

CV Pilots FAQs (Updated January 26, 2015)

Scheduling Questions

- When will the CV Pilot Deployments start?

The USDOT expects an initial set of pilot deployments (Wave 1) to begin in Fall 2015, and a second wave (Wave 2) in 2017. Prior to Wave 1, the USDOT is sponsoring multiple workshops and other events to assist stakeholder planning.

- Will every connected vehicle application be in prototype form for Wave 1?

Application prototypes are being developed in several research programs and have independent schedules. One set of applications will be prototyped and evaluated by early 2015. Other prototypes will be made available between 2015 and early 2017.

Note that USDOT will prepare prototypes only for some applications. Other applications may only be in a conceptual state within USDOT research. However, the program recognizes that many innovations will come from non-federal research programs and the private sector. The intent is to initiate pilot deployment planning using best-available research and development as well as off-the-shelf commercial products and technologies.

- What is the difference between Wave 1 and Wave 2?

Wave 1 and Wave 2 differ only in start dates. That said, Wave 1 projects will be, by definition, working with only a partial portfolio of USDOT prototypes in the initial stages of the effort. Wave 2 will have a larger portfolio of USDOT prototypes to build from – as well as insights gained from observing Wave 1 pilot development and deployment.

Proposal Questions

- Can we use our own test bed capabilities as a part of a pilot deployment?

Yes, you can use your own test facility in support of a pilot deployment concept. There are 28 affiliated testbed partners. Most of them are in the US, but 3 are abroad. We anticipate that the number will continue to increase. One key consideration to keep in mind, however, is that the pilot deployments are intended to be integrated into ongoing operational practice on real-world transportation facilities. If a particular testbed is separate from the actual transportation system, the use of this testbed as the sole location for pilot deployment would not meet the goals of the overall CV Pilot Deployment Program.

- Is vehicle automation part of this project?

Automation or connected automation is not explicitly a part of the CV Pilots program. However, we want stakeholders to offer new ideas, and this does not exclude ideas that combine wirelessly connected vehicles and mobile devices with near-term vehicle automation technologies. There may be

high-value technologies and other research in the private sector that have particular value when combined with USDOT research products. The CV Pilots Program main thrust is to move the connected vehicles concept forward with the most effective applications using the best available technologies, and this includes the concept of connected automation.

- Regarding the scope of the problem: will the CV Pilots focus on a specific problem or multiple problems?

The CV Pilot Deployment Program is not a technology showcase disconnected from solving real problems. The CV Pilot Program seeks motivated and informed partners who bring a robust understanding of local needs and can articulate a compelling case for specific CV applications to address these needs. Candidate pilot site needs may be related to mobility, safety, or environmental impacts (or a mix of all three).

- Do you have an estimate of the pilot deployment budgets? How much is being set aside for each wave?

Two to five awards are expected in each wave, depending on the scope of the proposed deployments. We expect each wave to include various scales of effort including smaller focused deployments (\$2-\$5 million in federal funds), medium-sized deployments (\$5-\$12 million in federal funds), and larger deployments (\$12-\$20 million in federal funds). Because of resource constraints, we anticipate at most two larger deployments to be awarded, and deployments larger than \$20 million in federal funds will not be considered. Resources outside of federal funding can be used to result in larger deployments.

- Can you give more detail about the kind of data (including daily and real time data) that is useful to share and how to share?

The USDOT seeks data from deployed devices, vehicle and other equipment that can be used to characterize the pilot deployment function and performance. The USDOT intends to share this data to support additional research in the area of wirelessly connected vehicles and connected travelers. Real-time feeds of these data are of particular interest. However, no proprietary data need be shared openly, and no data containing Personally Identifiable Information (PII) will be shared. Data sharing will be coordinated through USDOT data-related programs, such as the Research Data Exchange (www.its-rde.net) and/or Data.gov (www.data.gov).

Applications Questions

- Are pilot deployment concepts limited to the list of USDOT applications?

The USDOT application list shows examples but is not an exhaustive list. The program encourages new concepts that leverage or build from at least one USDOT application.

- How many applications are ready to use and how many need to be developed?

Applications will be developed over independent schedules between now and 2017. The OSADP (Open Source Application Development Portal, www.ITsforge.net) is a good resource for users to download

information on non-safety applications. V2V safety applications are currently not shared on the OSADP. More applications will populate the OSADP as prototyping progresses.

- How much application development work can deployers expect to undertake within a pilot deployment?

It is clear that some enhancement and integration work will have to be conducted for any pilot deployment ensuring that multiple applications run together in a way that supports overall deployment performance goals. These “enhancement and integration” activities may be difficult to separate from application development activity. However, given limitations in pilot deployment program funding, and the schedule the pilot deployment program expects to maintain, pilot deployers should carefully weigh the cost and schedule implications associated with application development and integration activity. Ground-up, new start application activity (on top of enhancement and integration activity) is unlikely to meet cost and schedule constraints of the Pilot Deployment Program.

- Which application is prioritized? Are V2V and V2I the higher priority?

There is no application priority. The key is that the application relates to a real problem at the pilot site. Given that high market penetration rates are unlikely in the pilot deployment period, pilot deployment concepts should be developed that can have measureable and meaningful impact even at modest participation rates.

- Can other applications be developed and deployed outside the USDOT list? Do they need to be made open source?

Other applications that are not on the USDOT list are welcome. However, for budget and schedule reasons, USDOT seeks applications with some level of maturity. Applications or enhancements to applications developed using USDOT funding are expected to be open-source. Existing applications brought to pilot deployment (and not enhanced using USDOT funding) need not be made open source. (Please also refer in this FAQ to the section on Open Source and Security)

- Can we use an agile approach to develop/enhance emerging applications or technologies? In some cases, we expect new technologies to potentially overtake current approaches, even as a pilot deployment concept takes shape.

Agile approaches may be a good alternative in some cases where technology is evolving rapidly.

Equipment Questions

- Who are the vendors for road side equipment?

USDOT has examined equipment from multiple vendors to ensure v4 specification. USDOT is currently assembling a listing of appropriate equipment vendors and will publish this list when completed.

- Many of the scenarios have DSRC, which increases capital cost. Can something else be used first, such as cellular communications?

DSRC is intended for safety applications but we are open to any technology that is available now to help us to improve mobility, safety and environmental impacts.

- Can we submit a proposal that does not include DSRC, or is DSRC a base requirement?

The USDOT supports DSRC for safety applications. We require some role for DSRC in every pilot deployment. Pilot concept developers should consider DSRC only where it is appropriate.

- Will there be a minimum number of roadside installations, mobile devices, or vehicles that are expected in each deployment?

No particular number has been set. What is desired is that the scope of the pilot deployment be driven by the needs and actually generate a measureable impact for the target performance measures addressed by the pilot deployment.

Organizational Questions

- What types of organizations are expected to lead a pilot deployment? What kinds of teams are expected?

The program does not anticipate restrictions on the type of organization that can lead a pilot proposal team (public or private). However, from previous experience, a single primary point of contact/leadership for the pilot deployment site has proved exceptionally useful in the successful execution of similar efforts. Further, we are considering options under which a pilot deployment team may be led by one organization in early planning phases and led by a different organization when deployments are built, maintained, and operated. Both organizations would be part of the overall team throughout, but might switch roles depending on the phase of the effort.

Evaluation Questions

- Will there be an independent evaluation?

Yes. The CV Pilot Deployment program intends to conduct an independent evaluation of all pilot deployment sites. Evaluators will be identified or procured separately from the pilot deployment solicitation.

Open Source and Security Questions

- What are the requirements regarding software? Will my proprietary software be protected, and what is the role of open source software?

The CV Pilot allows for the use of pre-existing proprietary software and this software can remain proprietary. New software developed using Federal funding is to be either released under an appropriate open source license or transferred to the Federal government, which will in turn release it under an open source license.

If your proposed approach includes use of Federal funds to modify existing proprietary software or combined Federal / private funding of new software development, the extent of this approach should be spelled out in your proposal, as this must be handled on a case by case basis.

- If I later modify or incorporate code developed as part of the CV pilot in my product, must I then open source my product code?

No. The USDOT encourages the use of “permissive” open source licenses, such as the Apache license, which allows for incorporation of open source code into proprietary products without requiring that the modified software also be licensed as open source.

- What are the requirements for incorporating security into each pilot?

The intent of the CV pilots is to have fully functional small-scale deployments which can remain operational after the CV pilot itself is completed. As such, communication and physical security needs must be addressed. The USDOT will provide a prototype national-level Security Credential Management System (SCMS) as a key tool for implementing a Public Key Infrastructure (PKI) based system for communication security controls to meet these needs. The SCMS provides digitally signed certificates that can be used as part of the process for signing and encrypting messages. The USDOT will also provide guidance and other material to minimize the cost and difficulty of incorporating security needs into each pilot. The specific security needs will vary depending on the types of devices used and the suite of applications proposed for each pilot.