Caltrans Connected and Automated Vehicle (CAV) Strategic Plan Workshop

Ben McKeever, P.E.
University of California PATH Program
Project Update – July 25, 2020
Tips for Zoom Meetings

• If you have issues with your PC audio, please use the telephone option
• Please turn off video and self-mute until we enter Breakout Rooms
• Open the Zoom tool bar (mouse over the bottom of your Zoom screen) to:
  o Self-mute/unmute your line;
  o Switch your audio between PC and telephone;
  o Enable/disable webcam feature;
  o See a list of participants;
  o Raise your hand and vote yes/no; or
  o Send a question or message to the chat box.
• Each presentation will be followed by an opportunity for discussion. Use the raise hand function to show that you wish to speak.
• Each speaker will be called on in turn, and their line will be unmuted by the organizer. You must ensure your line is not self-muted.
• Please self-mute your line after you speak.
• Ask questions anytime using chat box - we will address as many as we can
• Breakout Rooms will be controlled by the organizer. You will receive messages to enter and leave the breakout rooms at appropriate times
Project Goal

• Develop a CAV Strategic Plan for Caltrans
  – Define a vision and strategy for Caltrans leadership in preparation for CAV deployment
  – Initiate a CAV policy development process
  – Develop CAV action plan that defines specific activities for Caltrans to undertake in the coming years
  – Keep California at the forefront of this emerging industry
Project Team

• **California PATH**
  – Principal Investigator: Ben McKeever, P.E.
  – Strategic Advisor: Tom West
  – Research Engineer: Peggy Wang, PhD

• **CAVita, LLC**
  – Peter Sweatman, PhD
  – Barry Einsig
# Project Tasks and Schedule

<table>
<thead>
<tr>
<th>Task</th>
<th>Tasks</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Q3</td>
<td>Q4</td>
</tr>
<tr>
<td>1</td>
<td>Project Management</td>
<td>◊</td>
<td>◊</td>
</tr>
<tr>
<td>2</td>
<td>Summarize the State of CAV</td>
<td>◊</td>
<td>◊</td>
</tr>
<tr>
<td>3</td>
<td>Define How CAV Impacts Caltrans Business Processes</td>
<td>◊</td>
<td>◊</td>
</tr>
<tr>
<td>4</td>
<td>Stakeholder Outreach</td>
<td>◊</td>
<td>◊</td>
</tr>
<tr>
<td>5</td>
<td>Develop CAV Strategic Plan</td>
<td>◊</td>
<td>◊</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◊</td>
<td>◊</td>
</tr>
</tbody>
</table>
Role of Project Panel

• Provide strategic direction for the project
• Participate in project milestone meetings and stakeholder meetings
• Review project deliverables and provide feedback
• Help the PATH team get input from the appropriate staff at Caltrans (e.g. staff interviews)
Task 1: Project Management

• Tracking schedule and budget, providing project updates, facilitating meetings, managing subs, etc.

• Deliverables
  – Kick-off meeting
  – Quarterly Progress Reports
  – PM Coordination Calls
Task 2: Summarize the State of CAV

• Summarize CAV activities in CA and the rest of the US
  – include public and private sectors
  – cover CAV technologies, policies and remaining challenges

• Deliverables
  – Technical Memo describing state of CAV was delivered January 2020
Task 3: Define how CAV impacts Caltrans Business Processes

• Interview key staff in select Caltrans business units and discuss how CAV is being (or will be) incorporated in them

• Deliverables
  – Technical Memo describing how CAV impacts Caltrans was delivered May 2020
  – Includes draft CAV Action Plan
Task 4: Stakeholder Outreach

• Conduct a stakeholder workshop to gather input from Caltrans staff and other state agencies on CAV readiness and desired CAV actions

• Deliverables
  – Workshop: summary of findings from task 3 and review of Caltrans CAV Action Plan
Task 5: Develop Caltrans CAV Strategic Plan

- Summarize findings from tasks 2-4 and synthesize the results in a Strategic Plan.
- Include a CAV Action Plan with recommended near and mid-term activities.
- Deliverables
  - Draft Caltrans CAV Strategic Plan
  - Final Caltrans CAV Strategic Plan
Summary of Staff Interviews

• Leveraged members of CAV Strategic Plan Project Panel to schedule meetings (some in-person, some via Zoom)
• Conducted 17 interviews with over 50 staff members from CalSTA, DMV and the following Caltrans Divisions:
  – DRISI, Operations, Maintenance, Equipment, Design, Construction, Administration, Planning, Risk and Strategic Management, IT, and Legal
  – Districts 4 and 11
Summary of Staff Interviews

Interviews focused on 8 CAV Planning Themes:

1. Significance of CAV
2. Broadening the Caltrans CAV knowledge base
3. Current opportunities for direct CAV engagement
4. CAV research strategies and test bed engagement
5. Preparation for AV deployment in California
6. Caltrans active visioning for CAV
7. Integration of CAV into Caltrans’ transportation planning processes
8. Caltrans CAV working method
Findings from Staff Interviews

• Staff that were interviewed are well informed on CAV and have a great interest in seeing it successfully deployed throughout CA

• Impact of CAV on Caltrans
  – CAV will have a meaningful impact on Caltrans both near and long term (to differing degrees)
  – widespread CAV deployment is many years out but that there are actions that Caltrans should take now to prepare
  – safety is the number one goal of Caltrans and CAV will eventually have a positive impact on it
  – CAV will also have a smaller but significant impact on other Caltrans priorities: multi-modality, efficiencies, partnerships, and innovation
Findings from Staff Interviews

• Most promising aspects of CAV
  – Increased safety for traveling public
  – Increased worker safety
  – Operational improvements
  – More efficient freight movement
  – Reduced GHG emissions
  – Better data for planning and operations
  – Better accessibility for the elderly, disabled and other underserved populations
  – Improved transit operations
  – Fewer lawsuits
  – Opportunity for Innovation
Findings from Staff Interviews

• Most concerning aspects of CAV
  – Decreased safety during transition period
  – Cybersecurity
  – Data management
  – Technological uncertainty
  – Equity issues
  – Increase in VMT
  – Impact on infrastructure maintenance
  – Tort liability
Findings from Staff Interviews

• Caltrans Role in CAV Deployment (votes in parentheses)
  – Partner (10)
  – Integrator (9)
  – Facilitator/leader (7)
  – Researcher (6)
  – Educator (6)
  – Regulator (5)
  – Promoter (4)
  – Innovator (4)

• Caltrans should focus their role on the infrastructure side
Findings from Staff Interviews

- **Recommended CAV Leadership Actions**
  - Internal CAV Working Groups (leverage existing groups)
  - Additional CAV Funding (must first demonstrate benefits)
  - Additional CAV Organizational Support and Coordination
  - Workforce development – new skills needed
  - CAV awareness and training – both internal and for locals
  - More CAV pilot deployments – expand testbeds
  - No consensus on leading a statewide CAV Consortium – consider building on existing efforts first
CAV Action Plan

• **Six Work Areas**
  – Organizational Change and Workforce Development
  – Planning and Programming
  – Pilots and Testing
  – Deployments
  – External Outreach and Partnerships
  – Policy

• **Priority**
  – Near-term (0-2 years)
  – Medium-term (3-5 years)

• **Responsible Party**
  – Caltrans Division(s) responsible for implementing action