DRISI

Caltrans Division of Research, Innovation and System Information

Research Notes

Transportation Safety and Mobility

AUGUST 2020

Project Title:
Testing of Combined Variable Speed Advisory (VSA) and Coordinated Ramp Metering (CRM) for Freeway Traffic Control

Task Number: 3245

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Completion Date: November 30, 2020

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Evaluation of Different Coordinated Ramp Metering Systems in Caltrans

Evaluate the different CRM used in Caltrans, determine the best performing system, and provide a CRM recommendation to the Districts that have ramp meters.

WHAT IS THE NEED?

Coordinated Ramp Metering (CRM) has potential to further improve the freeway performance compared to the existing ramp metering algorithms. CRM can be implemented in the Advanced Traffic Management System (ATMS) of most California Department of Transportation (Caltrans) districts but is currently operational on two corridors in two 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, and there is no guidance on which CRM should be recommended for implementation in other Caltrans districts.

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 research team at the University of California, Berkeley will conduct an evaluation of the performance of CRM systems currently implemented in two Caltrans districts. Using field data from "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.

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WHAT IS OUR GOAL?

The end-product of this project will be evaluation reports on algorithm performance for each Caltrans District, and recommendations for CRM implementations in Caltrans Districts.

WHAT IS THE BENEFIT?

The research team will recommend the best CRM Caltrans should 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 have started work on a working paper for task 4- CRM Assessment on selected corridors, to describe in detail the work performed and the findings to date. They are finalizing their results and a progress meeting has been scheduled for August 27, 2020 via WebEx to discuss the work performed in each project task this quarter. Furthermore, they started working on the draft final report outline and table of contents.

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