DRISI
Caltrans Division of Research, Innovation and System Information

Research Notes

Truck Parking Detection Technology Evaluation for I-10 TPAS in California

Install and evaluate a number of truck parking availability systems at the Wildwood safety roadside rest area (SRRA) located in Caltrans District 8 along the I-10 in Riverside, California.

Transportation Safety & Mobility

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Project Title:
Truck Parking Detection Technology Evaluation for I-10 TPAS in California

Task Number: 3635

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Completion Date: January 31, 2024

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WHAT IS THE NEED?

Nationally, the lack of safe and legal truck parking spaces has been a problem for decades and has gotten progressively worse over the last 30 to 40 years. American Transportation Research Institute (ATRI) surveys the American Trucking Association's truck drivers and fleet operator members to help develop their research priorities. Over the last ten years truck parking made the top 10 list of issues of most concern to truck drivers and the last two years truck parking was the number 1 issue.

When truck drivers cannot find authorized locations to park, they will park wherever they can including: in or near residential areas, on freeway ramps and shoulders, frontage roads and empty lots. This can lead to different types of problems and issues including safety impacts, congestion, wear and tear on public highways and clean up.

California is in the middle of a statewide truck parking study looking at many aspects of the issues that arise when trucks park in unauthorized locations. Preliminary results from the study show that:

- Almost every day in California a truck parked in an unauthorized location is struck by another vehicle. About two of those collisions per month result in a fatality.
- On an average day, nearly 15,000 trucks park in undesignated locations, most do this either because designated facilities do not exist, or the facility has reached parking capacity and have no more available parking spaces.
- Approximately 40% of unauthorized truck parking occurs in communities that are designated as the most disadvantaged

WHAT ARE WE DOING?

This project aims to evaluate available truck parking detection technologies from candidate vendors. The main metrics in this evaluation process include the accuracy of the truck detection technology; the cost of installing, operating, and maintaining the technology; the durability of sensors; and the reliability of the real-time parking data stream.

In this project, the research team will review the candidate truck parking detection technologies from literature and other published contents, collect and analyze parking detection system data from vendors during the test, and evaluate the accuracy and reliability of truck parking detection technologies. In addition, a website for real-time truck parking availability information will be developed and maintained.

WHAT IS OUR GOAL?

Evaluate a number of truck parking space availability, detection technologies to determine their accuracy, reliability and other factors to understand how well each system functions. Then, use the results of the evaluation as part of the process to select what sensing system will be deployed at six public rest area along the I-10 in San Bernardino and Riverside California.

WHAT IS THE BENEFIT?

In the short-term, the evaluation will identify the overall best performing sensor system or systems with the best life-cycle cost and is the easiest to operate and maintain. Which will help to determine which system will be deployed at the six rest areas.

In the intermediate term, the project will provide baseline information and a template for future testing and deployments as Caltrans begins to buildbout a statewide truck parking availability information system that will provide truck drivers and fleet managers accurate information about available parking locations. At the same time, the TPAS systems will collect rest area usage information which will help in planning for the future development and construction of additional parking spaces, either through expansion of existing facilities or the construction of new facilities.

Long-term, the goal is to collect and disseminate rest area usage data to 1) identify how many truck parking spaces are needed in region and 2) better manage day-to-day use of existing spaces by giving truck drivers and fleet managers accurate and timely information on available parking. This will lead to improved safety, highway and freight operation, and emission reductions.

WHAT IS THE PROGRESS TO DATE?

This project is anticipated to begin on February 1, 2023.