

CAT Coalition

Strategic Initiatives Technical Working Group (TWG 1)

September 27, 2018 Webinar

Notes and Summary of Discussions

Summary of Action Items

- 1. Invite Debby Bezzina to a future Strategic Initiatives Webinar*
- 2. Matt Smith will reach out to a representative from Danlaw to see what relevant information they could share.*
- 3. Deb Curtis volunteered to explore BSM-2 data further. Hossam AbdelAll volunteered to work with Deb on this.*
- 4. Tom Timcho will send Deb a comparison of BSM1 to BSM-2 that Brian Cronin put together 3-4 years ago.*

Welcome

Greg Larson (Caltrans and Chair of the Strategic Initiatives Working Group) welcomed everyone to the call.

Approximately 45 members and guests of the Strategic Initiatives Working Group joined the webinar. A list of those in attendance is provided at the end of these notes. This list may not be comprehensive, as attendees may have joined late and were not identified on the webinar. Please contact Dean Deeter at deeter@acconsultants.org to be added to the list.

Connected Fleet Challenge Outreach

Greg recapped the Connected Fleet Challenge from the August webinar and identified four resource areas. Greg also discussed the need for outreach.

Joe Averkamp is working on Fleet Challenge outreach and introduced Hideki Hada, Hossam AbdelAll, and Sean Laffey as committee members who have been working on outreach. Joe reported that the initial framework for the Connected Fleet Challenge outreach will follow the SPaT Challenge format.

The Outreach is targeting key groups including SPaT Challenge participants, trade associations, vehicle makers, and state and local DOTs. The marketing tools they plan to utilize include event marketing such as panels, presentations, and webinars; emails and phone calls; and the web site.

A question was asked whether the Fleet Challenge includes more than just cars and if so, a recommendation was made to consider other vehicle types such as heavy vehicles; freight carriers (e.g.

Walmart that has its own fleet), transit, and automated shuttles in the target list. Suzanne Murtha volunteered to reach out to automated shuttle makers.

Matt Smith recommended being mindful of the scope of the Fleet Challenge when considering how far to expand outreach, noting that the focus is on agencies that have accepted the challenge to get two vehicles up and running.

Resource Area #1: Existing OBU Procurement Documents

Committee members that have volunteered to look into OBU procurement documents include Jim Misener, Dave Miller, and Tom Timcho. Tom reported that this group has not yet convened, but he did some research and mentioned a few new resources:

- A recent interoperability test and test plan for the USDOT CV Pilot Deployments has recently been completed and published.
- A comprehensive installation plan has also been developed. This is not a procurement document, but it includes several relevant specifications.
- Ohio DOT has an RFP out (Ohio DOT Bid Invitation 111-18) for an approved products list that includes specs for both roadside DSRC and OBUs.

<http://www.dot.state.oh.us/Divisions/ContractAdmin/Contracts/PurchDocs/111-18.pdf>

Tom mentioned that he sent a specs document developed as part of safety deployment for heavy duty tractors to Dean and Greg last month. This document (J1938 How to Integrate with Trucks) has some elements on integration but also includes information that is related to procurement. Tom re-sent this document to Greg during the call. The links to the documents are included below:

Commercial Vehicle (CV) Retrofit Safety Device (RSD) Kits Project

FHWA-JPO-14-141

SWRI

<https://rosap.ntl.bts.gov/view/dot/3521>

Connected Commercial Vehicles—Retrofit Safety Device Kit Project : Final Report

FHWA-JPO-14-111

Battelle

<https://rosap.ntl.bts.gov/view/dot/3495>

Connected Commercial Vehicles—Retrofit Safety Device Kit Project: Applications Performance and Functional Test Report

FHWA-JPO-14-108

UMTRI/Battelle

<https://rosap.ntl.bts.gov/view/dot/3492>

Connected Commercial Vehicles—Integrated Truck Project: Vehicle Build and Build Test Plan Final Technical Report

FHWA-JPO-13-103

UMTRI / Battelle

<https://rosap.ntl.bts.gov/view/dot/3437>

Connected Commercial Vehicles—Integrated Truck Project: Vehicle Build Test Report

FHWA-JPO-13-104

UMTRI / Battelle

<https://rosap.ntl.bts.gov/view/dot/3436>

Resource Area #2: OBU Mounting Lessons Learned

Tom Timcho updated the group on the Columbus Bus installs. The installation has not progressed as far as they had hoped, and they are still working on compiling lessons learned information. A primary challenge from the bus perspective is antennas – some buses have 14 antennas already mounted on roof. Finding a location to mount another antenna that doesn't cause interference or where there is room to be wired is an issue. They are starting to look at mounting through the glass, but uncertain whether that type of installation will hold up to weather extremes, etc.

An update from Debby Bezzina (UMTRI) on MCity lessons learned will be deferred until the next meeting.

Matt suggested that Danlaw may be another resource, as they are handling OBU mounting for many of the CV Pilots. The group agreed it would be helpful to hear from a representative from Danlaw. **Action: Matt will reach out to a representative from Danlaw to see what relevant information they could share.**

Resource Area #3: Basic Safety Message (BSM) Information

Greg led a discussion about BSM resources and how to help fleet owners get started with procuring systems. Greg reported that one benefit of the Fleet Challenge is that the infrastructure can start receiving BSMs and for some vehicle types this will be the most important information.

The group discussed whether the challenge should include optional BSM-2 data, with no conclusion. Deb Curtis volunteered to explore this further. Hossam AbdelAll volunteered to work with Deb on this. Tom Timcho will send Deb a comparison of BSM1 to BSM-2 that Brian Cronin put together 3-4 years ago.

Resource Area #4: Applications

Cliff Heise from Iteris reported on the role of the ARC-IT in selecting applications. Services with CV Roadside and On-board Equipment and Connected Fleet Challenge interest (a few examples) include:

- PT09 Transit Signal Priority
- CVO06 Freight Signal Priority
- PS03 Emergency Vehicle Preemption
- ST08 Eco-Approach and Departure at Signalized Intersections
- ST09 Connected Eco-Driving
- TM02 Vehicle-Based Traffic Surveillance
- TM21 Speed Harmonization
- TI07 In-Vehicle Signage
- VS09 Reduced Speed Zone Warning / Lane Closure
- VS13 Intersection Safety Warning and Collision Avoidance

A full list of services/ applications on the ARC-IT website (<http://local.iteris.com/arc-it/>) and can be tailored to the specific application. This is a good place to start for connected vehicle applications for fleet challenge participation. There is a service packages link including some applicable to the fleet challenge with measurable results.

States accepting connected fleet challenge are encouraged to use the “SET-IT” tool to populate Concept of Operations documents.

Dean will include the detailed slides from Cliff as an attachment to these meeting notes, which include diagrams with more information.

Close

The next meeting had originally been scheduled for Oct 25; due to conflicts on Oct 25 and a conflict with the November meeting due to Thanksgiving, the October and November meetings will be combined and rescheduled.

The next meeting is scheduled for Thursday, November 8, at 2pm Eastern.

TWG 1 September 27, 2018 Webinar Participants

- Greg Larson, Chair
- Joe Averkamp, Co-chair
- Fuat Aktan
- Jennifer Carter
- Justin Chan
- Patrick Chuang
- Alan Clelland
- Deb Curtis
- Gary Duncan
- Barry Einsig
- Hossam AbdelAll
- Kyle Garrett
- Mohammed Hadi
- James Harkness
- Cliff Heise
- Jose Herrera-Alonso
- Adam Ho
- Doug Hohulin
- Shah Imran
- Perter Jager
- Christian Kulus
- Sean Laffey
- Greg Larson
- Blaine Leonard
- John Lower
- Jianming Ma
- Subrat Mahapatra
- Ken Moshi
- Julius Mueller
- Roxanne Mukai
- Suzanne Murtha
- Mark Peters
- Pierre Rasoldier
- Jonathan Riehl
- Matt Smith
- Alvin Stamp
- Michael Stelts
- Curtis Thompson
- Thomas Timcho
- Hoki Tse
- Joey Yang
- Pat Zelinski
- Linda Preisen

CAT Coalition
Strategic Initiatives TWG – September 27, 2018
Webinar Agenda

1. Welcome
2. Connected Fleet Challenge Outreach
3. Resource Area #1: Existing OBU Procurement Documents
4. Resource Area #2: OBU Mounting Lessons Learned
5. Resource Area #3: Basic Safety Message (BSM) Information
6. Resource Area #4: Applications

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CONNECTED FLEET CHALLENGE

This initiative challenges infrastructure owner/operators (IOOs) that have responded to the SPaT Challenge to equip at least one light-duty vehicle and at least one heavy-duty vehicle with a 5.9 GHz DSRC On-Board Unit (OBU) by 2021. These OBUs should be capable of broadcasting the Basic Safety Message (BSM) to Roadside Units (RSUs), and of receiving the SPaT, MAP, and other data messages that are being broadcast from RSUs.

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Recap from the August Webinar

- A lot of good discussion about possible resources for the Fleet Challenge
- Four Areas of Resources Identified:
 - #1: Existing OBU Procurement Documents
 - #2: OBU Mounting Lessons Learned
 - #3: BSM Information
 - #4: Applications
- Also discussed the need for Outreach

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Agenda Item #2:

Connected Fleet Challenge Outreach

Joe Averkamp, Hideki Hada, Hossam AbdelAll, Sean Laffey

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Connected Vehicle Fleet Challenge: Marketing and Outreach

Elements of Outreach and Communications Plan

- Marketing Approach
 - Follow SPaT Challenge format
 - Provide supporting documentation/collateral using program description developed by the Working Group
 - Target Key Groups:
 - SPaT Challenge Participants
 - Trade Associations
 - Automakers
 - State and Local DOTs
 - Enhance Website
 - Provide Follow Up: Results

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Target Key Groups and Market Message Delivery

- Target Participants:
 - SPaT Challenge Participants:
 - Letters, Emails, Phone Calls
 - Trade Associations
 - ITS America, AASHTO, ITE, IBTTA, APTA, SAE
 - Automakers
 - Letters, Phone Calls Directly to Automakers
 - Global Auto Alliance—letters, phone calls,
 - State and Local DOTs
- Marketing Tools
 - Event marketing and promotion: panels, presentations, webinars
 - Emails, Phone Calls
 - Web Site

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Web Site

- Web site options
 - Use NOCOE site similar to SPaT Challenge
 - Clean up site to improve navigation and expand tools
 - Use self-reporting for Connected Fleet Challenge and other applications—similar to SPaT
- Develop and maintain website functionality to provide users:
 - Map of SPaT Locations
 - Map of Connected Fleet Challenge locations
 - Number of vehicles
 - Vehicle types
 - Applications supported
 - Map of other/all DSRC RSU-based installations
 - Number of RSUs
 - Applications supported
 - Connected Vehicle 101 information
 - Tool kit for Connected Vehicle Fleet Challenge

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Content, Material, Media

- Develop standard material for use with presentations, web site, webinars
 - Description of the Connected Fleet challenge
 - How the challenge works
 - How to get involved

PARSONS 8

Follow the example of the SPaT Challenge

The AASHTO National Connected Vehicle SPaT Deployment Challenge



A challenge...
 ...to state and local public sector transportation infrastructure owners and operators to cooperate together to achieve deployment of DSRC 5.9 GHz infrastructure with SPaT broadcasts in at least one corridor or network (approximately 20 signalized intersections) in each of the 50 states by January 2020.

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Agenda Item #3:

Resource Area #1: Existing OBU Procurement Documents

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OBU Procurement Documents

- Follow up from the August webinar
 - Jim Misener, Dave Miller, Tom Timcho
- Open discussion about assembling procurement documents
- Potential documents:
 - Technical portion of procurement documents for OBUs

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Agenda Item #4:



Resource Area #2: OBU Mounting Lesson Learned

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OBU Mounting Lessons

- Input from Columbus Bus installs
- Input from Mcity experiences



- Open discussion about OBU resources & lessons learned

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Agenda Item #5:

Resource Area #3: Basic Safety Message (BSM) broadcasts

BSM Broadcasts



- Open discussion about what information/resources can be offered to fleet operators to help them deploy BSM broadcasts




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Agenda Item #6:

Resource Area #4: Applications


Vehicle Applications


- Open Discussion about possible applications:
 - E.g. Transit signal priority, Emergency vehicle preemption, red light violation warning, etc.

 - Role of the Architecture Reference for Cooperative and Intelligent Transportation (ARC-IT) in selecting Applications
 - ❖ Cliff Heise, Iteris




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ARC-IT Connected Fleet Challenge Applications
September 27, 2018

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Connected Fleet Challenge Applications

- Applications defined in Architecture Reference for Cooperative and Intelligent Transportation (ARC-IT), formerly known as the National ITS Architecture
 - Source of Connected Fleet Challenge application considerations
 - Tools provided to tailor ARC-IT applications for specific deployment
 - Information flows linked to applicable standards
- Full list of services/applications on ARC-IT website
 - www.arc-it.net under **Architecture** pull-down menu, click on **Service Packages**



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Services/Applications for Consideration

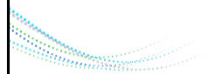
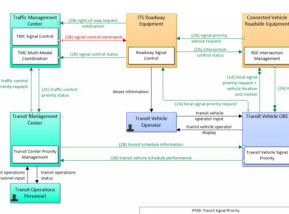
- Services with CV Roadside and On-board Equipment and fleet challenge interest (a few examples)
 - PT09 Transit Signal Priority
 - CVO06 Freight Signal Priority
 - PS03 Emergency Vehicle Preemption
 - ST08 Eco-Approach and Departure at Signalized Intersections
 - ST09 Connected Eco-Driving
 - TM02 Vehicle-Based Traffic Surveillance
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PT09 Transit Signal Priority

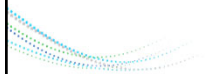
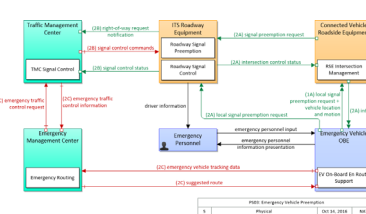
- Uses transit vehicle to infrastructure communications to allow a transit vehicle to request priority at one or a series of intersections.
- Provides feedback to the transit driver indicating whether the signal priority has been granted or not.
- Contributes to improved operating performance of the transit vehicles by reducing the time spent stopped at a red light.



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PS03 Emergency Vehicle Preemption

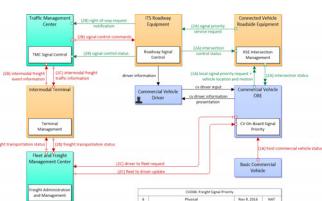
- Signal preemption for public safety first responder vehicles



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CVO06 Freight Signal Priority

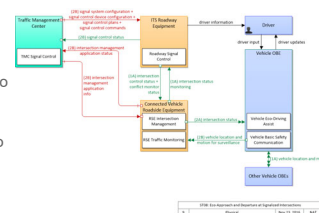
- Traffic signal priority for freight and commercial vehicles traveling in a signalized network
 - Goal: reduce stops and delays to increase travel time reliability for freight traffic, and to enhance safety at intersections



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ST08 Eco-Approach and Departure at Signalized Intersections

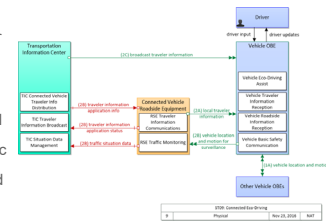
- Encourages "green" approaches to and departures from signalized intersections
- Uses SPaT data
- Provides speed advice to the driver to adapt the vehicle's speed to pass the next traffic signal on green or to decelerate to a stop in the most eco-friendly manner



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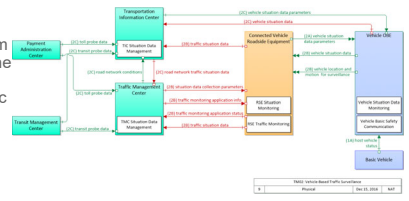
ST09 Connected Eco-Driving

- Customized real-time driving advice to drivers to adjust driving behavior to save fuel and reduce emissions
- Recommended driving speeds, optimal acceleration, and optimal deceleration profiles based on prevailing traffic conditions, interactions with nearby vehicles, and upcoming road grades



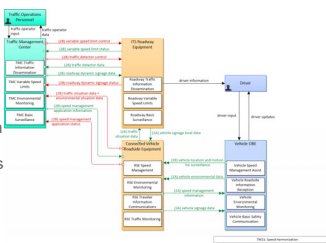
TM02 Vehicle-Based Traffic Surveillance

- Probe data information obtained from vehicles in the network to support traffic operations



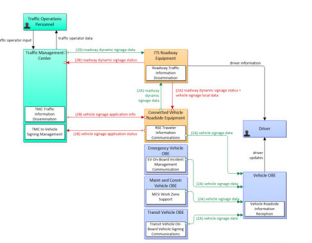
TM21 Speed Harmonization

- Determines speed recommendations based on traffic conditions and weather information and uses connected vehicle technologies to assist in harmonizing speeds to these recommendations



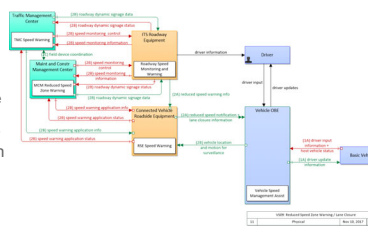
TI07 In-Vehicle Signage

- Augments regulatory, warning, and informational signs and signals by providing information directly to drivers through in-vehicle devices.
 - Stop, curve warning, guide signs, service signs, and directional signs, current signal states



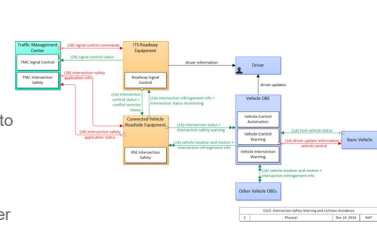
VS09 Reduced Speed Zone Warning / Lane Closure

- Provides CV approaching a reduced speed zone with information on the zone's posted speed limit and/or if the configuration of the roadway is altered (e.g., lane closures, lane shifts)



VS13 Intersection Safety Warning and Collision Avoidance

- Uses speed and acceleration profile, signal timing and geometry information to determine ability to pass safely through the intersection without violating the signal or colliding with other vehicles



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Next Strategic Initiatives TWG Webinar

- November 8, 2018 2:00 PM Eastern

