

Safety Programs

May 2026

Project Title: Strategies for Reducing Pedestrian and Bicyclist Injuries at the Corridor Level

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

Phase 4: Pedestrian Safety Improvement Program

To identify and address problems regarding pedestrian safety in California with the goal to reduce fatalities and injuries.

WHAT IS THE NEED?

Pedestrian and bicyclist fatalities in California increased 67 percent and 43 percent, respectively, between 2010 and 2019. As part of its 5 priorities, the California Department of Transportation (Caltrans) wants to increase the mode share of pedestrians and bicyclists while also moving Towards Zero Deaths. To do so, Caltrans must work to improve safety for these nonmotorized road users. This study builds on the pedestrian exposure modeling and pedestrian safety monitoring program work from Pedestrian Safety Improvement Program (PSIP) - Phase 3. It will help Caltrans understand the risk to pedestrians on the state highway system (SHS) and continue implementation of the monitoring programs to prioritize the selection of sites for safety investigations.

WHAT ARE WE DOING?

This research has three primary objectives: 1) update the statewide pedestrian exposure model that was built under PSIP2 and enhanced under PSIP3 with more recently collected pedestrian count data to produce more accurate estimates for current and future years; 2) continue enhancements of the pedestrian and bicycle safety monitoring report tools, by incorporating updated data, improving the workflow for running the safety monitoring reports, and responding to functional needs that arise; and 3) refine the systemic analysis towards a more proactive approach to safety.

WHAT IS OUR GOAL?

The goal of this project is to improve safety for all road users along the SHS. Reduction in crashes that can be achieved through proper countermeasures will benefit not only pedestrians, but also automobile users, cyclists, and other road users affected by crashes along the SHS. This will result in improving a multi-modal transportation system across the

state.

WHAT IS THE BENEFIT?

Identifying sites for pedestrian safety investigations under these programs will enable Caltrans to utilize investigative resources more efficiently and allocate resources to the most critical locations of pedestrian safety concerns. This will provide opportunities for safety investigators to recommend countermeasures that reduce crashes and save lives. In addition, preventing crashes can lead to a significant reduction in non-recurring congestion costs for road users.

WHAT IS THE PROGRESS TO DATE?

- Task 2.2:
 - Obtained data on CA state highway intersections, including infrastructure, land-use, and surrounding demographics of the locations.
- Task 2.4:
 - Estimated exposure models and selected best model based on out of sample prediction accuracy.
 - Applied the best model to all SHS intersections to predict annual total pedestrian traffic. Produced a spreadsheet with each SHS intersection, the set of model explanatory variables, and the pedestrian volume estimates.
- Task 5.1:
 - Updated the memo documenting the review and recommended approach based on the results from systemic safety review.
- Task 5.2:
 - Revised the systemic safety analysis into a multi-step approach, aligning the methodology with the recommended methods in Table 5.1 and the preliminary findings.
- Completed the crash prediction model and identified infrastructure features significantly associated with pedestrian crash outcomes. Drafted the corresponding results for the final report.
- Developed candidate classification models to categorize state highway intersections based on specific infrastructure features.
- Task 6:
 - Began drafting final report, focusing on count collection and exposure model development processes.