



CALTRANS DIVISION OF RESEARCH,
INNOVATION AND SYSTEM INFORMATION

Research Results

Design

OCTOBER 2024

Project Title:

Development of a Maintenance
Prioritization Assessment and Safety
Tool

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Development of a Maintenance Prioritization Assessment and Safety Tool

This project developed maintenance task analysis and safety index tool that can be used by the maintenance personnel for planning of their maintenance work activities.

WHAT WAS THE NEED?

Operational performance metrics are needed to evaluate the safety risks to highway workers in prioritizing and scheduling of maintenance operations.

WHAT WAS OUR GOAL?

Findings from previous research project (Task ID 3289) had developed maintenance task difficulty and collision risk indices. The goal of this research project was to develop a maintenance planning dashboard that can be used by the maintenance personnel for planning and scheduling of their maintenance work activities, by providing detailed data to help determine the difficulty of a maintenance work activity, and the risk of collision to workers (when performing a maintenance work activity), so they can develop protective measures based on the risk.

WHAT DID WE DO?

This research project developed a maintenance planning dashboard (MPD) that can help determine the difficulty of operations and associated collision risks for a particular highway maintenance task and location. The calculation of difficulty and collision risk is based on many factors, including lane closure presence and type, crew size, work duration, and work zone length. The MPD supports easier identification and input of the parameters to determine the difficulty and collision risk index. The easier calculation of difficulty and collision risk indices can



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help Caltrans use objective data and measures for decision-making in planning and scheduling of maintenance operations. The results can be used in allocating resources in terms of personnel and equipment, considering additional safety measures, and deciding if and what type of lane closure is necessary in order to reduce the risk of collision and injury potential to personnel and roadside workers.

WHAT WAS THE OUTCOME?

This research project developed a maintenance planning dashboard that can be used by the Division of Maintenance for prioritizing and planning maintenance activities. The tool is based on index of difficulty and collision risks to maintenance workers.

WHAT IS THE BENEFIT?

The maintenance planning dashboard developed in this project can help improve safety and efficiency for highway maintenance workers and traveling public by identifying additional countermeasures needed for planned maintenance work activities, based on location, type of activity, and accident data.

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<https://dot.ca.gov/-/media/dot-media/programs/research-innovation-system-information/documents/final-reports/ucd-arr-23-12-31-03-a11y.pdf>