Heard there is a desire to connect MIMS to different asset maintenance tools

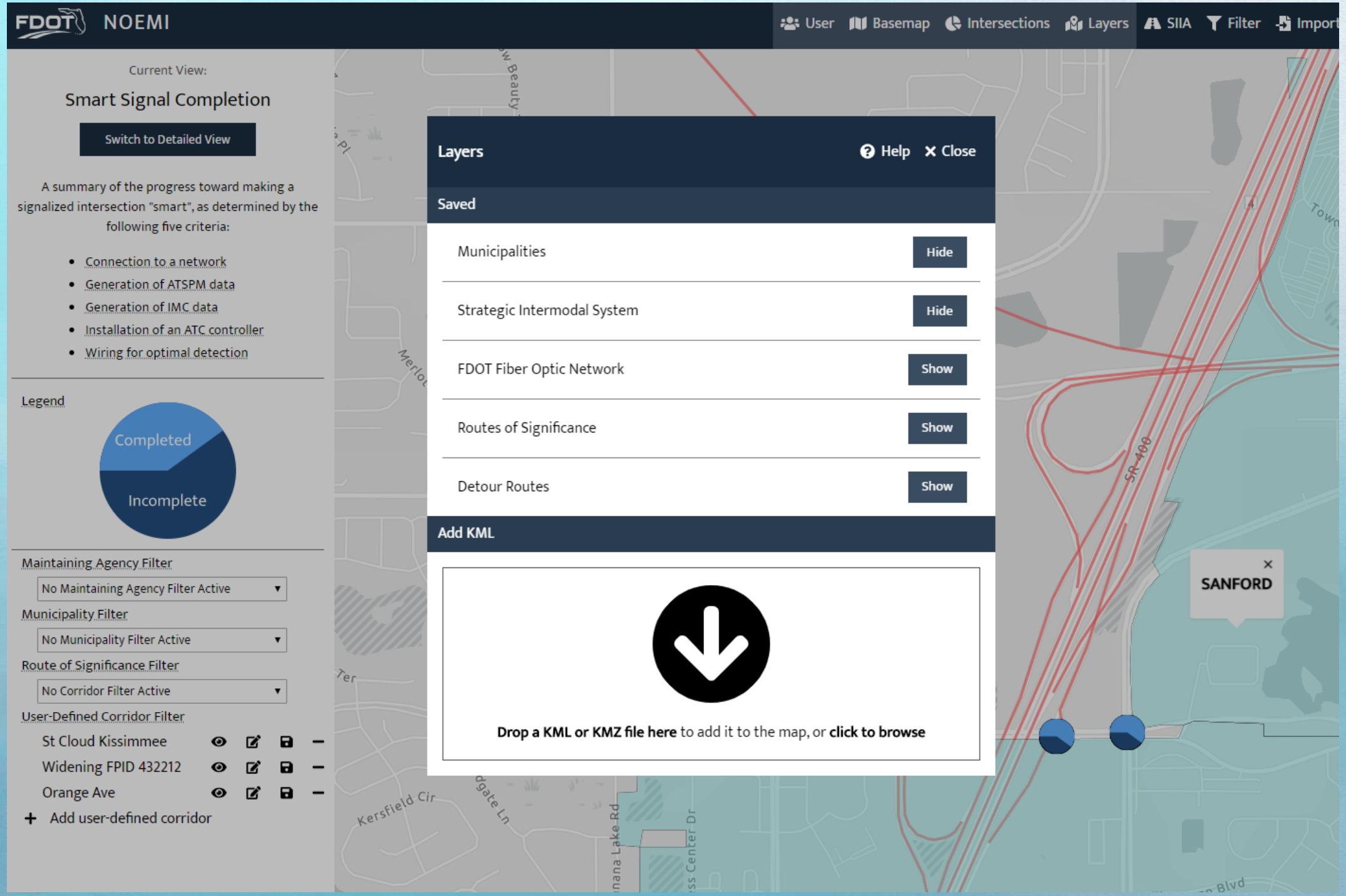
What We Need From You

- ATC Controllers
  - Be willing to work with them
  - Database conversions – generally handled by consultant, but need someone to test
  - Deployment via contractor or agency forces
- Interconnected Signals – about to be the big push
- Detector Data Maintenance
  - Standard helps, big time (Earlier consortium meeting, Brevard County developed for their Synchro Green Needs)
  - Detector distance from stop bar
  - Channel
  - Phase

What does it take to be CV-ready?

- ATC Controller
- Interconnected Signal
- Intersection Data
- Larger Cabinet (preferred)

Available Layers



Filters – Routes of Significance

Current View:

Smart Signal Completion

Switch to Detailed View

A summary of the progress toward making a signalized intersection "smart", as determined by the following five criteria:

- Connection to a network
- Generation of ATSPM data
- Generation of IMC data
- Installation of an ATC controller
- Wiring for optimal detection

Legend

Maintaining Agency Filter

No Maintaining Agency Filter Active

Municipality Filter

No Municipality Filter Active

Route of Significance Filter 16 features returned

SR 50 SR 551 to Woodbury Rd

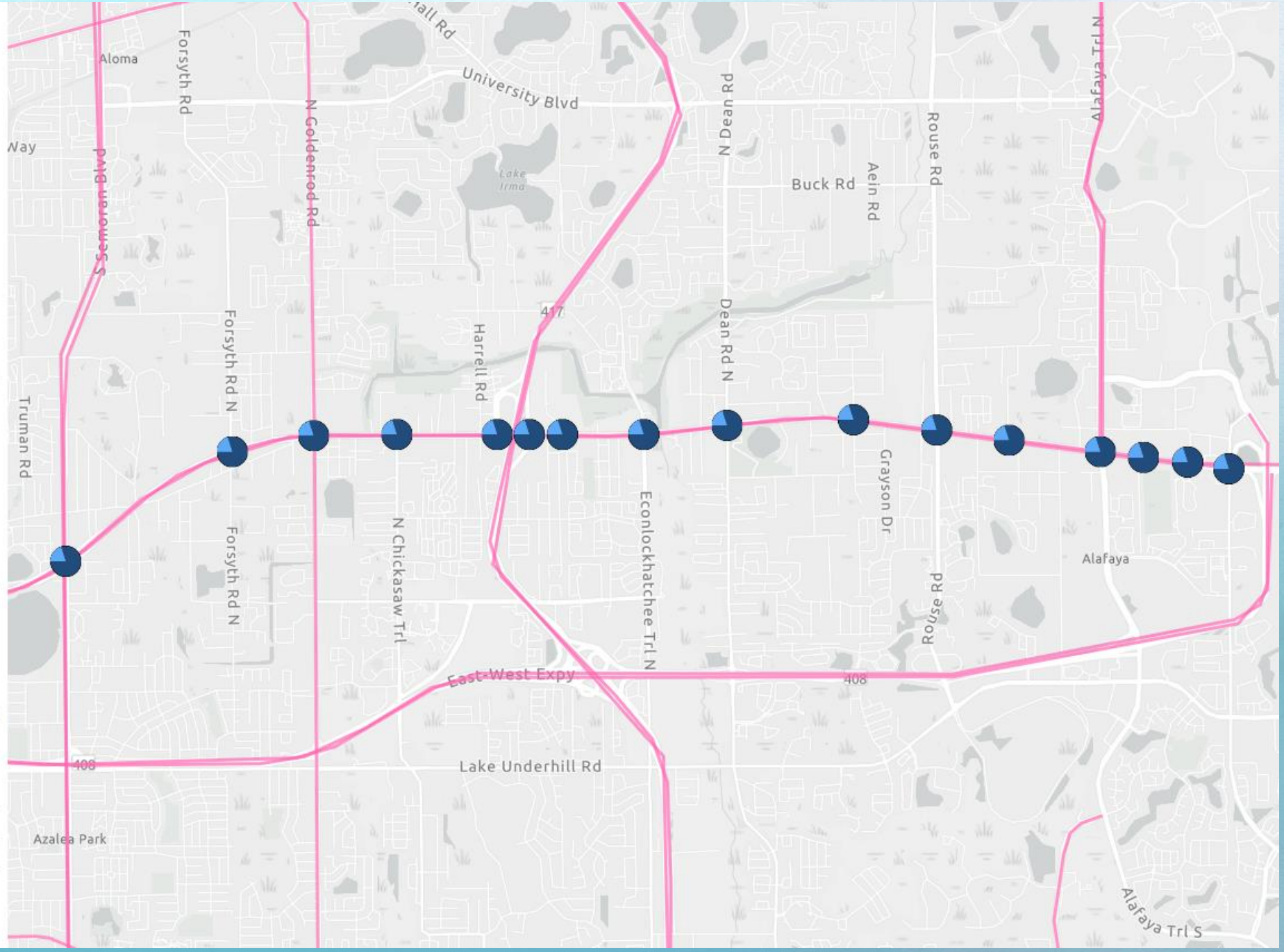
User-Defined Corridor Filter

St Cloud Kissimmee

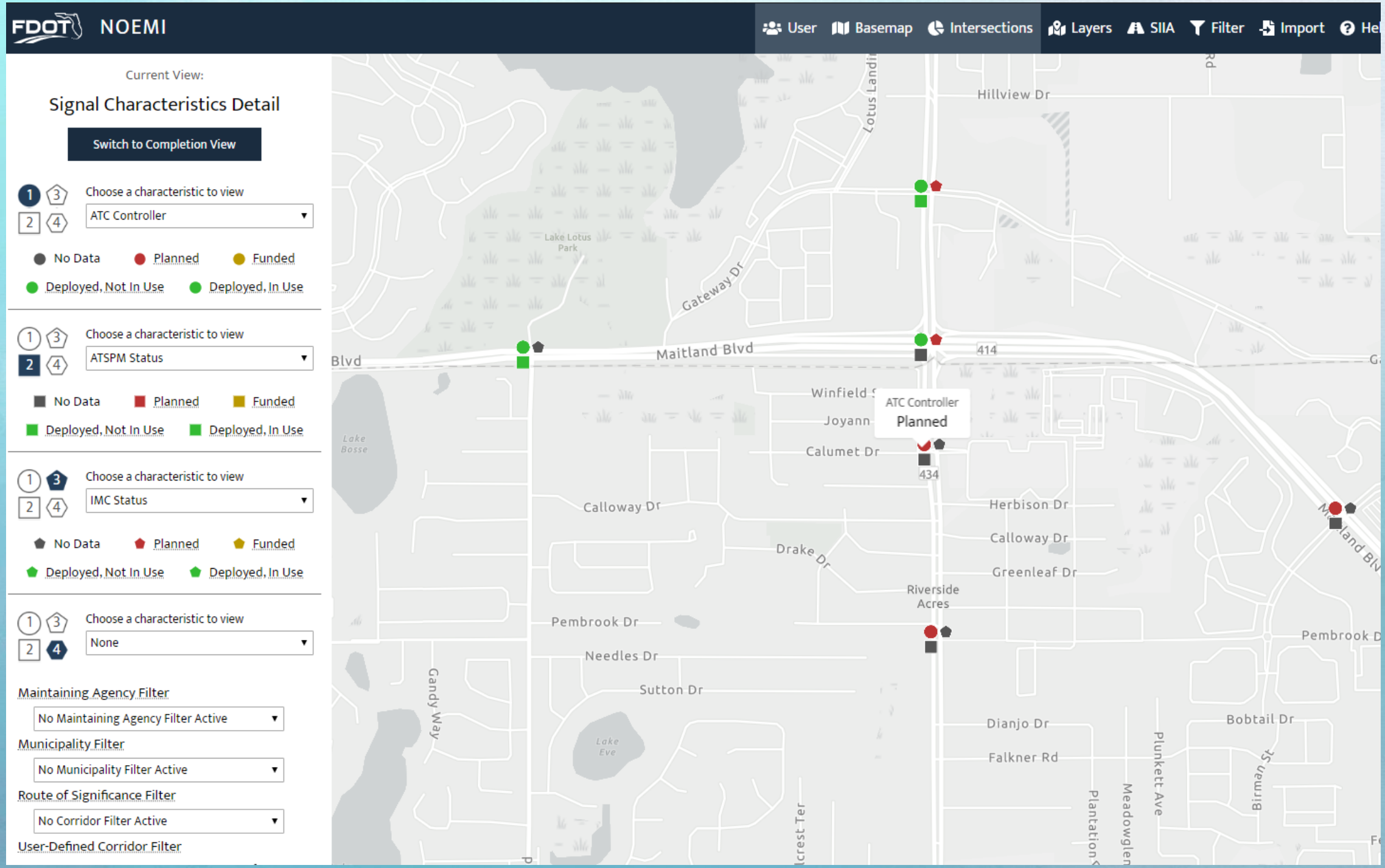
Widening FPID 432212

Orange Ave

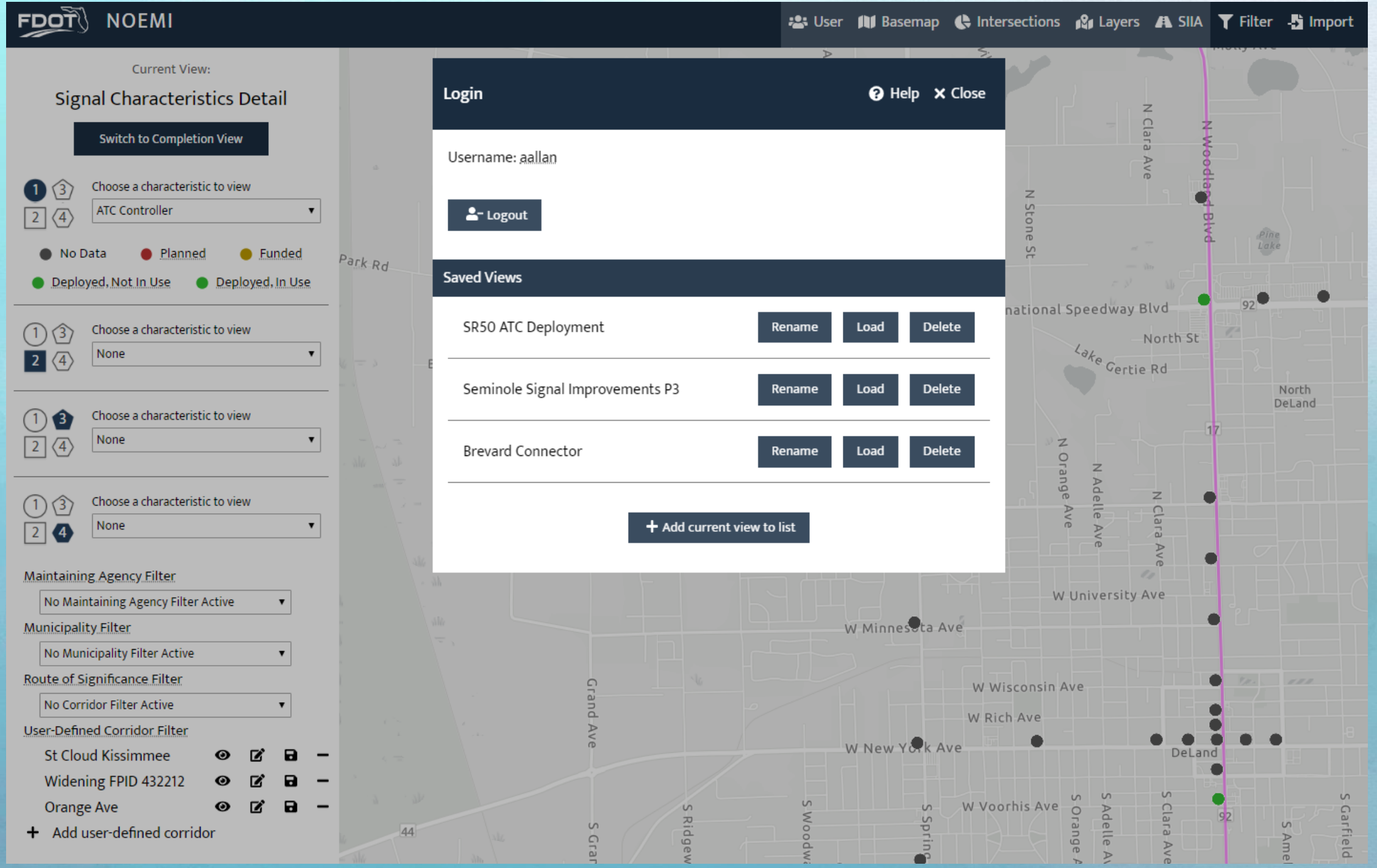
+ Add user-defined corridor



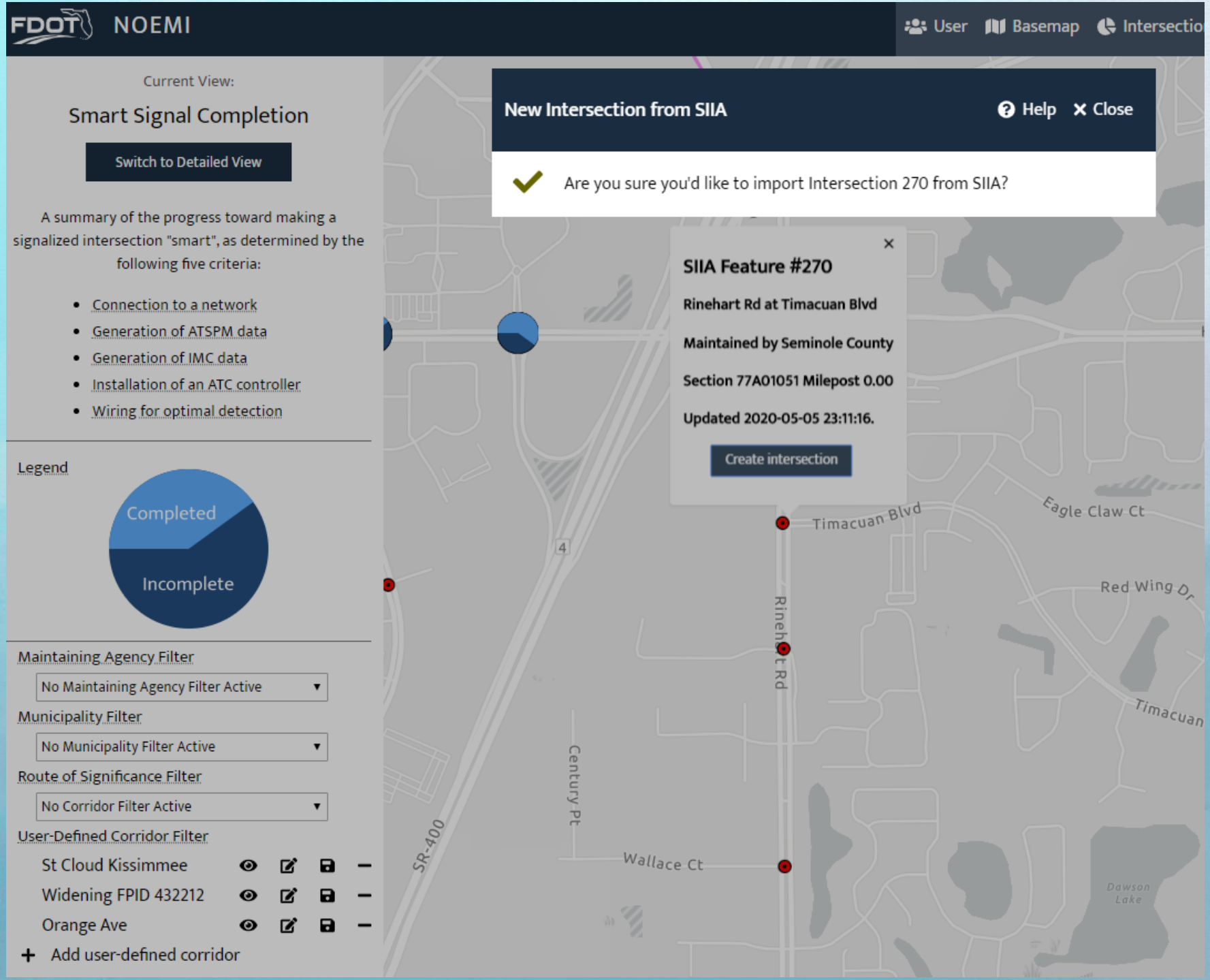
Detail Hover



User Views


FDOT
NOEMI
User
Basemap
Intersections
Layers
SIIA
Filter
Import
Current View:
Signal Characteristics Detail
Switch to Completion View
Choose a characteristic to view
ATC Controller
No Data
Planned
Funded
Deployed, Not In Use
Deployed, In Use
Choose a characteristic to view
None
Choose a characteristic to view
None
Choose a characteristic to view
None
Maintaining Agency Filter
No Maintaining Agency Filter Active
Municipality Filter
No Municipality Filter Active
Route of Significance Filter
No Corridor Filter Active
User-Defined Corridor Filter
St Cloud Kissimmee
Widening FPID 432212
Orange Ave
Add user-defined corridor
Login
Help
Close
Username: aallan
Logout
Saved Views
SR50 ATC Deployment
Rename
Load
Delete
Seminole Signal Improvements P3
Rename
Load
Delete
Brevard Connector
Rename
Load
Delete
Add current view to list
Park Rd
N Clara Ave
N Woodland Blvd
N Stone St
Pine Lake
North St
Lake Gertie Rd
North DeLand
N Orange Ave
N Adelle Ave
N Clara Ave
W University Ave
W Minnesota Ave
W Wisconsin Ave
W Rich Ave
W New York Ave
DeLand
W Voorhis Ave
Grand Ave
S Ridgewood
S Spring
S Orange
S Adelle
S Clara Ave
S Garfield
44
92
17

SIIA Integration



SIIA Rules

FDOT NOEMI

User | Basemap | Intersections | Layers

Current View:

Smart Signal Completion

Switch to Detailed View

A summary of the progress toward makin signalized intersection "smart", as determined following five criteria:

- Connection to a network
- Generation of ATSPM data
- Generation of IMC data
- Installation of an ATC controller
- Wiring for optimal detection

Legend

Maintaining Agency Filter

No Maintaining Agency Filter Active

Municipality Filter

No Municipality Filter Active

Route of Significance Filter

No Corridor Filter Active

User-Defined Corridor Filter

St Cloud Kissimmee

Widening FPID 432212

Orange Ave

+ Add user-defined corridor

Help ✕ Close

Set **Communication Medium** to

- **Copper** if
  - Communication Type is "Copper – Serial", or
  - Communication Type is "Copper – Ethernet", or
  - Communication Type is "Utility Service DSL", or
  - Communication Type is "Utility Service – Cable
- **Wireless** if
  - Communication Type is "Wireless – Radio", or
  - Communication Type is "Wireless – Radio"
- **Fiber** if
  - Communication Type is "Fiber", or
  - Communication Type is "Wireless – Fiber"

Set **Size 6 Cabinet** to **Deployed, in Use** if

- Controller Cabinet Size contains "Size_6", or
- Controller Cabinet Size contains "VI"

Set **TS-2 Cabinet** to **Deployed, in Use** if

- Controller Cabinet Type contains "TS2"

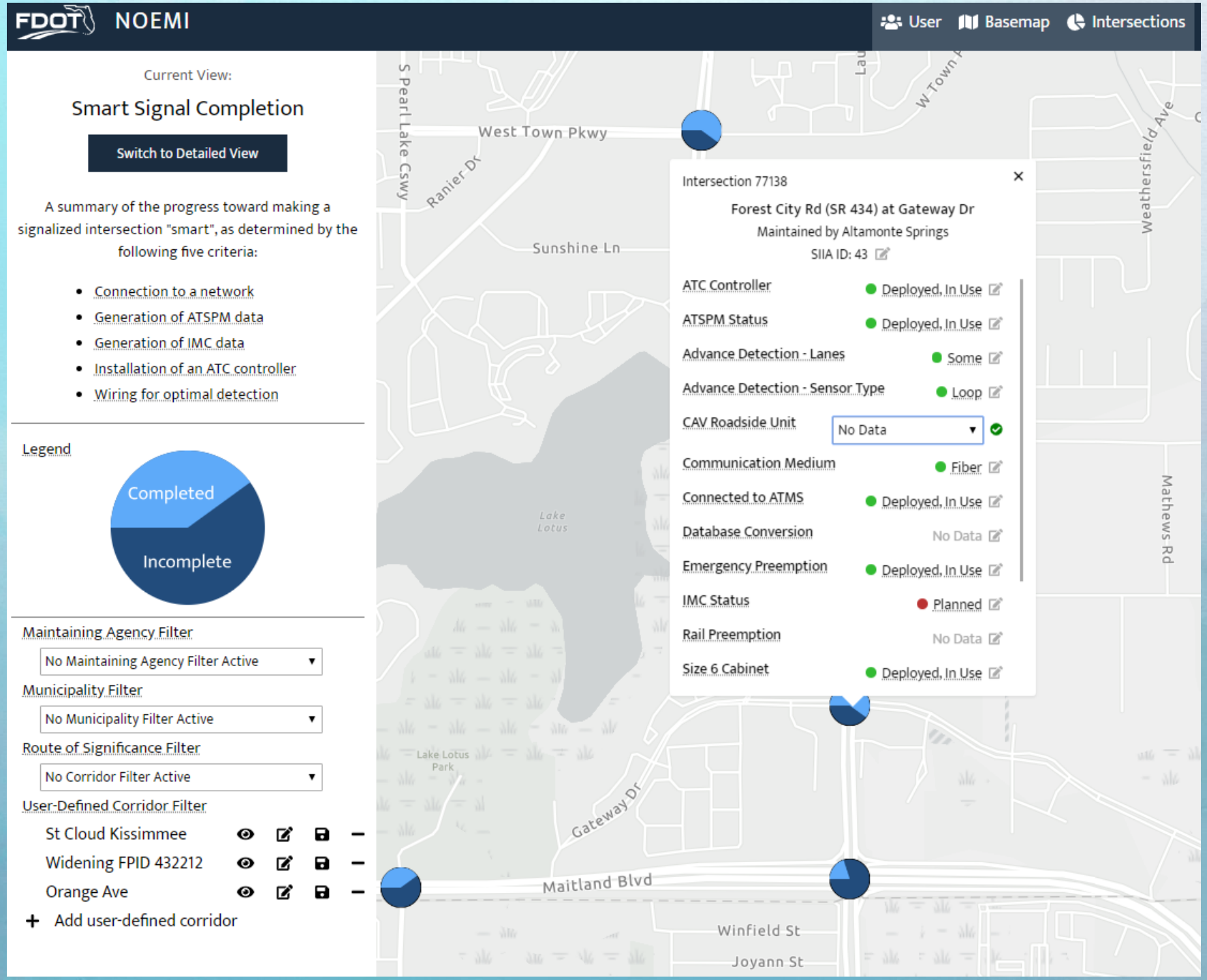
Set **Advance Detection - Lanes** to

- **All** if
  - Each Approach has at least one Lane, and
  - Every Lane has at least one Zone Loop with Distance to Stopbar greater than zero else
- **Some** if
  - Each Approach has at least one Lane, and
  - At least one Zone Loop has Distance to Stopbar greater than zero

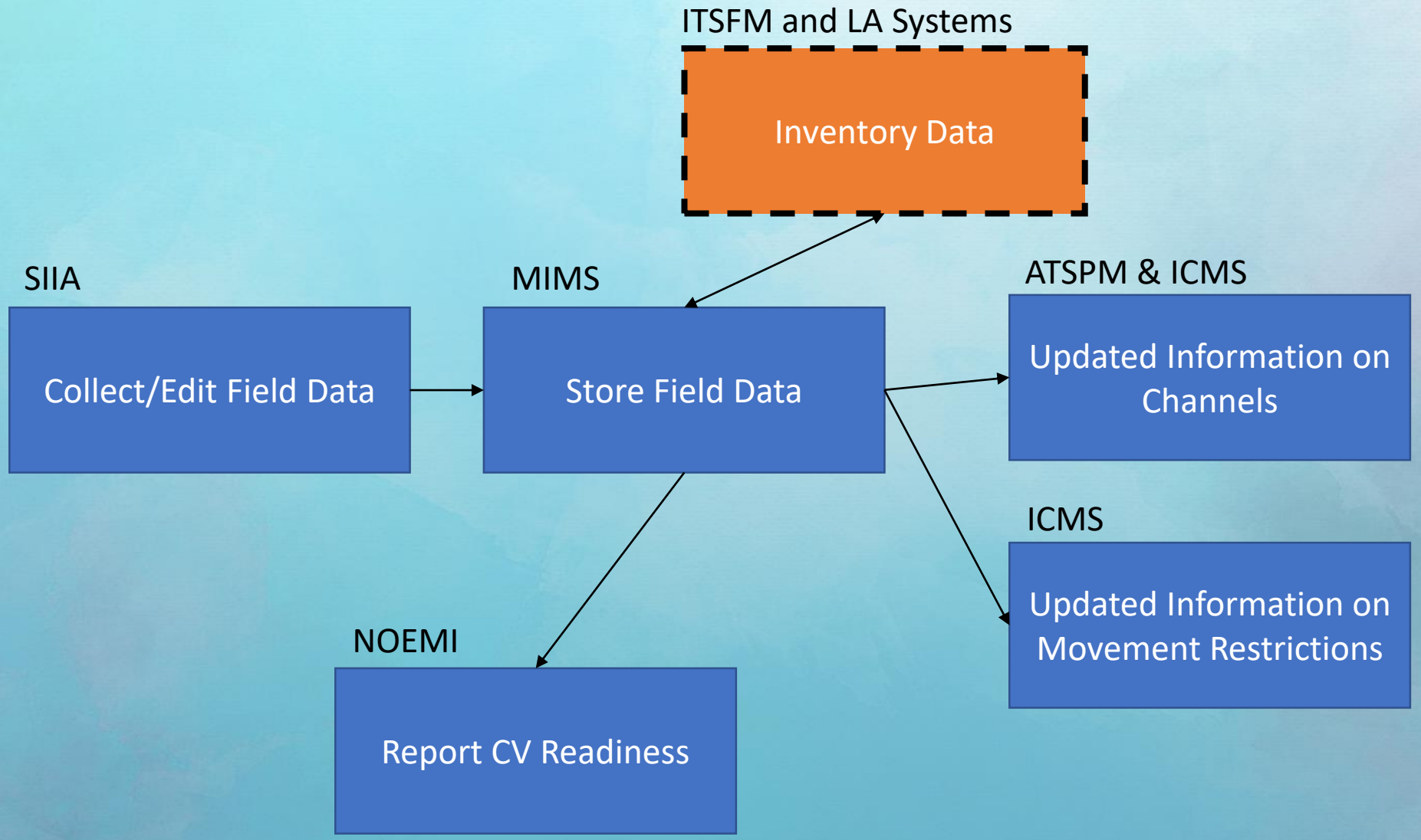
Set **Advance Detection - Sensor Type** to

- **Video** if

Edit Popup


FDOT
NOEMI
User
Basemap
Intersections
Current View:
Smart Signal Completion
Switch to Detailed View
A summary of the progress toward making a signalized intersection "smart", as determined by the following five criteria:
Connection to a network
Generation of ATSPM data
Generation of IMC data
Installation of an ATC controller
Wiring for optimal detection
Legend
Completed
Incomplete
Maintaining Agency Filter
No Maintaining Agency Filter Active
Municipality Filter
No Municipality Filter Active
Route of Significance Filter
No Corridor Filter Active
User-Defined Corridor Filter
St Cloud Kissimmee
Widening FPID 432212
Orange Ave
Add user-defined corridor
Intersection 77138
Forest City Rd (SR 434) at Gateway Dr
Maintained by Altamonte Springs
SIIA ID: 43
ATC Controller
Deployed, In Use
ATSPM Status
Deployed, In Use
Advance Detection - Lanes
Some
Advance Detection - Sensor Type
Loop
CAV Roadside Unit
No Data
Communication Medium
Fiber
Connected to ATMS
Deployed, In Use
Database Conversion
No Data
Emergency Preemption
Deployed, In Use
IMC Status
Planned
Rail Preemption
No Data
Size 6 Cabinet
Deployed, In Use
West Town Pkwy
Sunshine Ln
Lake Lotus
Lake Lotus Park
Gateway Dr
Maitland Blvd
Winfield St
Joyann St
Mathews Rd
Weathersfield Ave

SIIA – MIMS – NOEMI Workflow



Questions for follow up

- If we had a data exchange, could agencies connect to this?
- Can API information or vendor contact be sent to David?

Technology **A**pplication **P**artnership**s** for Local Agencies (TAPS-LA)

Jeremy Dilmore, District Five TSM&O

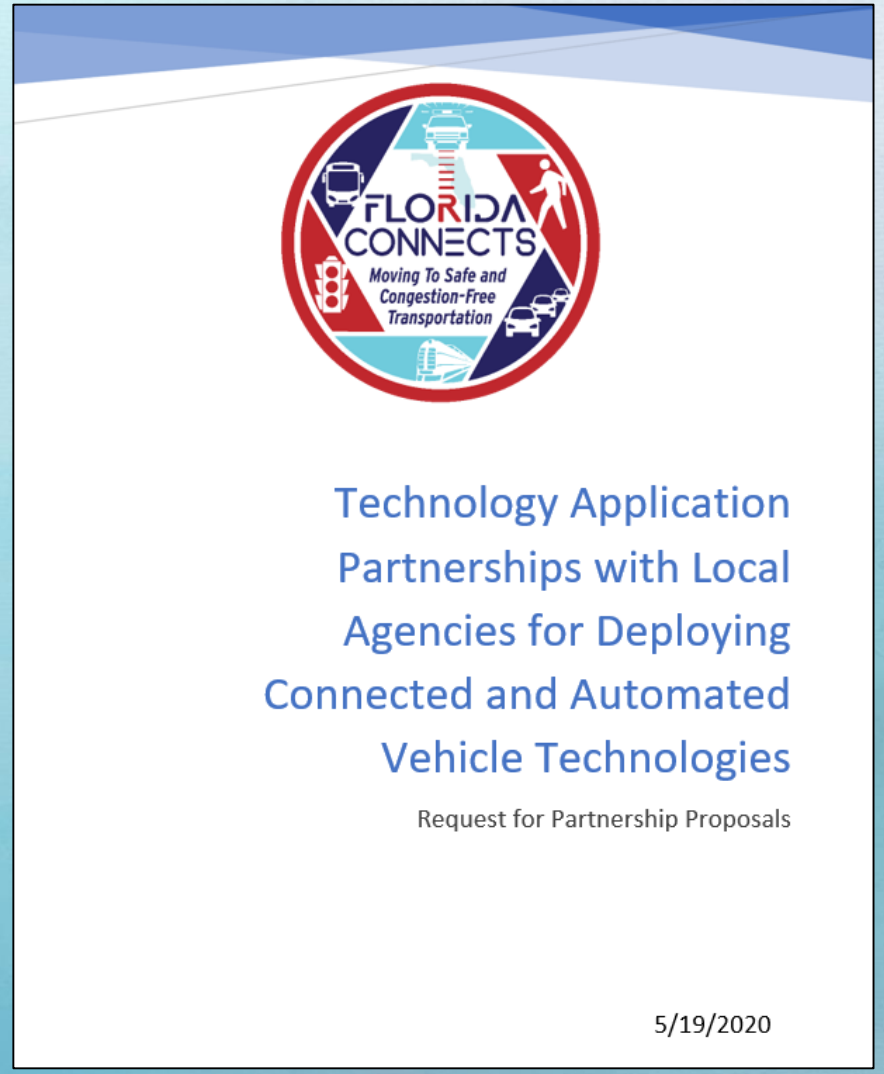
FDOT TSM&O
Transportation Systems Management & Operations

Transportation Systems Management & Operations

CENTRAL FLORIDA TSM&O CONSORTIUM

TAPS-LA Program

- **Still in development**
- Purpose: assist Florida's local agencies with incorporating and deploying CAV technologies
- TAPS-LA is **funded under the CAV program** initiative to deploy advanced transportation and congestion management technologies
- Eligible applicants
  - County governments
  - City governments
  - Transit agencies
  - Port authorities
  - Airport authorities



TAPS-LA Program

- **Roadway Eligibility –** existing roadway that is publicly maintained
- **Funding allocation** – FDOT CAV funds allocated on state highway system; local match funds can be applied to any road
  - Higher local funding → Higher application favorability
- **Partnership Agreement**
  1) Vendor Agreement (Joint Participation Agreement)
  2) Two-Procurement Approach
- **Period of Performance** – 1-2 years anticipated
- **Selection –** 2 to 4 projects per FY will be selected for TAPS-LA funds
- **CAV Program Funding –** Up to $500,000 per project

TAPS-LA Program

- **As part of TAPs-LA Program**
  - FDOT will offer local agency access to **FDOT's V2X Data Exchange Platform**
  - FDOT will offer local agency access to **FDOT's SCMS Platform**
  - FDOT will lead the **before-and-after analysis**
    - report due within 6 months of project completion
  - FDOT may provide other CAV platforms for interoperability and other elements for promoting safety and mobility

TAPS-LA Program

Application Submittal	
Technical Proposal (10 pages max)	Cover Page and Work Program Supplemental Info
	Project Narrative
	Management Structure
Budget Detail (5 pages max)	Budget Detail
Schedule	MS Project Gantt Chart (max 2yrs)

Current Initiatives

Jeremy Dilmore, District Five TSM&O

THANK YOU!

Next Consortium – July 23, 2020

TSM&O Consortium Meeting

MEETING AGENDA
Teleconference

May 28, 2020
10:00 AM-12:00 PM

1) WELCOME
2) ORANGE COUNTY TRANSPORTATION TECHNOLOGY IMPROVEMENTS – WHITE PAPER
   - Alissa Torres, Orange County
   - Hazem El-Assar, Orange County
3) DATA PICKER – UPDATE AND DEMONSTRATION
   - Jeremy Dilmore, District Five TSM&O
4) DEMONSTRATION OF TRAFFOP ATSPM SYSTEM
   - Sasa Mitrovic, Traffop
5) NOEMI FOR AV READINESS - UPDATE
   - Jeremy Dilmore, District Five TSM&O
6) SIIA FOR INTERSECTION DATA COLLECTION – UPDATE
   - Jeremy Dilmore, District Five TSM&O
7) CURRENT INITIATIVES
   - Jeremy Dilmore, District Five TSM&O