

DRISI

CALTRANS DIVISION OF RESEARCH,
INNOVATION AND SYSTEM INFORMATION

TRANSFORMING IDEAS INTO SOLUTIONS

Research

Notes

Design

NOVEMBER 2023

Project Title:
Evaluate Zero-Emission Vehicle
Charging Station at Caltrans Facilities

Task Number: 3302

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Evaluate Zero-Emission Vehicle Charging Stations at Caltrans Facilities

Research Direct Current Fast Charging (DCFC) installation cost, challenges, and opportunities for process improvements for future installations.

WHAT IS THE NEED?

Governor's Executive Order B-16-2012 mandates to reduce greenhouse gas emission. Electric vehicles (EV) offer a clean fuel alternative to meet above mandate. However, range anxiety and charging frequency and gaps between existing charging stations challenges adoption.

California Department of Transportation (Caltrans) is deploying charging stations to fill in gaps between existing charging stations. This effort will provide the data needed for planning process improvement for future installment.

WHAT ARE WE DOING?

The research team will:

1. Identify the types of data to be collected, including usage patterns, vandalism, concerns by the public, non-recoverable electricity costs, maintenance and operations costs.
2. Monitor the usage monthly and collect and summarize data of the charging stations for a period of two years after construction.

WHAT IS OUR GOAL?

This research will collect data on the implementation, maintenance, and utilization of new charging facilities being deployed to increase the charging coverage throughout California. This information will assist Caltrans to develop policy and procedures regarding the deployment of future charging stations.



DRISI provides solutions and knowledge that improves California's transportation system

WHAT IS THE BENEFIT?

This project will measure the use of the charger stations and help identify user needs. The demonstrated user demand will validate continued infill of EV service gaps and reduce inconvenience to highway system users. With the information obtained, encouraging movement towards EV infrastructure will provide business opportunity for future providers of charging stations and services.

One of the limitations of zero-emission vehicles is the time required to charge them. Expanded EV infrastructure featuring DCFCs will make EV a practical option for long-distance travel and encourage consumers to move away from internal combustion engines. Usage patterns revealed in this study will help direct future development of facilities in convenient locations, improving the availability of services and quality of travel for EV users.

WHAT IS THE PROGRESS TO DATE?

The Caltrans DC Fast Charger project has made significant progress. All of the sites have completed the construction and launch phase. However, some rest areas have planned closures for maintenance and repairs, and some charging stations need attention. The UC Davis ITS team is receiving charger usage data from Caltrans every few months and is analyzing the data to better understand and study the infrastructure performance.

Additional notes:

- A final report of the findings and results is pending from the researcher.
- We will continue to monitor the performance of all charging stations and make repairs and maintenance as needed.
- We are committed to providing a reliable and efficient charging network for electric vehicle drivers.