Evaluation of Different Coordinated Ramp Metering (CRM) Systems

Evaluate the different coordinated ramp metering (CRM) systems used in Caltrans, determine the best performing system based on safety, efficiency, and reliability criteria.

WHAT IS THE NEED?

Coordinated Ramp Metering (CRM) has the potential to further improve the freeway performance compared to existing ramp metering algorithms. CRM can be implemented in the Advanced Traffic Management System (ATMS) of most Caltrans districts but is currently operational on three corridors in three different Caltrans districts. Each of the implemented CRM systems has its own unique algorithm characteristics and implementation protocols. There is no current information based on field data on the performance of each system based on safety, efficiency, and reliability criteria.

There is a need to evaluate the different CRM systems to provide a better understanding for needed corridor/system wide improvements and strategies with the purpose of improving corridor safety, efficiency, and reliability.

WHAT ARE WE DOING?

The objective of this research is to have researchers conduct an evaluation of the performance of CRM systems currently implemented in two Caltrans districts. Using field data “before” and “after” the CRM implementations, the study will determine which CRM system provides the best overall performance based on safety, efficiency, and reliability criteria.
WHAT IS OUR GOAL?

The end-product of the project will be evaluation reports on algorithm performance for each CRM system, and recommendation on which CRM system performed the best based on safety, efficiency, and reliability criteria.

WHAT IS THE BENEFIT?

This project will determine which CRM system performs the best based on safety, efficiency, and reliability criteria. This information may help Caltrans decide which CRM to use to reduce the amount of time the motoring public is on the roadway. The results of the research could lead to the implementation of standardized CRM in other districts that have ramp meters.

WHAT IS THE PROGRESS TO DATE?

Researchers completed this task and delivered the final report to Caltrans. This task is closed.