

Connected Vehicle Reference Implementation Architecture (CVRIA) Public Stakeholder Workshop #1

Workshop Profile

The USDOT conducted a workshop in San Jose, California on April 30 and May 1, 2013, hosted by the Intelligent Transportation Systems Joint Program Office (ITS-JPO) and co-led by Walt Fehr, USDOT/ITS Program Manager for ITS Systems Engineering and Steve Sill, USDOT/ITS Program Manager for Vehicle Safety Technology, ITS Architecture and, ITS Standards; and including members of the Connected Vehicle Reference Implementation Architecture (CVRIA) team representing the USDOT/Volpe Center Policy team and contractor staff. The purposes of the workshop were to describe the need for and scope of the CVRIA, describe the process associated with developing a CVRIA, and to describe why and how stakeholders should provide input and guidance to the CVRIA's development.

Approximately fifty-six attendees participated in the workshop (not including CVRIA team). The participants represented potential stakeholders from a broad cross section of the connected vehicle industry including:

- Private sector device makers, auto manufacturers, systems integrators, software developers, trade association representatives, standards developers, and contractors/consultants to the industry
- Public sector state and local traffic and transit agencies staff
- Academia and university researchers

The workshop began with a definition of what a connected vehicle reference implementation architecture is and what it does/results in for various participants (for example, it is a tool for determining where standards are needed, a tool for identifying where policy issues are resident and need to be addressed, a blueprint for stakeholders to guide decisions about local implementations). The workshop then focused on presentation of each of this CVRIA effort's three main outputs.

1. Architecture Development: The majority of the two-day agenda walked participants through six examples of connected vehicle applications to allow them to understand how an "architecture view" is constructed and the source materials used in construction; and to elicit comments, questions, and feedback. Each application was presented through a set of up to 7 different diagrams (showing the enterprise, physical, and functional views of the application during installation, operations, and maintenance). *Participants' primary comments and recommendations included:*

- *Participants commented on their desire to have a more focused approach applied to development of the architecture views. Their interest is in highlighting the connected vehicle interfaces and only noting connections to existing ITS and interfaces as, on the whole, they are very familiar with existing ITS and thus do not need additional detail unless the connected vehicle application changes the nature of how existing ITS interfaces work. They noted that showing existing ITS to the side in order to provide context is useful; but to focus the diagrams predominantly on the connected vehicle portion of the applications.*
- *Participants suggested that when illustrating the V2V Safety applications, the architecture team should just focus on the mobile interfaces. Some of the applications had interfaces with the infrastructure, such as the map update system, but those interfaces will be addressed with V2I applications.*
- *An important gap, noted by participants, is the information regarding where and how certification and security/security credentials management apply at the interfaces.*
- *A general survey of the participants identified the priority with which they would like to see the applications be developed: (1) V2V / V2I Safety applications; (2) Security interfaces; (3) Traffic*

Signals related applications; (4) Mobility, Transit, traveler-focused applications; (5) Mobility – Public Safety; Environmental applications; and (6) supporting services.

- A last recommendation was an important reminder that many of the applications involve interfaces with private sector initiatives; and that the architecture team should have as a goal to not suppress free enterprise but to provide standardized interfaces allowing smaller companies to participate.

2. Standards Plan Development: Following the discussion on architecture applications, the CVRIA team described a process for identifying and prioritizing interfaces for standardization (see Figure 1). To enable successful implementation and operations of a connected vehicle environment, implementers will require the identification of where standards will be needed as well as architecture guidelines. Prioritization of where the USDOT might best apply its limited resources to support standards development will be necessary. *Participants had questions on the analytical process of prioritization that the CVRIA team will clarify. Participants also commented on the need to pay attention to intellectual property rights as well as to ensure that private, proprietary interfaces do not become de facto standards.*

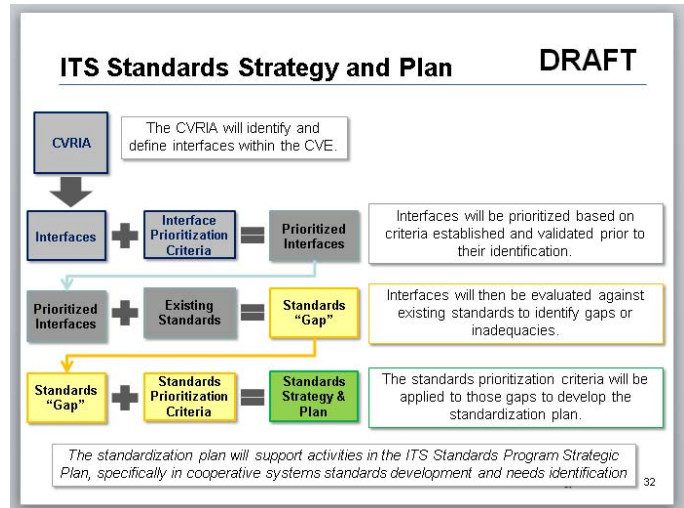


Figure 1 Interface Standardization Process

3. Policy Analysis: The CVRIA team described the need for connected vehicle policy analysis that will be performed to identify where policy issues reside and identify the types of reasonable and feasible policy mitigations, if the government needs to be involved at all. The policy analysis will allow for determination of issues such as governance and whether there are conflicting or competing interests; identification of risky or vulnerable points that require some level of access control, standards, certification, or enforcement policies; identification of points where that may be existing laws, rules, or processes that will need significant change; parameters for making decisions; and the timeframes for those decisions, especially in relation to other connected vehicle decisions. *Participants discussed the policy issues that they deem most critical. In addition to the policy questions (see Figure 2) that form the basis for policy analysis, participants added the following: social equity, business models and/or limitations on public-private partnerships, data ownership and licensing models, data retention standards, system resiliency requirements, hierarchies of control, disaster response, liability, and certification.*

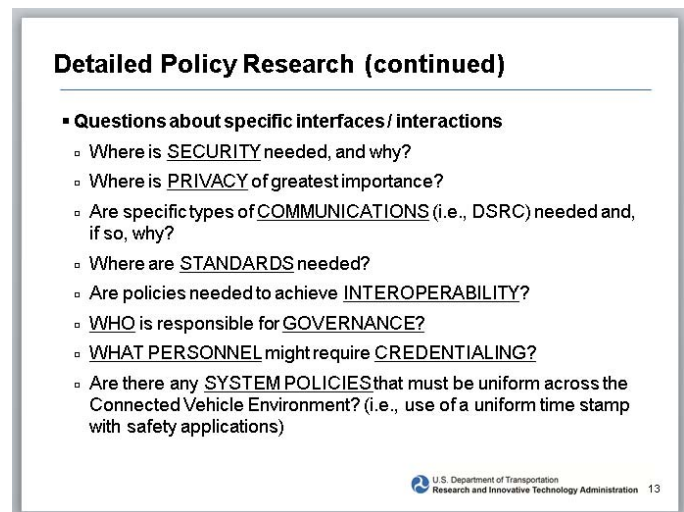


Figure 2 Policy Questions

Conclusions

The workshop concluded with the CVRIA team committing to post to the USDOT website the slides used during the event along with documentation of the proceedings; to keep the workshop participants informed of when new applications views are posted, and to spread the word to ensure that additional stakeholders become involved. The participants noted that they appreciated the opportunity for dialogue and that the level of interaction resulted in a successful meeting, from their perspective. Participants were thanked for their time and participation in the meeting and asked for continued involvement in the effort.