Connected Vehicle Application Development

A study focuses on improving tools to better develop and implement connected vehicle applications to benefit the public, environment, and economy of California.

WHAT IS THE NEED?

In the past, the United States Department of Transportation has provided financial and technical support to California Department of Transportation (Caltrans) test bed site in Palo Alto, CA, for developing the dedicated short range communication infrastructure.

Currently, the test bed site is fully operational and consists of 11 intersections. As Caltrans is preparing to achieve the deployment of at least 20 connected vehicle (CV) upgraded intersections on highway 82 to meet the Signal Phase and Timing (SPaT) challenge by January 2020, and many of the CV applications require longer CV equipped corridors for applications to work properly; thus, expanding 11 intersections to 31 at the test bed site will provide a better venue for application developers to complete the testing and development of both the vehicle and infrastructure components.

WHAT ARE WE DOING?

This research entails the following tasks:

1. Expand the California CV test bed to meet the National Operations Center of Excellence’s requirements for the SPaT challenge

2. Develop, implement, and conduct field tests for a set of CV applications to establish technological foundations for California CV deployment; and

3. Support the deployment of CV in California
WHAT IS OUR GOAL?

The objective of this research is to achieve a fully functional test bed with 31 intersections that will allow various private and public entities to develop CV applications.

WHAT IS THE BENEFIT?

The improved test bed will provide a platform for software engineers to develop various CV transportation applications that will improve the throughput and safety for vehicular movements on highways, arterial, and surface streets; and ultimately help drivers in cutting travel times, saving fuel, and improving safety.

Caltrans will be the primary beneficiary as the developed applications will increase efficiency in managing traffic flows and reducing carbon footprint.

WHAT IS THE PROGRESS TO DATE?

The expected start date of this research is January 28, 2019.