

# SPaT Challenge Update

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# V2I Deployment Background

## **“Chicken and Egg” problem:**

How do we encourage / initiate broad V2I deployment?

How do we demonstrate commitment to the OEM and private industry?

What is a reasonable, early expectation?



**Signalized Intersections (low-hanging fruit)**

# The SPaT Challenge

## So, what is SPaT?

A Signal Phase and Timing (SPaT) message defines the current intersection **signal light phases**.

The current state of all lanes at the intersection are provided, as well as any active pre-emption or priority.

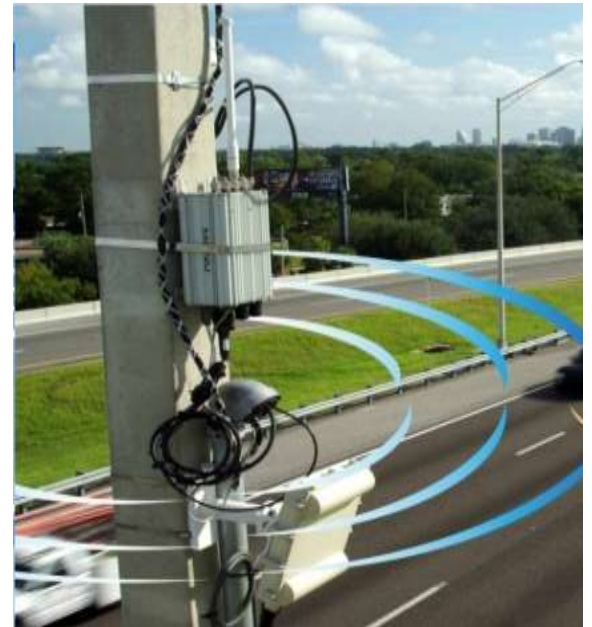
The SPaT message can be obtained from a **traffic signal controller** and converted to a standardized message for broadcast by **DSRC** roadside devices.



# The SPaT Challenge

Challenge state and local public sector transportation Infrastructure Owners & Operators (IO&Os) to **deploy DSRC infrastructure with SPaT broadcasts** in at least one coordinated corridor or network (approximately 20 signalized intersections) in each state by January 2020.

Additional V2I Applications that build on SPaT are also encouraged!



**20 Intersections in 50 states by 2020!**

# The SPaT Challenge

SPaT broadcasts are typically accompanied by:

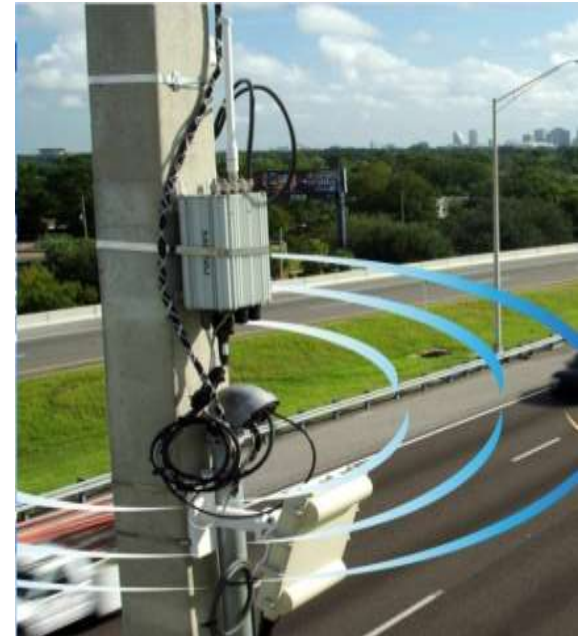
- Broadcasts of MAP/GID data (a detailed data file that describes the physical intersection)

Ultimately, SPaT broadcasts will also need:

- A GPS Real-time Correction Message (RTCM)
- A security certificate (SCMS)

SPaT and MAP broadcast is the basis of the SPaT Challenge.

Subsequent efforts (Phase 2) should include RTCM, SCMS, and V2I Applications



# The SPaT Challenge

## Why this Challenge?

To provide IOOs with an entry into DSRC-based V2I deployment allowing them to gain valuable procurement, licensing, installation, and operation experience, which in turn will:

- Lay the ground work for more advanced V2I deployments
- Show a commitment to OEMs and applications developers





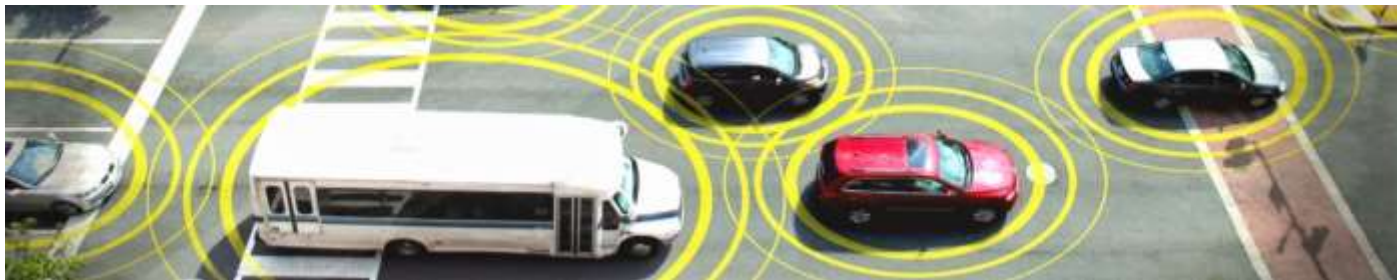
# The SPaT Challenge – Short-term Benefits

- Largely internal to the agencies
  - lessons learned,
  - overall knowledge gained,
  - basic infrastructure for future applications
- Will better prepare each IOO for future, more complex V2I deployments
- A message of commitment to the OEMs
- Analogous to early fiber backbone deployments (benefits came after additional technologies and applications were deployed on both ends)



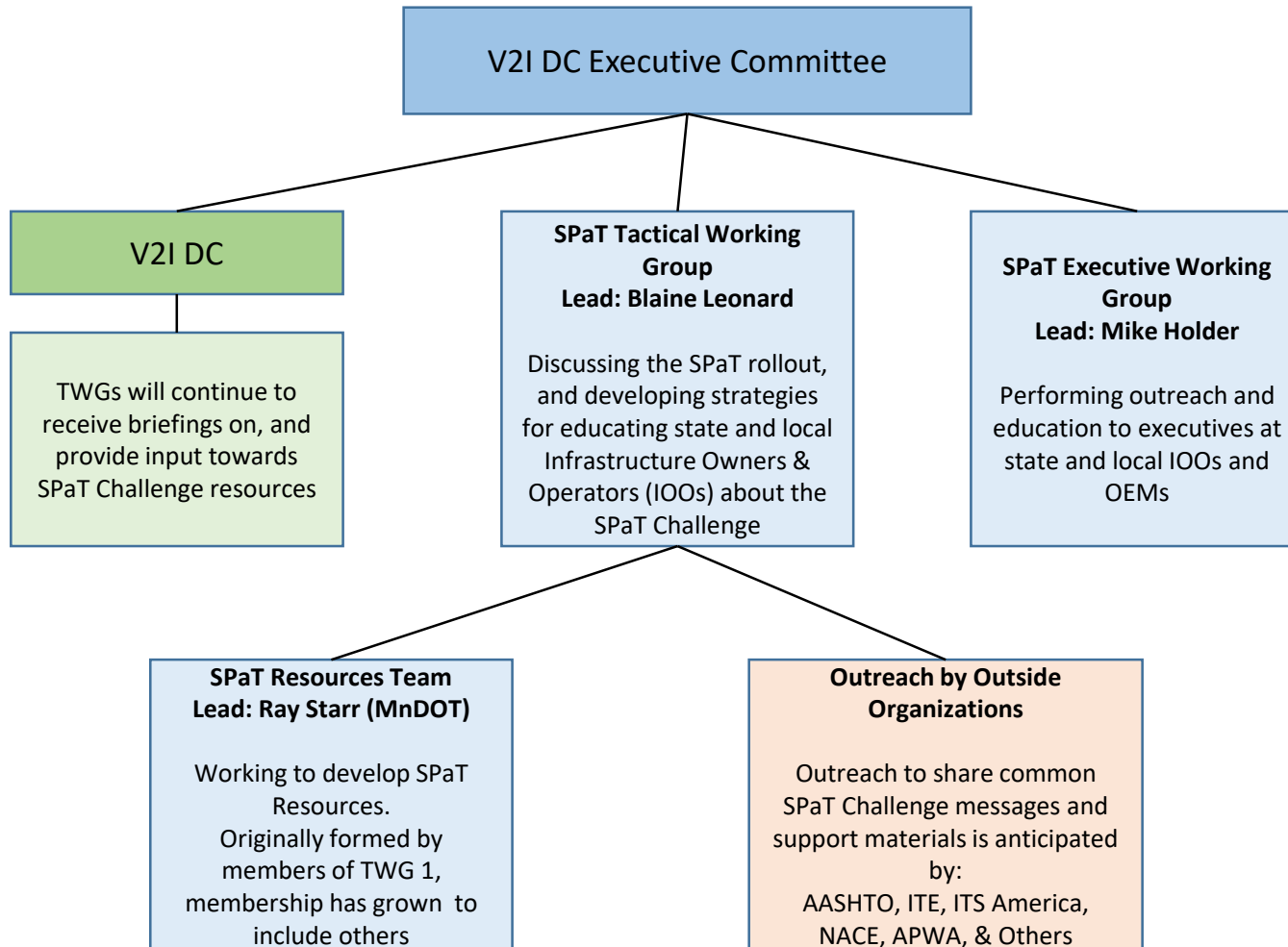
# The SPaT Challenge – Long-term Benefits

- Tied to the V2I Applications deployed & number of vehicles equipped
- Transit Signal Priority
  - Could be a near-term application with an equipped transit fleet
- Other V2I Applications that build on SPaT at intersections:
  - Red Light Violation Warning
  - Intelligent Signal Systems
  - Eco-Driver





# V2I DC – SPaT Challenge Organization



# Implementation Support

## V2I Deployment Coalition

- AASHTO, ITE & ITS America with support from USDOT FHWA & JPO and the NOCoE
- Tactical Working Group
  - Communications Plan
  - Develop implementation resources
- Presentations at association partners business meetings

# Implementation Support

## SPaT Challenge Website @ NOCoE

- Share resources
- Track acceptance
- Encourage peer to peer communication



**[www.transportationops.org/spatchallenge](http://www.transportationops.org/spatchallenge)**

## Collaboration with OEMs

- Defining requirements to ensure SPaT broadcasts can be received and processed by on-board V2I Applications
- Developing instructions for how to “validate” that a SPaT deployment will interface correctly with vehicles

# Implementation Support-Next Steps

## SPaT Challenge Webinar Workshops

### - Topic Areas (tentative)

- Concept of Operations
- Requirements
- Design Considerations
- Generation of SPaT and MAP data
- Deployment & Validation/Verification

### - Timing (tentative)

- Kick off in July
- Most likely occur every 2 – 4 weeks

# SPaT Challenge Resources



[www.transportationops.org/spatchallenge](http://www.transportationops.org/spatchallenge)

# SPaT Challenge Resources



SPaT Challenge Resource	Status
DSRC Licensing Information	On-line / Available
Guidelines for Selecting Corridors	On-line / Available
Implementation Guidance	On-line / Available
SPaT Challenge Folio	On-line / Available
SPaT Challenge FAQs	On-line / Available
SPaT Challenge Estimated Costs	Draft Being Reviewed
SCMS & The SPaT Challenge	Draft Being Reviewed
Standards Versioning Management	Draft Being Reviewed
Simple Steps to Deployment – Resource Guide	Draft Being Reviewed
Specifications & Requirements	In Development
Procurement Guidance	In Development



# SPaT Challenge Interest To Date

SPaT Involvement	#
Agencies with active DSRC SPaT Broadcasts	4
Agencies that have identified they are pursuing the SPaT Challenge - Either on the SPaT Challenge website map or in the process of being added	9
Agencies we have informally heard are starting the process of organizing for the SPaT Challenge - Yet to be verified and added to the SPaT Challenge map	4
<b>Total</b>	<b>17</b>

# The SPaT Challenge – Questions?

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