System Impact Of Connected And Automated Vehicles: An Application To The I-210 Connected Corridors Pilot

A research project to incorporate connected automated vehicles into the current Integrated Corridor Management systems.

WHAT IS THE NEED?

In the current Integrated Corridor Management (ICM) systems, the control targets are ordinary vehicles, buses, pedestrians, etc. However, in recent years, a great amount of effort has been devoted to the field of connected automated vehicles (CAVs), which may be implemented in the future and become one of the dominant travel modes.

Given that this important piece is missing from the current ICM systems, it will become a serious problem for public agencies like the California Department of Transportation and local Traffic Management Centers to manage traffic properly and efficiently once CAVs are deployed in the field.

Unfortunately, currently it is impossible to evaluate the system impact of CAVs on transportation networks in the field, and insights from existing CAVs studies are very limited since they were applied to small networks. Instead, a more appropriate way is to build a well-calibrated large-scale traffic network in microsimulation and add CAVs for testing purposes.

WHAT ARE WE DOING?

This research aims to fill this gap by developing an integrated platform in microsimulation that allows the modeling of CAVs in the current ICM systems. For demonstration purposes, the research team will use the Interstate-210 Connected Corridor Pilot model developed in the microsimulation software, Aimsun, as a
The proposed platform will incorporate the most appropriate CAVs models/applications into Aimsun, using the available Software Development Kits which allow public agencies to play with different scenarios in microsimulation and understand potential impacts of CAVs on their proposed ICM strategies.

**WHAT IS OUR GOAL?**

The primary goal of this project is to develop an integrated platform to incorporate CAVs into microsimulation and evaluate their system-impacts on large-scale transportation networks.

**WHAT IS THE BENEFIT?**

The outcome of this project will provide public agencies useful tools to better understand the system impact of CAVs and help them perform long-term planning.

**WHAT IS THE PROGRESS TO DATE?**

This research proposal is under review for execution.