

Connected Traffic Control System (CTCS): Research Planning and Concept Development

Task 2: Stakeholder Engagement Plan

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1 INTRODUCTION

1.1 BACKGROUND

The University of Virginia (UVA) Center for Transportation Studies (CTS), on behalf of the Connected Vehicle Pooled Fund Study (CV PFS) and the United States Department of Transportation (USDOT), seeks to advance Multi-Modal Intelligent Traffic Signal System (MMITSS) research efforts to progress toward a Connected Traffic Control System (CTCS) concept(s). As government and industry move quickly to embrace Connected and Automated Vehicle (CAV) technologies, there is need to progress towards next generation research that more fully integrates Transportation Systems Management and Operations (TSMO) with CAV technologies to further improve safety, mobility, and the environment. This includes continuing work to advance the understanding of how Connected Vehicle (CV) technologies interface with all transportation network infrastructure and to understand how to best plan for the introduction of Automated Vehicles (AV) within this environment.

Accomplishing this goal requires an in depth understanding of the research conducted by the CV PFS, USDOT modal administrations, and other related research entities. This understanding must then be coupled with the Intelligent Transportation Systems (ITS), TSMO, and CAV expertise necessary to understand and ultimately deliver integrated traffic control concept(s) that will include arterials, interchanges, and freeways - incorporating increasing levels of vehicle automation along the way.

To this extent, CTCS foundational research will build off previous and ongoing research activities in an iterative fashion to remain flexible in accommodating institutional, political, and rapidly evolving technical changes.

1.2 SCOPE AND PURPOSE

The purpose of this plan is to document and guide the stakeholder engagement activities in support of a CTCS concept advancement. The plan is a living document that provides guidance throughout the project lifecycle. It is designed to facilitate discussion among stakeholders while fostering collaboration and understanding that actively involves all impacted stakeholders in a timely manner, allowing for sufficient opportunity to voice needs, opinions and concerns. It is not merely a plan to distribute information, but to incorporate feedback from stakeholders into project deliverables. This plan also defines roles and responsibilities, a timeline for stakeholder involvement as well as stakeholder feedback loops for key deliverables.

The scope of the stakeholder outreach effort has been focused – based on direction from the CV PFS – to address six specific use case scenarios for the eventual CTCS. This was done to avoid the broad scope of potential candidates and instead leverage the collective energy of the PFS members and potential stakeholders in the direction of specific needs. The use case scenarios are:

1. Arterial/surface streets with traffic control and ramp meters - This use case explores how connectivity will allow vehicles to interact with ITS technology beyond the individual traffic signal controllers; such as ramp meters, adaptive signal systems, etc., in order to better coordinate between these devices to improve flow of vehicles as they move along corridors that may or may not connect with limited access roadways.
2. Multi-modal aspects including transit, freight, pedestrians, bikes, etc. - This use case explores how connectivity will allow transit and freight vehicles, as well as non-motorized modes, to interact with other vehicles, pedestrians, and roadway field devices to improve multi-modal operations along a corridor(s). This use case currently represents a bundle of potential services.
3. Connectivity and early automation such as Level 1 longitudinal control - This use case explores how connectivity and automated vehicle functions will allow roadway capacity expansion through longitudinal controls, such as shorter headways that can be obtained through vehicle platoons. This use case leverages vehicle-to-vehicle (V2V) communications to enable vehicle platooning but also vehicle-to-infrastructure (V2I) communications to communicate the arrival of vehicle platoons to intelligent transportation system (ITS) field equipment – mainly traffic signal controllers.

4. Connected vehicle integrated corridor management - This use case explores how connectivity will allow vehicles to interact with traffic, maintenance, transit emergency and other management systems to determine operational decisions along corridors. The use case will leverage historical, real-time, and predictive sources of information (from these management systems) to determine operational strategies that minimize operational impacts along the corridor(s).
5. Lane management - This use case explores how connectivity will allow vehicles to interact with ITS field equipment (detection, dynamic message/lane control signs) to manage and control specific lane use. Under this use case, lane controls could be automatically controlled based on measured traffic conditions and demand along arterial corridors, or used to change the lane configuration of the roadway, allow use of shoulders as temporary travel lanes, and/or prohibit or restrict types of vehicles from using particular lanes.
6. Railroad crossing violation warning - This use case explores how DSRC technology might be used to improve safety at grade-level rail crossings, particularly in cases of unsignalized crossings in rural locations, or in dense urban areas where both light and heavy transit rail are operated in the same right-of-way as vehicular traffic.

1.3 GOALS AND OBJECTIVES

The ultimate goal of this stakeholder engagement plan is to facilitate a process for ensuring that all relevant previous research and development efforts have been considered in the advancement of CTCS concepts. This requires the engagement of a diverse set of entities in the public and private sector that have a stake in the CTCS environment. To this end, this stakeholder engagement plan has been developed to facilitate effective stakeholder engagement that is founded on the principles of early and continuous informed engagement. This includes engagement of many industry leaders, as well those tied to modal groups like transit, commercial vehicles, disadvantaged groups, etc. Critical to success of the process, outlined in this stakeholder engagement plan, is a methodology that continually shows progress and best utilizes the stakeholders' time and body of knowledge.

Understanding these factors, this Stakeholder Engagement Plan has been developed to undertake five primary activities: identification, recruitment, engagement, provision of information, and incorporation of stakeholder feedback.



The primary objectives of this stakeholder engagement plan are to:

- Identify and categorize stakeholders based on their involvement in CTCS advancement efforts and the degree to which they will be impacted by the outcomes of this research

- Listen to stakeholder needs, concerns, and visions
 - Provide a better understanding of stakeholders previous, ongoing, and future research and development efforts
 - Provide a range of information to stakeholders that will help to facilitate positive planning and development efforts
 - Develop engagement processes that provides stakeholders with an opportunity to provide meaningful input into CTCS advancement efforts
 - Identify tools and methods to disseminate project information, confirming with stakeholders that these tools will help provide the most effective methods for advancing the dialogue
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1.4 DOCUMENT ORGANIZATION

This plan is organized into the following sections:

- Section 2: Identification and Recruitment Process – This section defines the process for identifying and recruiting stakeholders.
- Section 3: Stakeholders – This section identifies the stakeholders that comprise the primary audience for stakeholder engagement.
- Section 4: Outreach and Communications Methods and Tools – This section details the methods and tools that will be used to engage industry, academic, research, and state and local government stakeholders.
- Section 5: Implementation Plan – This section identifies the action items and responsibilities for implementing the stakeholder engagement plan. This section correlates the individual strategies to target audiences.

2 STAKEHOLDER IDENTIFICATION AND RECRUITMENT

2.1 STAKEHOLDER IDENTIFICATION

Successful stakeholder engagement requires that stakeholders are active participants in the process. This starts by appreciating the volunteer nature of stakeholder involvement and ensuring that stakeholders are given clear and concise support for the purpose and scope of their involvement. Further, this requires a comprehensive understanding of what each stakeholder brings to the project, and where they can best provide feedback and meaningful input.

The WSP team will prepare an initial stakeholder register that is organized by industry/role. The stakeholder register will be submitted to the PFS for review and discussion, and once agreed to, it will be formalized. To help identify stakeholders an initial register of stakeholders will be developed by the WSP team for review by the PFS. The stakeholder register will be organized into the following 6 categories to help ensure that each critical stakeholder need is captured:

1. State and Local Departments of Transportation (DOTs)
2. Automakers
3. ITS Device and Traffic Signal Control Vendors
4. Automotive Suppliers and Technology Providers
5. Non-Automotive (Transit, Freight, Rail) Stakeholders
6. Relevant Industry Groups

The goal would be to have one or more stakeholders from each major group to ensure multiple points of view, but acknowledging that overall size of the group should be kept in check to foster dialogue and not be so large that it can't achieve its objectives.

Appendix A provides the draft stakeholder register. The stakeholder register will be updated periodically as the project progresses.

2.2 STAKEHOLDER RECRUITMENT

Based on the PFS review and concurrence the WSP team will develop a high-level scope and schedule statement that will help potential stakeholders to understand their role in the CTCS advancement project, and the approximate timing of the activities that they will be involved in. This material will be sent to stakeholders after an initial one-on-one conversation with a member of the WSP team. It is important to note that the stakeholder list may change over time due to employment changes, or as wider stakeholder representation is required. The WSP team will track changes to the stakeholder registry and communicate these changes to the PFS project manager.

3 STAKEHOLDERS

Provided in the following section is an initial list of stakeholders that will be engaged as part of the CTCS project. It was developed through a comprehensive iterative process that began with guidance first presented in the Request for Letter of Intent (RFLI) from the CV PFS. Language in the RFLI clearly stated that the stakeholder group should be drawn from a “broad set of modes and system users, including but not limited to federal, state and local departments of transportation, transit agencies, and freight stakeholders.” It also included specific categories and organizations that should be represented, including

- CAMP, OEMs and Infrastructure Owner/Operators (IOO)
- ATCMTD, CV Pilot and Smart Columbus Demonstration Contractors
- V2I Deployment Coalition
- Traffic Signal, Arterial and Freeway Operations related Groups
- Connected Vehicle and Automation Application Developers/Vendors
- Traffic Signal Control Vendors
- Transit / Bus representatives
- Vulnerable Road User Programs

Our team took this list as a starting point, along with the assumption that any agency that is a member of the CV PFS can and should be included in the stakeholder list, and formulated a draft stakeholder outreach list. We brainstormed different names and contacts, and then began to refine the list in order to reduce the overall number down to a more manageable ceiling. We checked and double-checked that all the key stakeholder groups had some level of representation, recognizing that in order to have a functional group it’s size had to be manageable in size - too large and it would be impossible to garner any kind of consensus, too small and key issues could get missed.

The resulting stakeholder groups and individual organizations is presented below by category.

3.1 STATE & LOCAL DOT’S

The CV PFS is made up primarily of State DOT representatives, which affords the opportunity to actively seek input from this segment of stakeholders on a regular basis – and perhaps at an even more detailed level. If there are specific issues that require broader State DOT disciplines (beyond that of PFS member representatives), they can identify additional resources within their organizations to ensure the broadest possible coverage of expertise being applied to specific questions.

Our recommendation is to take advantage of the fact that State DOT representation is already strong on the CV PFS, and reserve the limited number of stakeholder slots for city and/or county municipalities who are also infrastructure owner-operators (IOOs). For the eventual universal deployment of future CTCS components and/or lessons learned from a CTCS exercise it is those local entities that will be a critical factor in reaching widespread adoption and availability.

We can seek to further optimize the engagement by bringing in several (3 or 4) local DOT stakeholders that provide a broad sample representation of geography, capability/maturity, and population size.

A few sample agencies that are identified in the draft register include:

1. City of Austin, TX
2. City of Gainesville, FL
3. City of Madison, WI
4. City of Pasadena, CA
5. City of Philadelphia, PA
6. Road Commission for Oakland County
7. Contra Costa Transportation Authority
8. Mohave County Public Works

3.2 AUTOMAKERS

Original Equipment Manufacturers (OEMs) of automobiles are an important stakeholder group to engage. Representation from the Crash Avoidance Metrics Partnership (CAMP) and other OEMs is critical in understanding consumer adoption and utilization of various use case scenarios. It is the OEMs that will interface with application developers – not IOOs.

A few sample companies that are identified in the draft register include:

1. Toyota
2. Nissan
3. Ford
4. Honda
5. General Motors (GM)
6. Global Automakers Association

3.3 ITS DEVICE AND TRAFFIC SIGNAL CONTROLLER VENDORS

A key vendor group in this conversation would be those companies that produce traffic signal controllers and other ITS devices that transportation agencies rely on for traffic control purposes. This is a broad category that could include a variety of small, medium, and large companies – but it’s a critical one in that often these stakeholders will be the critical path to widespread deployment of the underlying devices needed to enable in-vehicle or end-user applications. Everything from pedestrian detectors to traffic signal fault monitors to fiber optic switches – all play a vital role in the connected infrastructure ecosystem and have to work cooperatively with new systems that might be specified or conceptualized.

A few sample companies that are identified in the draft register include:

1. Econolite
2. McCain
3. Gridsmart
4. Siemens
5. Lear
6. Naztec

3.4 AUTOMOTIVE SUPPLIERS AND TECHNOLOGY PROVIDERS

While the previous category was integral to the connected infrastructure ecosystem, this stakeholder group is critical to the connected vehicle ecosystem. Direct (Tier 1) suppliers to the auto industry, wireless communications providers, and in-vehicle application enablers are all examples of companies that should be part of the CTCS conversation as it proceeds.

A few sample companies that are identified in the draft register include:

1. Bosch
2. Denso
3. HERE
4. Traffic Technology Services (TTS)
5. Valeo
6. Cisco
7. Sirius/XM

3.5 NON-AUTOMOTIVE STAKEHOLDERS

The potential use case scenarios for the CTCS necessitate a broader-than-usual stakeholder group that might include parties not typically part of the overall CAV dialogue. But perhaps they should be, as companies like transit operations providers, freight, rail grade crossing safety advocates, and even truck equipment manufacturers can and likely will be early adopters for potential vehicle-to-infrastructure (V2I) applications.

A few sample companies or organizations that are identified in the draft register include:

1. Keolis North America
2. Transdev North America
3. BNSF Railroad
4. Volvo Truck
5. Peterbilt Truck
6. Peloton
7. Operation Lifesaver

3.6 INDUSTRY ORGANIZATIONS

A range of industry organizations are actively involved in CAV activities that focus on the advancement of CAV. Inclusion of these stakeholders are critical as they represent the perspective wide-range of stakeholders. Organizations that could be included in stakeholder engagement activities are:

1. American Association of State Highway and Transportation Officials (AASHTO)
2. Institute of Transportation Engineers (ITE)
3. Intelligent Transportation Society of America (ITS America)
4. Society of Automotive Engineers (SAE)
5. American Public Transportation Association (APTA)
6. American Association of Motor Vehicle Administrators (AAMVA)
7. Commercial Vehicle Safety Alliance (CVSA)
8. Transportation Research Board (TRB)

3.7 STAKEHOLDERS NOT CATEGORIZED BUT CAPTURED

Creating categories for stakeholder engagement can be both productive and a barrier. Trying to carve out a category for every possible stakeholder, user, or individual that might touch the CTCS ecosystem is an impossible task. Too many categories, and engagement becomes difficult. Too few categories, and stakeholders risk feeling alienated. Our proposed structure takes into consideration that several key stakeholders could fall across multiple user groups and while not individually called out, will be captured by our proposed structure.

Some examples of key stakeholders that will be captured under the existing structure:

- Agencies currently in pursuit of the National Signal Phase and Timing (SPaT) Challenge, National Fleet Challenge, or working on CV-related pilots on their own.
- Organizations actively engaged in the Cooperative Automated Transportation (CAT) Coalition, the outgrowth of the original V2I Deployment Coalition.
- Federal Grant recipients such as the USDOT-sponsored CV Pilots, the Smart Columbus project, or projects funded by the Advanced Transportation and Congestion Management Technologies Deployment Program (ATCMTD).
- Standards Development Organizations (SDOs) that are responsible for the development, approval, and evolution of key industry standards affecting the future CTCS.

- Vulnerable road user groups such as organizations/individuals representing bicyclists, pedestrians, and individuals with disabilities.
- Academia - already represented on the WSP consultant team but could be added to the stakeholder group if the CV PFS wishes to add a specific academic stakeholder.

4 OUTREACH AND COMMUNICATIONS METHODS AND TOOLS

4.1 IN-PERSON STAKEHOLDER MEETINGS

The project team has extensive experience running workshops and therefore understands the benefits of having a well-structured agenda defined in advance, with suitable briefing materials to set the stage and well-defined questions to elicit the needed information from stakeholders.

4.1.1 STAKEHOLDER NEEDS WORKSHOP

As a component of Task 4, the WSP team will schedule and conduct a Stakeholder Needs Workshop to solicit stakeholder feedback on a range of issues and activities related to the CTCS advancement, including on the CTCS technology readiness level (TRL)/Priority Assessment and the direction of the CTCS research plan.

To support the Stakeholder Needs Workshop the WSP team will develop a PowerPoint presentation that will be provided to the PFS prior to the meeting for review and comment.

The WSP team will seek to identify opportunities where the Stakeholder Needs Workshop can be conducted in concert with a well-attended industry conference or related meeting to maximize stakeholder attendance and reduce the number of additional meetings/trips that CV PFS members must attend. Add-on meetings aren't always possible (particularly when attached to long duration conferences that already demand a lot of time from volunteers), but there are opportunities that can be explored.

In addition, we recommend that for this Stakeholder Needs Workshop, that in-person dialogue remain the focus. While the RFI suggests there should also be "a remote web conference feature to interact with remote participants," it is our experience that doing so will significantly diminish the effectiveness of the overall effort and diminish the opportunities for input by those in person. We have all been in workshops where "staring at the phone in the center of the room" is not only distracting, it is ineffective.

4.1.2 CONCEPT OF OPERATIONS WORKSHOP

As a component of Task 6, the WSP team will schedule and conduct a smaller CTCS Concept of Operations (ConOps) Workshop to develop and gain consensus on the CTCS concept(s) vision, goals, and objectives as well as to begin understanding the operational considerations of the concept(s) with respect to existing individual agency operations.

The participants at this workshop will be narrowed to the CV PFS representatives themselves, and if desired, a small group of additional stakeholders with a significant role in the selected concept(s). This is done to minimize complexity and maximize production of the report.

The workshop will help ensure stakeholder feedback and expectations are captured early; identify existing operational environment and roles; identify how the concept could enhance existing situations; identify operational requirements; begin the process of linking needs with specific requirements; and provide contextual framework needed to support future prototyping efforts.

This workshop could preferably be held in-person at a previously scheduled CV PFS meeting, or if necessary, by webinar.

4.1.3 STAKEHOLDER TRAVEL SUPPORT

The WSP proposal suggested a maximum of 2 trips each for 5 stakeholders for the in-person Stakeholder Needs workshop to be conducted as part of Task 4 and the ConOps workshop to be conducted as part of Task 6 (a budgeted total of 10 trips for specifically identified stakeholders). This support is intended to assist key individuals to attend meetings that they would otherwise not be able to due to financial constraints. The decision on who to allocate those funds to will be made by CV PFS members ahead of sending out invitations, as this could certainly have an impact on decision-making by the individuals. The total budget is capped at \$8,839, which doesn't allow for a significant amount to be allocated – but for some individuals “every little bit” might help.

4.2 PROJECT BRIEFINGS

Briefings are an effective tool that can sustain engagement of CV PFS leadership, members and selected stakeholders at critical points during the project. They provide the opportunity to update the overall progress of the effort, and to present key findings in specific task milestones. Briefings will be conducted for the results of the stakeholder engagement workshop, CTCS TRL/Priority Assessment, and the final CTCS Research Plan.

To support these briefings the WSP team will develop PowerPoint presentations and/or email communiques. Draft materials that will be provided to the PFS prior to the webinar or distribution for review and comment.

4.3 CTCS CONCEPT OF OPERATIONS WALKTHROUGH

The CTCS ConOps walkthrough provides CV PFS members the opportunity to review, comment and provide feedback on the CTCS ConOps. The CTCS ConOps walkthrough will be conducted via webinar. Prior to the walkthrough the WSP team will develop a PowerPoint Presentation and walkthrough workbooks to the PFS for review and comment.

4.4 DOCUMENT REVIEW EXERCISES

A key step in ensuring CV PFS member engagement and fostering ownership in a project is to involve them in the review of project deliverables. These exercises provide stakeholders with the opportunity voice their opinions on project deliverables and offer their own ideas on how comments should be mitigated and how documents should be revised. Some exercises can be conducted purely by email, others might necessitate a teleconference and/or webinar.

Selected deliverables can also be forwarded to the broader stakeholder group for review and input. The decision on which products to circulate will be made with CV PFS involvement, and consider the overall project schedule, budget, and realistic nature of having certain deliverables reviewed by a broader stakeholder community. Based on those factors, an approach to circulating documents and garnering feedback would be made on a case-by-case basis.

4.5 PROJECT SHAREPOINT SITE

A project SharePoint site can be established that will include copies of the various working documents and the outcomes of stakeholder engagement. This information will be kept current and accessible to all CV PFS members.

Participants can opt to receive email notifications when new material is published or when similar changes take place. However, the WSP team will not rely exclusively on SharePoint for informing stakeholders of key dates/events and will continue to use email as the communications tool for critical activities with the occasional direct phone contact as necessary to maintain clarity.

5 IMPLEMENTING THE PLAN

5.1 ROLES, RESPONSIBILITIES AND APPROXIMATE TIMING

Table 1 provides a summary of the activities and schedule that involve stakeholders.

Table 1: Stakeholder engagement roles and responsibilities

TASK NAME	START	FINISH	STAKEHOLDER INVOLVEMENT
Task 1: Project and Systems Engineering Management	Wed 4/11/18	Fri 10/18/19	
Task 2: Stakeholder Engagement Planning for Research	Thu 8/16/18	Fri 12/21/18	
DRAFT Stakeholder Engagement Plan	Thu 8/16/18	Wed 9/5/18	
REVISED Stakeholder Engagement Plan and the Comment Resolution Report	Thu 9/6/18	Wed 10/31/18	
Final Stakeholder Engagement Plan	Thu 11/1/18	Fri 12/21/18	
Task 3: Research Review	Wed 5/30/18	Fri 2/8/19	
DRAFT Research Review	Wed 5/30/18	Fri 10/12/18	
REVISED Research Review and the Comment Resolution Report	Mon 10/15/18	Fri 1/11/19	
FINAL Research Review	Mon 1/14/19	Fri 2/8/19	
Task 4: Assessment of Technology Readiness Levels for Prioritized Research Areas	Thu 11/22/18	Fri 5/31/19	
Stakeholder Engagement/Workshop and Briefing Materials	Thu 11/22/18	Fri 3/1/19	
Identify/Reserve Stakeholder Workshop Meeting Site	Thu 11/22/18	Mon 1/14/19	
Send Stakeholder Workshop HOLD THE DATE Invites	Mon 1/14/19	Mon 1/14/19	Accept Invite
Develop Stakeholder Workshop Meeting Materials	Mon 2/11/19	Fri 2/15/19	
Send Stakeholder Workshop Reminder and Meeting Materials	Fri 2/15/19	Fri 2/15/19	Review Material

Conduct Stakeholder Workshop	Fri 3/1/19	Fri 3/1/19	In-Person
DRAFT TRL/Priority Assessment of CTCS Prioritized Research Areas	Mon 3/4/19	Fri 3/29/19	
Briefing of Stakeholder Engagement/Workshop Results and Updated CTCS TRL/Priority Assessment	Mon 4/1/19	Fri 4/26/19	
Client Review of DRAFT TRL Assessment	Mon 4/1/19	Fri 4/12/19	
Update DRAFT TRL Assessment	Mon 4/15/19	Fri 4/26/19	
Briefing of Stakeholder Engagement/Workshop Results and Updated CTCS TRL/Priority Assessment	Fri 4/26/19	Fri 4/26/19	Webinar
REVISED TRL/Priority Assessment and the Comment Resolution Report	Mon 4/29/19	Fri 5/24/19	
FINAL TRL/Priority Assessment of CTCS Prioritized Research Areas	Mon 5/27/19	Fri 5/31/19	
Task 5: Development of CTCS Research Plan	Mon 5/13/19	Fri 8/16/19	
UPDATED CTCS Research Plan	Mon 5/13/19	Fri 6/21/19	
REVISED CTCS Research Plan and the Comment Resolution Report	Mon 6/24/19	Fri 7/19/19	
CTCS Research Plan Briefing	Mon 7/22/19	Fri 8/2/19	
FINAL CTCS Research Plan	Mon 8/5/19	Fri 8/16/19	
Task 6: Development of Concept of Operations (ConOps) of High-Priority Research Area(s)	Mon 6/3/19	Fri 10/11/19	
DRAFT CTCS ConOps of High Priority Research Area(s)	Mon 6/3/19	Fri 8/2/19	
Schedule ConOps Workshop	Mon 7/1/19	Mon 7/1/19	Accept Invite
Develop ConOps Workshop Materials/Scenarios	Mon 7/1/19	Fri 8/2/19	
Conduct ConOps Workshop	Fri 8/2/19	Fri 8/2/19	In-Person
Develop DRAFT CTCS ConOps of High Priority Research Areas(s)	Mon 6/3/19	Fri 7/19/19	
Submit DRAFT CTCS ConOps of High Priority Research Area(s)	Fri 7/19/19	Fri 7/19/19	

REVISED CTCS ConOps and the Comment Resolution Report	Mon 7/22/19	Fri 8/16/19	
CTCS ConOps Walkthrough and Workbooks	Fri 8/16/19	Fri 9/6/19	
Client Review of REVISED ConOps and the Comment Resolution Report	Mon 8/19/19	Fri 8/30/19	
Schedule Walkthrough	Fri 8/16/19	Fri 8/16/19	Accept Invite
Conduct Walkthrough of REVISED CTCS ConOps	Fri 9/6/19	Fri 9/6/19	Webinar
REVISED CTCS ConOps and Walkthrough Comment Resolution Report	Mon 9/9/19	Fri 9/20/19	
FINAL CTCS ConOps of High Priority Research Area(s)	Mon 9/23/19	Fri 10/11/19	
Submit FINAL CTCS ConOps	Fri 10/11/19	Fri 10/11/19	
Project Completion	Fri 10/18/19	Fri 10/18/19	

5.2 KEYS TO SUCCESS

The ability to communicate effectively reduces the greatest risk of failure for any project, especially when innovative and fast evolving technologies such those that are central to CTCS advancement are involved. Keys to successful engagement as they relate to this effort are:

- Consistent and Sustained Engagement – Advancement of CTCS is transpiring during a period of rapid and significant changes in surface transportation technologies and operational practices. Sustained engagement of stakeholders where they are provided with new information that is consistent and builds upon previous engagement activities will be critical. Lapses in engagement may compromise stakeholder’s commitment to the efforts.
- Manage and Mitigate Conflicting Viewpoints – Given the wide-range of stakeholders that will need to be engaged in CAV advancement efforts it is understandable that situations will occur where stakeholders have conflicting viewpoints that are not always consistent among stakeholders. This is likely to occur when user needs are identified, and corresponding concepts are developed. It will be the responsibility of the PFS and WSP to manage and mitigate these conflicting viewpoints while keeping stakeholders engaged in the planning and development process.
- Expansion and Flexibility – As CTCS advancement activities emerge over time it may be necessary to expand or narrow the range of stakeholders that are engaged in outreach efforts and provide flexibility in the issues that are addressed in these efforts as the market continually matures.

5.3 IMMEDIATE ACTION ITEMS

To help foster a robust stakeholder engagement process it will be necessary to initiate and/or complete the following actions in the early part of the project:

- Stakeholder Registry Development – The stakeholder registry will document the full range of individuals, groups, and external organizations that may have interest or involvement in the project. It will also help identify groups for targeted outreach. The registry will be intentionally oversized, recognizing that the actual list of stakeholders engaged in the project will be drawn from the list and be smaller in number. Not everyone will accept and/or engage, therefore creating the need for additional names to pull from.
- Stakeholder Recruitment – Beginning the stakeholder recruitment process early in the project development process is necessary to foster a collaborative environment where the stakeholders feel their input is both appreciated and meaningful. Once the range of potential stakeholders has been identified (as reflected within the Stakeholder Registry) and agreed to it will be necessary to engage and brief them on how they can contribute to the process.