

DEPARTMENT OF TRANSPORTATION

DISTRICT 11
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CONNECTED AND AUTOMATED TECHNOLOGY
PROGRAM
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*Making Conservation
a California Way of Life.*

FCC Narrative Statement:

Caltrans will be studying the applications and services for the Vehicle to Vehicle (V2V) and Vehicle to Everything (V2X) market using Cellular-V2X (C-V2X) as the physical layer. The technology is based on 3GPP R14 and/or R15 and will primarily employ Mode 4 operations (PC5 Sidelink Direct Communications). The technology will be deployed using 20MHz channel BW. The proposed program will be in 3 phases.

Phase 1: Develop Test bed

- Planning & Engagement logistics
- Initial deployment 2 RSUs, 3 OBUs
- Establish basic RSU and OBU communication
- V2I: Infrastructure to vehicle alerts: Speed Limit, Work Zone, Road Closures (No TMC integration. RSU side loading only)

Phase 2: Pre-commercial Deployment

- Install 2 additional RSU @ Sorrento Valley, west/east of I-805
- Complete RSU/OBU deployment
- Vehicle Data collection via C-V2X RSU to backend
- Integration with Traffic Controller to provide GLOSA/TTG applications
- V2I use cases:
 - Wrong Way Warning, Queue Length Warning, Travel Times

Phase 3: Advanced use cases (additional RSU/OBU will be installed)

- Expand signal limit
- Engage car manufacture feedback
- Advanced use cases:
 - Lane merge, Multi-Modal Intelligent Traffic Signal System
- LTE/5G new technology Chip will be tested and evaluated for comparison and technology verification

Each phase will be followed by white paper describing the process, successes and opportunities for improvement, and lessons learned

Phase 1 will be using antennas from Commsignia (more vendor participation at later phases), which will be attached/mounted on Caltrans existing structures. RSUs will be attached to Changeable Message Sign (CMS) structures, Traffic Lights, Street Lighting Poles, or field element poles at the various locations.

Sincerely,

SAM AMEN
CAV Program Manager