



Breakout Session 6-1: Building a Pilot Deployment Concept and Partnerships

Gabe Guevara (FHWA)

Brian Cronin (ITS JPO)

Agenda

- Introduction (5 minutes)
- Discussion Questions (30 minutes)
- Walkthrough of the Example Sunnyside Deployment Concept (10-25 minutes)
- Optional (if time) Walkthrough of the Example H.W. Halleck Expressway Deployment Concept (10-25 minutes)
- General Discussion

WEBINAR PROTOCOL:

Please use chat box to indicate you have a comment or a question, a support staffer will jump in for you to ask the question.

Please MUTE your phones!



Introduction

- **Goal:** Gather feedback from stakeholders about recommended leaders and partnerships for a successful pilot deployment.



Discussion Questions

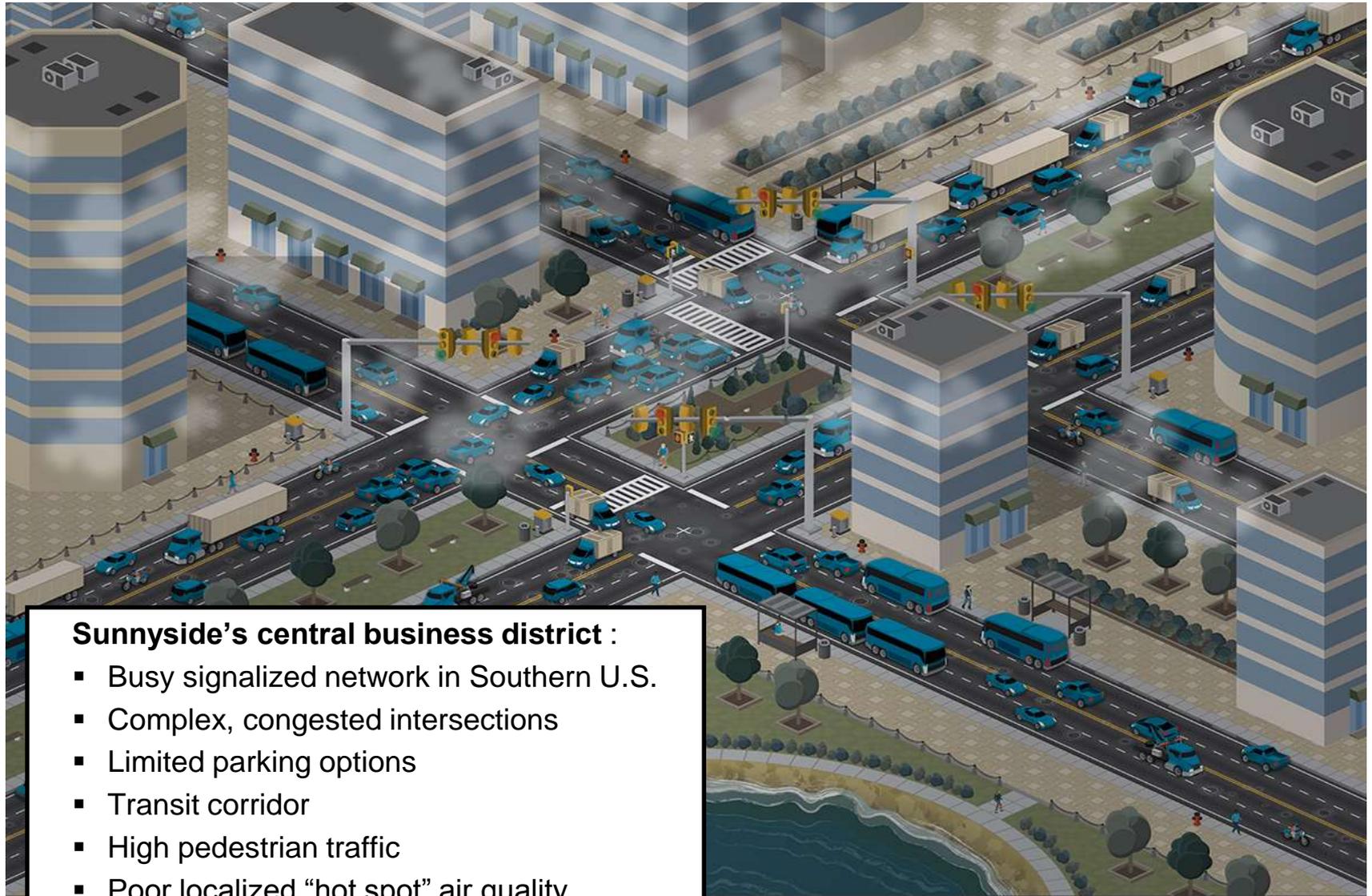
- What type of organization should lead a Connected Vehicle Pilot Deployment?
 - Should there be a clear leader or a collaboration of organizations?
 - Do you agree that public agencies should lead pilot deployments?
 - What kind of public agencies?
 - Should system integrator or private sector firms lead pilot deployments?
 - Should academic or research institutions lead pilot deployments?

- What partnerships are important in a CV Pilot Deployment?
 - Public-private partnerships?
 - Partnerships with academic institutions?

- How important are existing long-term partnerships in a successful CV Pilot Deployment?



Downtown Sunnyside



Sunnyside's central business district :

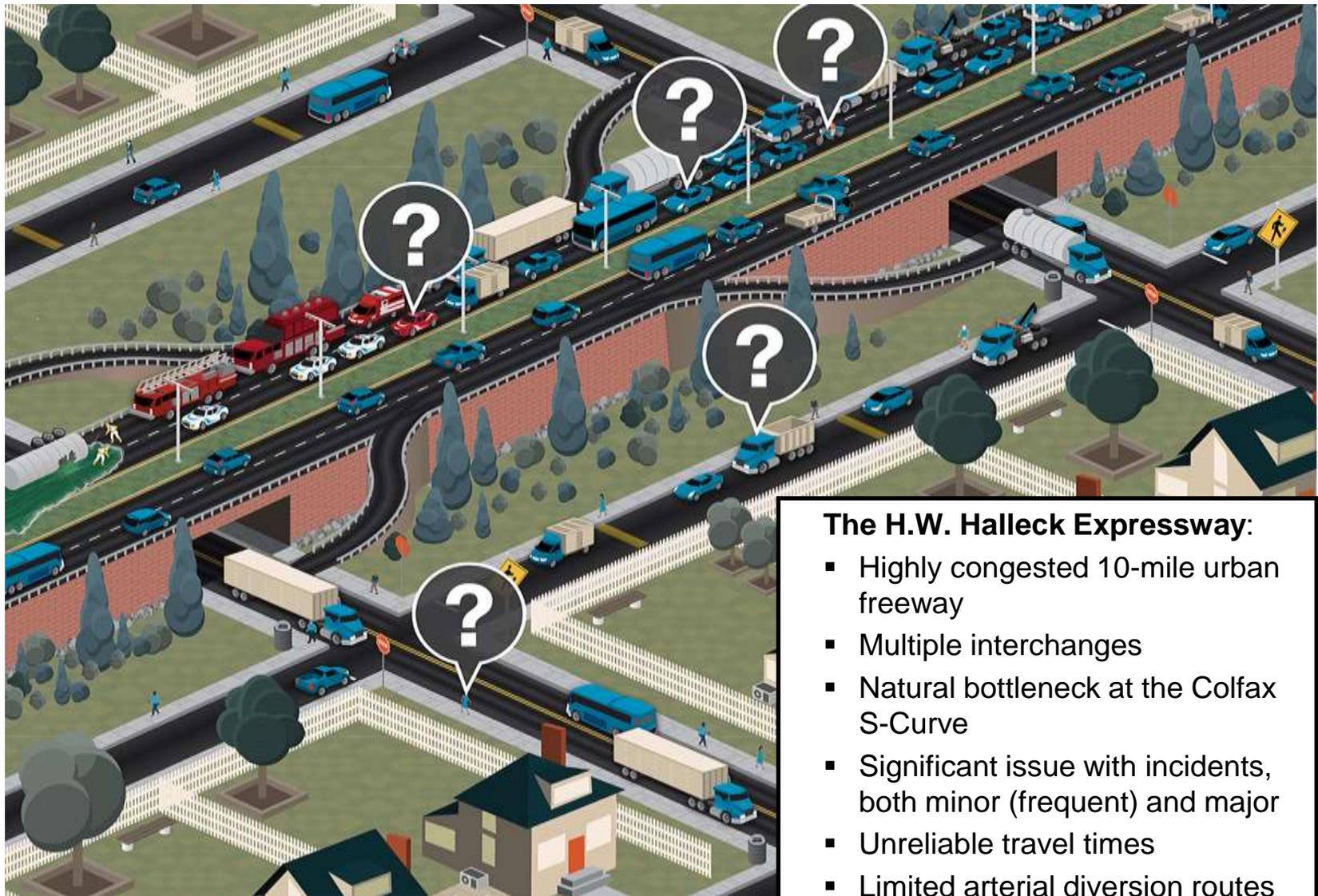
- Busy signalized network in Southern U.S.
- Complex, congested intersections
- Limited parking options
- Transit corridor
- High pedestrian traffic
- Poor localized "hot spot" air quality

Example #1: Pilot Deployment Walkthrough of Sunnyside

- **Things to consider** in each example pilot deployment:
 - What is the **ideal composition** of the team for this specific deployment?
 - What **type of organization** would be best suited to **lead** this team?
 - What might be the **challenges, strengths, and weaknesses** of this effort?



H.W. Halleck Expressway



The H.W. Halleck Expressway:

- Highly congested 10-mile urban freeway
- Multiple interchanges
- Natural bottleneck at the Colfax S-Curve
- Significant issue with incidents, both minor (frequent) and major
- Unreliable travel times
- Limited arterial diversion routes

Example #2: Pilot Deployment Walkthrough of the H.W. Halleck Expressway (optional if time)

- **Things to consider** in each example pilot deployment:
 - What is the **ideal composition** of the team for this specific deployment?
 - What **type of organization** would be best suited to **lead** this team?
 - What might be the **challenges, strengths, and weaknesses** of this effort?





Breakout Session 6-II: Pilot Program Phases and Waves

Steve Mortensen (FTA)

Bob Sheehan (ITS JPO)

Agenda

- Introduction (5 min.)
- Participant Survey (10 min.)
- Discussion on Survey Questions (40 min.)
- Conclusion (5 min.)

WEBINAR PROTOCOL:

Please use chat box to indicate you have a comment or a question, a support staffer will jump in for you to ask the question.

Please MUTE your phones!



Introduction

- Session Objective:
 - Engender stakeholder feedback on the proposed program structure and timing to ensure that the schedule is both practical but not too conservative

- The DOT envisions an initial wave of pilot deployments to be awarded and commence in 2015. Additional waves may follow this first wave, through 2017.
 - After a 12-18-month planning and deployment phase for each selected pilot site, a period of pilot operational testing and data collection is expected.
 - The operational period, results analysis, and publication of final results are anticipated to occur over a period that does not exceed 18 months.



Participants Fill Out Survey Forms

- Please take a few minutes to fill out the Survey
 - This is an individual activity
 - Hold on to them for now
 - then we will discuss some key elements
 - Later you are encouraged to turn them in

- **Webinar participants**
 - This form is in our registration packet sent by ITS America
 - Please fill it out and refer to it as we go through



Questions from Survey

- Please tell us your thoughts on the overall program schedule proposed by DOT.
 - A 12-18-month planning and deployment phase for each selected pilot site
 - An 18-month system operation, including data collection, results analysis and publication of final results
 - Is it beneficial to run at least 12 months on data collection to capture all seasons?
- If the proposed program schedule is either too cautious or too ambitious to you, please tell us your desired schedule.
 - Planning and deployment phase
 - System operation phase



Questions from Survey

- Please rank the following factors that influence the proposed schedule on Planning and Deployment. (High Priority/Critical, Medium Priority, Low Priority)
 - The current prototype applications
 - Jurisdictional coordination
 - The timing of the rule making
 - USDOT review time
 - Experience on connected vehicle
 - Availability of devices and equipment
 - Integration with existing programs
 - Mixed data ownership
 - Data privacy
 - Cyber security
 - Other factors



Please Turn in Your Survey Forms

- Webinar participants are encouraged to e-mail completed forms to:
Karl.Wunderlich@noblis.org
- Folks in the room can just hand them in to any ITS America or Noblis support staff person





Breakout Session 6-III: Communication and Physical Security / Device and Application Certification

Walton Fehr
Robert Rupert



Session Objective

- Collect feedback on how USDOT can best help CV pilot sites incorporate Communication Security and Device and Application Certification into the pilot tests

Agenda

- What the RFI says about communication security
- What some respondents said about communication security
- Guided discussion
 - USDOT provision of security design
 - The need for physical security
 - Using certification to assure good security practices
- Vote on best approach to USDOT support



What the RFI Says About Communication Security

- **Pilot deployments should address the following research questions ...**
 - How effective is a security credential management system in establishing trust and protecting confidentiality connected vehicle communications?

- **CV Pilot Program Requirements Under Consideration: ...**
 - Pilot deployments shall make appropriate use of the latest ITS standards for trusted and confidential information exchange. Pilot sites will be expected to connect to a Security Credential Management System. A DOT-provided system will be available for the purposes of the pilot deployments.



Sample RFI Responses

- “The current security credential management system used by the US DOT requires IPv6 capability at the roadside device... This requirement, although valid, carries significant implementation impacts that may be out of the control of most Departments of Transportation.”
- “It will be important for FHWA to expedite the assistance required to implement the Security Credential Management System so the schedule isn’t delayed.”
- “... the affiliated connected test bed program has security credential management system resources that may also be of assistance to the pilot sites.”
- “The USDOT can support the security of private or personal information by making sure that the architecture they wish to replicate includes such safeguards without each deployment site having to reinvent security systems, regardless of the media employed.”



Discussion Question #1

- Should USDOT provide a working communication security design for pilot sites to use?



Discussion Question #2

- What should requirements for communication and physical security be, beyond “Pilot sites will be expected to connect to a Security Credential Management System”?



Discussion Question #3

- How easy will it be to adapt a central SCMS provided by USDOT to specific CV Pilot site?



Discussion Question #4

- How should device and application certification be coupled to communication security credential access to assure good security practices?



Vote!

- What is the best way for USDOT to support communication security for CV Pilot sites?
 - A. Specify security requirements, and then get out of the way and let the pilot sites build SCMS
 - B. Develop a model solution and hand it out to be used without modification
 - C. Specify communication security requirements, hand out a model, and train pilot developers on its use and modification
 - D. Remove the requirement for communication security compliance





Breakout Session 6-IV: Open Source

Randy Butler (FHWA)
Kate Hartman (ITS JPO)

Breakout Session Objective and Plan

SESSION OBJECTIVE

- Explore how the Open Source approach may advance the CV pilot deployment program

SESSION PLAN

- OSADP Apache 2.0 Open Source License: Overview and Quiz (10 minutes)
 - Other licenses will be considered on a case-by-case basis
- Game I: Prioritize CV Pilot Applications for releasing as Open Source (10 minutes)
- Game II: Prioritize Type of CV Pilot Code for releasing as Open Source (10 minutes)
- Game III: Identify and Prioritize Options for Protecting IP Rights while Enabling CV Pilots (20 minutes)
- Discussion (10 minutes)

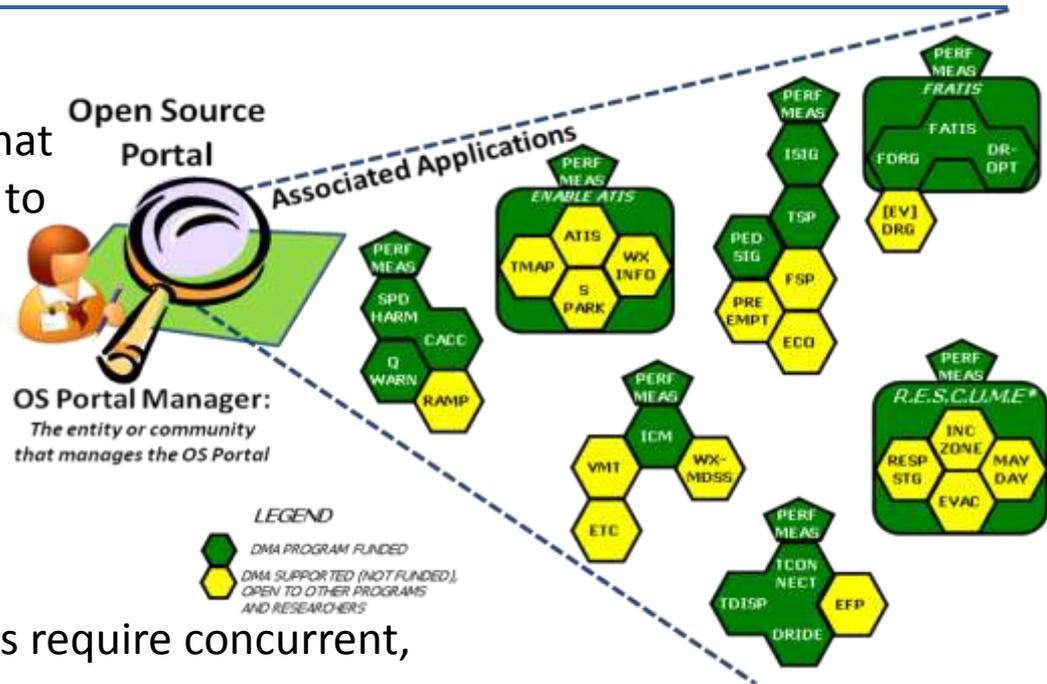
WEBINAR PROTOCOL:

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- Please MUTE your phones



USDOT Mobility Program – OSADP Scope

- Purpose:** Develop, operate, and maintain an open source portal that will enable multiple stakeholders to collaborate on application development



- Coordination:** Application bundles require concurrent, collaborative development
 - For example, in the M-ISIG bundle, pedestrian signal phases in the PED-SIG application must be coordinated with applications providing priority or pre-emption services
 - This coordination extends to both DMA-funded application development and research conducted at UTCs and other organizations
- Transparency:** the Open Source Portal provides the mechanism to ensure application development is transparent and broadly available



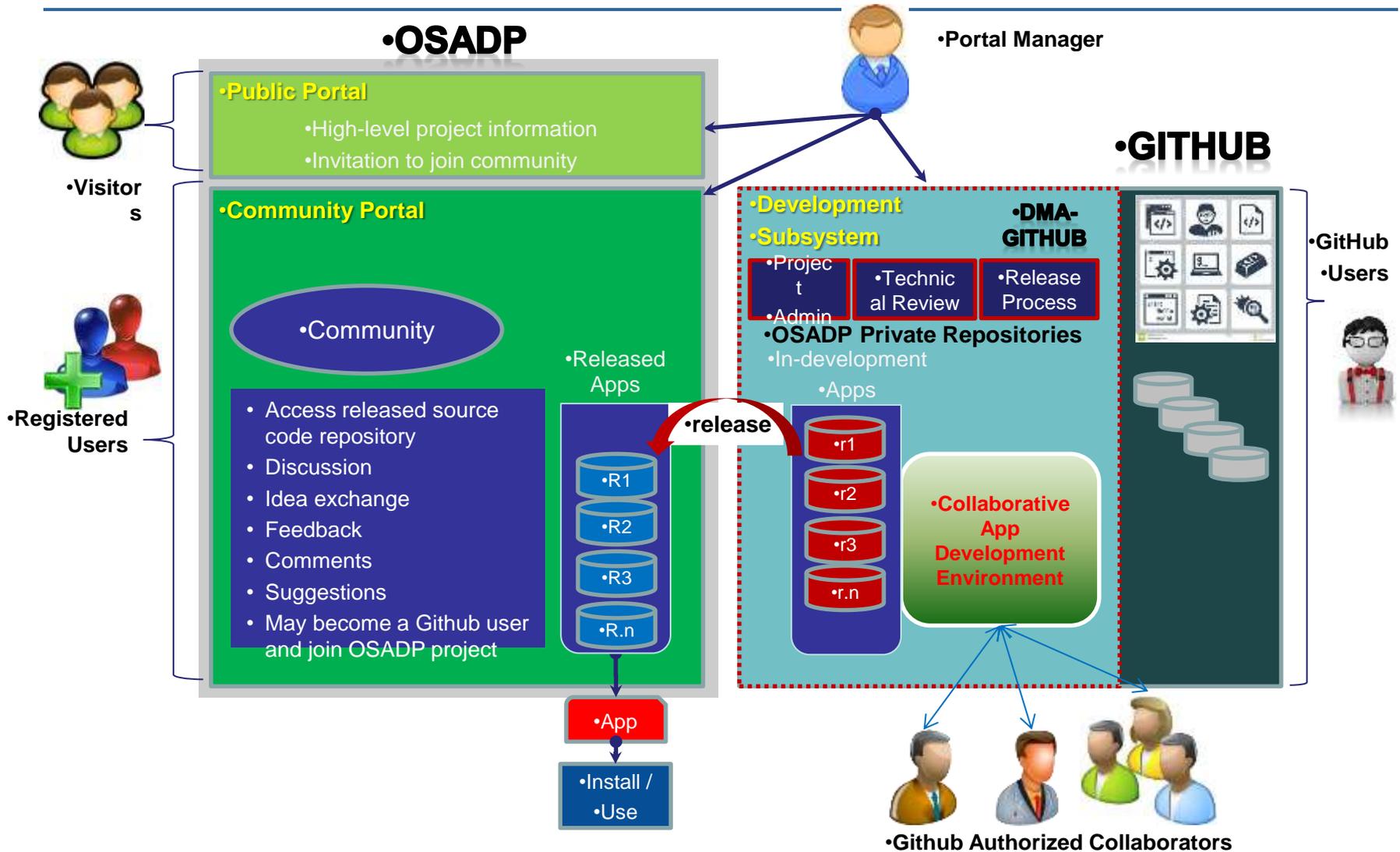
Open Source Portal Performance Goals and Outcomes

- Open Source Portal supports:
 - Configuration management of core assets
 - Creation of new projects by stakeholders
 - Submission of new applications and corresponding benchmark test data sets, test procedures and documentation to a project
 - Collaboration among stakeholders interested in inter-related projects
 - Recognition of contributors of core assets

- Open Source Portal outcomes:
 - Portal governance development and licensing agreement
 - Well-documented and accessible core assets
 - Deployment of secure portal infrastructure
 - Promotion of collaboration and preservation of intellectual capital
 - Engagement of partners from academia and industry who may not be directly involved in funded applications development and testing



Current OSADP Architecture



Apache 2.0 Open Source License: Overview

Can

Download and use
for free

Incorporate
software in
proprietary
package you
create

Make changes
without having to
resubmit as open
source

Cannot

Redistribute without
proper attribution

Use any
Trademarks or
Logos that may
State that the
Organization
Endorses your
Distribution

Restrict use of the
software

Must

Include License in
any redistribution that
includes the software

Document which files
were modified in any
New Distribution



Apache 2.0 Open Source License Quiz

- **Apache 2.0 software can be used for commercial purposes. (True or False)**

- **You can restrict how people apply an Apache 2.0 licensed program. (True or False)**

- **You can sell services and code based on the Apache 2.0 code, including selling warranties and other assurances, and selling customization and maintenance work, etc. (True or False)**



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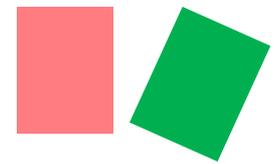
•False

- You can sell services and code based on the Apache 2.0 code, including selling warranties and other assurances, and selling customization and maintenance work, etc. (True or False)

•True



Prioritization Game Voting Rules



- Each game requires participants to vote using the following **voting rules**:
 - **Hand in your card**: Highest Priority (5 POINTS)
 - Can use only **ONCE in each game but must be used**
 - **Raise you hand**: Medium Priority (1 POINT)
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- Webinar participants will **use the chat box to specify “points”** for each option. (NOTE: 5 points may be used only once per game)
- Facilitators will tally the votes and reorder the items in descending order of priority for further discussion.



Game I: Prioritize CV Pilot Applications for releasing as Open Source

- Which group of CV Pilot Applications should be released as Open Source?
 - Mobility applications (Speed Harmonization, ATIS, etc.)
 - Safety applications (Collision Warning, Blind Spot Warning, etc.)
 - Security applications (Applications that support the security of information sharing between applications)
 - Environment applications (Eco Signal Priority, Eco-Ramp Metering, etc.)
 - All applications



Prioritized List of CV Pilot Applications for releasing as Open Source: Results and Discussion

1. Mobility applications
2. Safety applications
3. Environment applications
4. All applications
5. Security applications



Game II: Prioritize Types of CV Pilot Code for releasing as Open Source

- Which type of CV Pilot code should be released as Open Source?
 - **Full Source Code:** All source code files, including the test data sets to run the code
 - **Basic Functionality Libraries:** Basic libraries or toolkits that can be added to other programs to create CV applications
 - **Communication API / Interfaces:** The communication API for connecting the libraries
 - **Architecture information:** Architecture information for the applications without code



Prioritized Types of CV Pilot Code for releasing as Open Source: Results and Discussion

1. Basic Functionality Libraries
2. Full Source Code
3. Architecture information
4. Communication API / Interfaces



Game III: Identify and Prioritize Options for Protecting Intellectual Property Rights (IPR)

- Participants will **discuss options** for protecting IPR of the proprietary code while maximizing availability of the new open code
 - Require that any modified code be released under an open source license
 - Require that new functions be added only in new open source software modules and create an open source API to access the proprietary code
 - Changes to these options? Other choices?
 - **NOTE:** Facilitators will capture options on flip chart
- Participants will **vote** on the options



Prioritized Options for Protecting IPR: Results and Discussion

1. Require Open Source License
2. open source API to access the proprietary code
3. Item 3
4. Item 4



Discussion

- The RFI responses provided mixed information about the Safety and Security Applications being open source. What advantages and disadvantages are there for using or not using Open Source for these applications?

- What is the greatest hurdle to the CV pilot program releasing applications as Open Source? Why?





Breakout Session 7-I: Communications Options and Role of Dedicated Short Range Communications (DSRC)

Volker Fessmann (FHWA)

Walton Fehr (ITS JPO)



Session Objective

- Collect feedback on the extent to which DSRC should be a key component of CV Pilot tests and what alternatives are being considered

A Variety of Communication Media Ranges

Communication Resources: wired and wireless, the Internet

- 3,000 miles, 3,000 meters, 300 meters, 3 meters.



Requirements: Two types of information distribution:

- To all, To one.



Agenda

- What the RFI says about DSRC
- Guided discussion
 - Communication objectives
 - Pros and Cons of DSRC
 - Requirement for communication performance
- Wrap-Up



What the RFI Says About DSRC

- **CV Pilot Program Requirements Under Consideration: ...**
 - *Multisource data approach leveraging vehicle data via Dedicated Short Range Communications (DSRC).* Pilot deployments should feature frequent capture and systematic integration of data from an appropriate broad range of sources. Potential sources may include multiple types of infrastructure-based sensors, transit vehicle systems (bus and rail), a full range of vehicle types acting as mobile probes (including freight carriers and transit vehicles), and travelers moving between modes as they complete trips. **At a minimum, vehicles must be deployed as one data source and DSRC deployed as one of the communication technologies.**



Discussion Question #1

- What are the pros and cons of using DSRC in a CV Pilot?
 - Pros
 -
 -
 -
 - Cons
 -
 -
 -



Discussion Question #2

- For the five Concept Briefings presented earlier today, where would DSRC be most useful? Least useful? Where would another type of communications be more useful?
 - Sunnyside
 - District 13
 - Halleck
 - I-876
 - Greypool



Discussion Question #3

- Are the messages the same whether they are carried by DSRC or another communications method?



Discussion Question #4

- Should USDOT remove the requirement that DSRC must be used?



Discussion Question #5

- What alternative communications methodologies are considered and for what purpose?





Breakout Session 7-II: Mobile and Carry-in Devices

Bob Rupert (FHWA)
Kate Hartman (ITS JPO)

Agenda

- Introduction (5 min.)
- Matching Game (10 min.)
- Questions and Discussions (20 min.)
- Brainstorm (20 min)
- Conclusions (5 min.)

WEBINAR PROTOCOL:

Please use chat box to indicate you have a comment or a question, a support staffer will jump in for you to ask the question.

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Introduction

- Session Objective:
 - Engender stakeholder feedback on the utilization of vehicle devices and future enhancement with the increase of integrated vehicle devices.
- Definitions for the purposes of this breakout session
 - **Carry-in devices:** portable devices potentially brought in and connected to vehicles but not generally utilized outside of vehicles
 - **Mobile devices:** portable devices with built-in communications capabilities, such as smart phones, can be used outside vehicles and may or may not necessarily be connected to vehicles
 - **Integrated devices:** devices built into vehicles, not portable, including aftermarket/retrofit integrated devices and OEM integrated devices



Mobile Device



Carry-in Device



Integrated Device



Matching Game

- Please **match** utilization of vehicle devices to applications using the **colored cards**.

1. Safety - Pedestrian in Signalized Crosswalk
2. Mobility - Signal Priority (transit, freight)
3. Environment - Low Emissions Zone Management
4. Agency Data - Work Zone Traveler Information
5. Smart Roadside - Smart Truck Parking

- **How to play**

- *Everyone gets three colored cards: pink, yellow and blue*
- *Each card represents one device type*
- *As the speaker calls out each application, please raise the corresponding colored card(s) that apply to the application (you may raise 1, 2, or 3 cards).*
- **Note to Webinar participants:** *Please type in your color(s) via the chat box.*



Carry-in Device



Mobile Device



Integrated Device



CV Pilot Applications

V2I Safety

Red Light Violation Warning
 Curve Speed Warning
 Stop Sign Gap Assist
 Spot Weather Impact Warning
 Reduced Speed/Work Zone Warning
Pedestrian in Signalized Crosswalk
 Warning (Transit)

V2V Safety

Emergency Electronic Brake Lights (EEBL)
 Forward Collision Warning (FCW)
 Intersection Movement Assist (IMA)
 Left Turn Assist (LTA)
 Blind Spot/Lane Change Warning (BSW/LCW)
 Do Not Pass Warning (DNPW)
 Vehicle Turning Right in Front of Bus
 Warning (Transit)

Road Weather

Motorist Advisories and Warnings (MAW)
 Enhanced MDSS
 Vehicle Data Translator (VDT)
 Weather Response Traffic Information (WxTINFO)

Environment

Eco-Approach and Departure at
 Signalized Intersections
 Eco-Traffic Signal Timing
 Eco-Traffic Signal Priority
 Connected Eco-Driving
 Wireless Inductive/Resonance Charging
 Eco-Lanes Management
 Eco-Speed Harmonization
 Eco-Cooperative Adaptive Cruise Control
 Eco-Traveler Information
 Eco-Ramp Metering
Low Emissions Zone Management
 AFV Charging / Fueling Information
 Eco-Smart Parking
 Dynamic Eco-Routing (light vehicle,
 transit, freight)
 Eco-ICM Decision Support System

Agency Data

Probe-based Pavement Maintenance
 Probe-enabled Traffic Monitoring
 Vehicle Classification-based Traffic
 Studies
 CV-enabled Turning Movement &
 Intersection Analysis
 CV-enabled Origin-Destination Studies
Work Zone Traveler Information

Mobility

Advanced Traveler Information System
 Intelligent Traffic Signal System
 (I-SIG)
Signal Priority (transit, freight)
 Mobile Accessible Pedestrian Signal System
 (PED-SIG)
 Emergency Vehicle Preemption (PREEMPT)
 Dynamic Speed Harmonization (SPD-HARM)
 Queue Warning (Q-WARN)
 Cooperative Adaptive Cruise Control (CACC)
 Incident Scene Pre-Arrival Staging Guidance
 for Emergency Responders (RESP-STG)
 Incident Scene Work Zone Alerts for Drivers
 and Workers (INC-ZONE)
 Emergency Communications and Evacuation
 (EVAC)
 Connection Protection (T-CONNECT)
 Dynamic Transit Operations (T-DISP)
 Dynamic Ridesharing (D-RIDE)
 Freight-Specific Dynamic Travel Planning and
 Performance
 Drayage Optimization

Smart Roadside

Wireless Inspection
Smart Truck Parking



Questions and Discussions

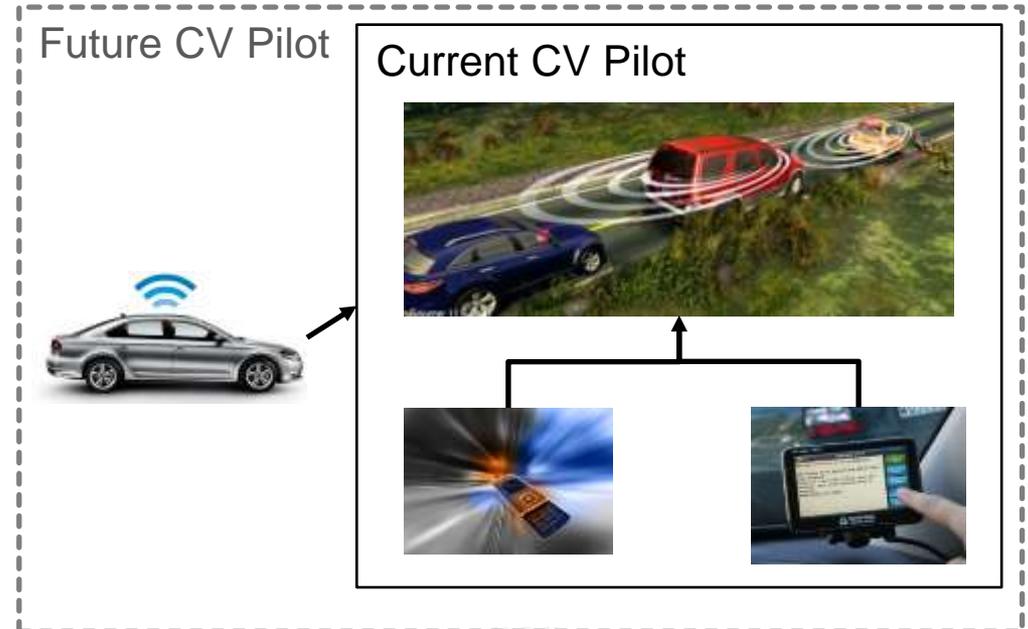
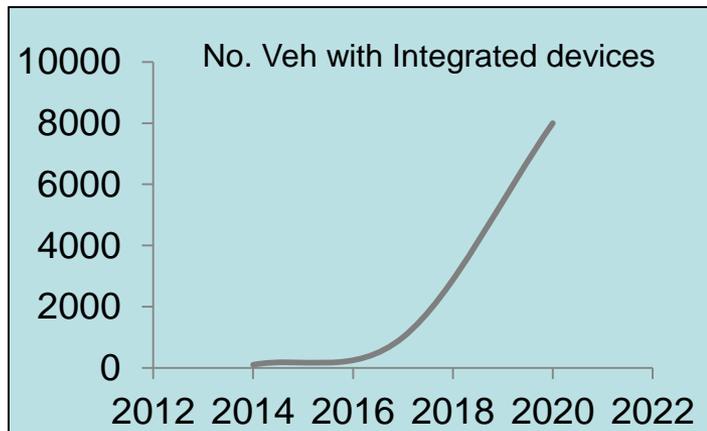
1. Can CV applications be most successfully deployed as a part of operational practice, leveraging vehicles and mobile devices (in-vehicle or outside of the vehicle) together as data sources and application platforms?
2. What specific challenges do you see with carry-in/mobile devices?
3. What is the most appropriate role of carry-in/mobile devices in CV pilot?



Brainstorm

Operational CV Applications in 2024

- Future applications and enhancement
 - Does the current CV pilot applications have the capability of incorporating integrated vehicle devices in both near-term and long-term deployment?
 - What are the potential differences between mobile devices, carry-in devices and integrated devices in future deployments?





Breakout 7-III: Evaluation and Performance Measurement

Marcia Pincus (ITS JPO)
Ben McKeever (FHWA R&D)

Breakout Session Objective and Plan

SESSION OBJECTIVE

- Solicit stakeholder input on:
 - Definition of successful CV pilot deployments
 - Motivators for encouraging adoption and continued deployment of connected vehicle technology and applications
 - Measurement of value of connected vehicle applications in concert with CV pilot deployment activities

SESSION PLAN

- Exercise 1: Define Successful CV Pilot Deployments (15 minutes)
- Exercise 2: Identify Motivators for CV Deployments (15 minutes)
- Discussion: Measure Value of CV Applications (20 minutes)
- Session Findings (10 minutes)

WEBINAR PROTOCOL:

- Please use chat box when voting or if you have a comment or a question
- Please MUTE your phones



Exercise 1: Define Successful CV Pilot Deployments

- Participants will **discuss** definitions of **successful** CV pilot deployments
 - What is a successful CV pilot deployment?
 - What are the key metrics?
 - What are the key milestones that should have occurred?
 - NOTE: Facilitators will capture definitions on flip chart

- Participants will **vote** on definitions of **successful** CV pilot deployments
 - You will each be issued 3 colored stickers for voting:
 - GREEN colored sticker: Highest priority (3 POINTS)
 - BLUE colored sticker: Second-highest priority (2 POINTS)
 - RED colored sticker: Third-highest priority (1 POINT)
 - NOTE: Webinar participants will use chat box to specify color
 - NOTE: Facilitators will tally votes

- Time allowed: 15 minutes



Exercise 2: Identify Motivators for CV Deployments

- Participants will **discuss** key factors that will encourage adoption and deployment of connected vehicle technology and applications
 - What are the key motivators/metrics for CV pilot deployment sites to continue CV deployment even after completion of the CV program?
 - What are the key motivators/metrics for other locations and agencies to pursue CV deployments?
 - NOTE: Facilitators will capture key factors on flip chart

- Participants will **vote** on key factors that will encourage adoption and deployment of connected vehicle technology and applications
 - You will each be issued 3 colored stickers for voting:
 - GREEN colored sticker: Highest priority (3 POINTS)
 - BLUE colored sticker: Second-highest priority (2 POINTS)
 - RED colored sticker: Third-highest priority (1 POINT)
 - NOTE: Webinar participants will use chat box to specify color
 - NOTE: Facilitators will tally votes



- Time allowed: 15 minutes



Discussion: Measure Value of CV Applications

- How can value of connected vehicle applications be best measured in concert with CV pilot deployment activities?
 - How will you define and measure value of connected vehicle applications?
 - Should value be application-specific?
 - Should value be site-specific?
 - Should metrics be consistent across CV applications?
 - Should metrics be consistent across CV Pilot Deployments?
 - What are the deterrents to measuring value of connected vehicle applications?

 - NOTE: Facilitators will capture discussion on flip chart

- Time allowed: 20 minutes





Breakout Session 7-IV:

Open Data

Gene McHale (FHWA)

Walter During (FHWA)

Breakout Session Overview

- **SESSION OBJECTIVE**

- To explore ideas on how Open Data can be used to help the development and support of the CV pilot program.

- **SESSION PLAN**

- RDE Open Data Commons License and Open Data Overview (3-5 minutes)
- Game 1: Prioritize Data Characteristics (15 minutes)
- Game 2: Prioritize Best Location for PII to be Cleansed (15 minutes)
- General Questions and Discussions (15 minutes)
- Game 3: Promotional Ideas for Open Data (10 minutes)

WEBINAR PROTOCOL:

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- Please MUTE your phones



RDE Open Data Commons License Quiz

- **When working with Open Data Commons License you are able to Share (copy, distribute) Create (produce works from the data) and Adapt (modify, transform and build on) the data. (True or False)**

- **When using Open Data Commons License for public use you must attribute where the data originated. (True or False)**



RDE Open Data Commons License Quiz

- **When working with Open Data Commons License you are able to Share (copy, distribute) Create (produce works from the data) and Adapt (modify, transform and build on) the data. (True or False)**
 - **True**
- **When using Open Data Commons License for public use you must attribute where the data originated. (True or False)**



RDE Open Data Commons License Quiz

- When working with Open Data Commons License you are able to Share (copy, distribute) Create (produce works from the data) and Adapt (modify, transform and build on) the data. (True or False)

• True

- When using Open Data Commons License for public use you must attribute where the data originated. (True or False)

• True



Open Data Overview

- **Definition:** *Open data is data that can be freely used, reused and redistributed by anyone - subject only, at most, to the requirement to attribute and sharealike.*
(<http://opendatahandbook.org/>)

- **Characteristics of Open Data**
 - Reusable by third parties with few or no restrictions
 - Available at little or no cost
 - Discoverable (easy to find)
 - Usable (documented, in standard formats)

- **Open Data Concerns**
 - Protecting privacy
 - Protecting data of individual entitles (e.g. Commercial carriers)

- **Commons License Open Data License**
 - Free to: Share, Create, and Adapt data
 - Long as you: Attribute, Share-Alike, Keep open



Prioritization Game Rules

- Each game requires participants to vote using the following **voting rules**:
 - **Hand in your card**: Highest Priority (5 POINTS)
 - Can use only **ONCE in each game**
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Prioritize Data Characteristics in order of importance



- ❑ **Quantity:** large number of data sets from multiple locations
- ❑ **Quality:** data provided by the RDE is complete and error free
- ❑ **Diversity:** data contains different kinds of CV information
- ❑ **Latency:** how fast is the data available (real-time, archived, etc.)
- ❑ **Standardization:** data is in a single standard format



Data Characteristics Priority Results and Discussion

1. Item 1

2. Item 2

3. Item 3

4. Item 4

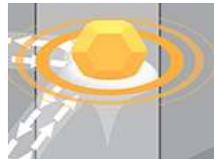
5. Item 5



Prioritize The Best Location for PII to be Cleansed From CV Datasets?



- Immediately when the data is collected from the original source (vehicle, mobile device, infrastructure sensors, etc..)
- Once the data is received by a communication medium (RSE, Cellular Network, etc..)
- Once the data has been pulled together into a single location (Database, Website, etc..)
- Once the user requests the data



PII Scrubbing Location Priority Results and Discussion

1. Item 1

2. Item 2

3. Item 3

4. Item 4



Questions and Discussions

- To help promote the use of Open Data across organizations for the CV pilots, what methods can be used to protect data privacy (PII), Intellectual Property (IP) rights, and address data ownership issues?
- On the topic of daily uploads vs. real-time, the RFI responses were decidedly mixed. The private sector tended to recommend real-time data, but the other sectors tended to recommend against the provision of real-time to the RDE. What are the advantages and disadvantages to providing real-time data on the RDE.



Prioritize Promotional Ideas in order of most effective for promoting CV Open Data



- Have an RSS feed or a mail newsletter that can be sent to potential users
- Use social media outlets to promote the information
- Have a series of workshops around the country that showcase different methods for using the data
- Create public/private/academia partnership programs to promote new ways to use the data
- Demonstrations at conferences and trade shows



Promotional Ideas Priority Results and Discussion

1. Item 1

2. Item 2

3. Item 3

4. Item 4

5. Item 5





Breakout Summary and Workshop Wrap-Up

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Session 6-I: Building a Pilot Deployment Concept and Partnerships

- **Session Objective:**

- Gather feedback from stakeholders about recommended leaders and partnerships for a successful pilot deployment.

- **Activity Summary**

- Intro, Discussion, Example Pilot Deployment Walkthroughs

- **Key Findings**

- State Agencies need to lead deployments - they will be the operators of the infrastructure
- Community involvement
- OEMs may be leaders of safety applications
- Takes time to get partnership teams together
- Consider staged procurement and developing a draft RFP
- Or, staged effort may take too long – state and local agencies that are ready to put skin in the game want assurance of their investments



Session 6-II: Pilot Program Phases and Waves

- **Session Objective:**

- Engender stakeholder feedback on the proposed program structure and timing to ensure that the schedule is both practical but not too conservative.

- **Activity Summary**

- Intro, Survey Form, General Discussion

- **Key Findings**

- In general, employ System Engineering process
- Don't prescribe timeline for planning (size of the site and complexity of the proposal)
- Consider USDOT reporting and review requirements
- CV experience affects waves but does not necessarily affects timeline
- Data privacy, cyber security, and liability are critical elements but not significantly impact schedule
- Integration with existing operations



Session 6-III: Security Management and Certification

- **Session Objective:**

- Collect feedback on how USDOT can best help CV pilot sites incorporate Security Management and Certification Systems into the pilot tests.

- **Activity Summary**

- Intro, Discussion, Voting on Four Proposed SCMS Approaches

- **Key Findings**

- Should USDOT provide a working security design?
 - **Consensus: Yes, sites need this level of support.** Also, there should be commonality across the pilots. Some commented that some flexibility for innovative approaches should be allowed
- Consider specifying existing standards for physical security (e.g., FIPS-140 level 2); also must consider security interconnected legacy systems
- Are the goals of the CV pilots to test applications (only), security (only), or both in combination? This drives some of the SCMS answers
- Consider running a separate series of tests for alternative security approaches



Session 6-IV: Open Source

- **Session Objective:**

- Explore ideas on how Open Source applications can help the development and support of the CV pilot program.

- **Activity Summary**

- Intro, Voting Exercise, Discussion

- **Key Findings**

- Mobility and safety apps make most sense for open source
- Public (infrastructure-based) apps better suited for open source
- Basic libraries and toolkits more important than all software
- Documentation and test data important for all forms of open source code
- IP Rights approach needs flexibility to accommodate different approaches (commercial vs. research)



Session 7-I: Communications: Role of DSRC

- **Session Objective:**

- Collect feedback on the extent to which DSRC should be a key component of CV Pilot tests and what alternatives are being considered.

- **Activity Summary**

- Intro, Discussion, Exercise on Role of DSRC in Example Pilot Deployment Concepts

- **Key Findings**

- Varying views on keeping DSRC as a requirement: encourage but not require
- Safety requires DSRC, other apps should be able to use other methods if they meet requirements
- We want CV pilots to be test of DSRC channel utilization – will usage for mobility apps interfere with safety apps?
- DSRC is more than sending BSMs. Other apps use DSRC also
- We want to leverage data from vehicles beyond currently available commercial offerings



Session 7-II: Mobile and Carry-in Devices

- **Session Objective:**

- Engender stakeholder feedback on the utilization of vehicle devices and future enhancement with the increase of integrated vehicle devices.

- **Activity Summary**

- Intro, Matching Game, Questions and Discussions, Brainstorm
- 14 in person participants / 48 online

- **Key Findings**

- Challenges:

- Concern of driver distraction with mobile devices – need to be integrated (bluetooth)
- Text to speech/voice recognition is important
- For safety applications – Mobile and carry-in devices are more difficult
- Carry-in devices will fade away

- Most appropriate role:

- Smart phone can be gateway to making any vehicle a connected vehicle
- Vehicle can act as probes and give drivers information to make smart decisions



Session 7-III: Evaluation and Performance Measurement

- **Session Objective:**

- Solicit stakeholder input on:
 - Definition of successful CV pilot deployments
 - Motivators for encouraging adoption and continued deployment of connected vehicle technology and applications
 - Measurement of value of connected vehicle applications in concert with CV pilot deployment activities

- **Activity Summary**

- Discussion

- **Key Findings**

- Measure of successful CV Pilot Deployments include:
 - Interoperability with legacy systems and applications
 - Sustained return on investment
 - Clear value to the general public
- Key motivators to encourage adoption and deployment of CV:
 - Demonstrate benefits to broad group of stakeholders
 - Go to sites that have a clear need/problems
 - Creative approach required to incentivize new stakeholder groups (tolling, insurance)
- Assessment of application value:
 - Need to look at individual applications as well as synergistic bundles of applications



Session 7-IV: Open Data

- **Session Objective:**

- To explore ideas on how Open Data can be used to help the development and support of the CV pilot program

- **Activity Summary**

- Open Data Overview and Quiz, Priority Card Game, General Discussion

- **Key Findings**

- Data Quality & Latency were highest priority
 - Needed to test real-time applications
- Sanitize data at the source
- Private Sector needs incentive to share data in CV Pilots – ROI, Value Prop.
- Opt-in services could be possible for applications, but PII still needs to be preserved
- Standard data formats – we have time to develop standard data formats – tremendous benefit on the backend



Getting Ready for Pilot Deployments

- Get familiar with USDOT connected vehicle research products
- Attend upcoming stakeholder events
- Find like-minded partners from the public and private sectors to create a pilot deployment concept
 - Grounded in local needs, i.e., solving real transportation problems
 - Targeting specific and meaningful performance goals
 - Built around a cost-effective collection of connected vehicle applications that leverages common data capture and dissemination



Upcoming Stakeholder Events

- Connected Vehicle 101 Workshops at ITS America State Chapter meetings:

Date	Event	Location	URL
Aug. 21	ITS Pennsylvania Annual Meeting	Philadelphia, PA	http://www.itspennsylvania.com/
Sep. 7	ITS World Congress	Detroit, MI	http://itsworldcongress.org/
Sep. 30	ITS Alaska Annual Meeting	Anchorage, AK	http://www.itsalaska.org/
Oct. 15	ITSCA Annual Meeting and Exhibition	Santa Clara, CA	http://www.itscalifornia.org/
Nov. 12	2014 ITS Texas Annual Meeting	Irving, TX	http://itstexas.org/

- T3 Webinars: http://www.pcb.its.dot.gov/t3_webinars.aspx

Date	Title	URL
May 14	Transit Safety and Mobility Applications in a Connected Vehicle World	http://www.pcb.its.dot.gov/t3/s140514_cv_transit_a_pps.asp
May 22	National Connected Vehicle Field Infrastructure Footprint Analysis	http://www.pcb.its.dot.gov/t3/s140522_cv_footprint_analysis.asp



Upcoming Stakeholder Events

- Plug-Fests: <http://www.its.dot.gov/testbed/plugfests.htm#calendar>
 - Detroit Area: May 13-15, 2014
 - Palo Alto, CA : June 24-26, 2014
 - Detroit Area : August 5-7, 2014
 - Hackathon: Late 2014/January 2015, Novi, MI
- Regional CV Pilot Workshops (TBD)



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Website: <http://www.its.dot.gov>



Thank You For Your Participation

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