



Caltrans Division of Research,  
Innovation and System Information

# Research



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

Task Number: 2453

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2021

Task Manager:  
Jerry Kwong  
Transportation Engineer (Electrical)  
jkwong@dot.ca.gov

## Phase 3: 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?

The Pedestrian Safety Improvement Program (PSIP) is an effort of the California Department of Transportation (Caltrans) to identify and address systemic problems regarding pedestrian safety in California, with the long-term goal of substantially reducing pedestrian fatalities and injuries in California. While California has seen improvements in traffic safety compared to ten years ago, these gains disproportionately reflect improvements in safety of motorized modes. For example, while there was nearly a 10% decrease in overall traffic fatalities from 2007-2016, the gains were mostly realized for motorized modes (reduced by 19% in fatalities) but pedestrian deaths increased by 33%.

### WHAT ARE WE DOING?

The techniques and tools developed in this study will help Caltrans to more efficiently target highway improvements and countermeasures at locations that will cause the greatest reduction in fatal and injury pedestrian collisions. To achieve this, we are conducting research to enhance the pedestrian exposure modeling process, develop pedestrian-specific SPFs, and develop new HCCL identification and prioritization approaches.



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California's transportation system

## WHAT IS OUR GOAL?

The proposed project has seven goals:

- Develop enhancements to the pedestrian exposure modeling process
- Develop and incorporate a pedestrian corridor identification methodology
- Incorporate crash typology into prioritization of HCCLs
- Develop protocols for calibrating pedestrian exposure estimates in future years
- Develop pedestrian-specific SPFs
- Incorporate exposure estimates into HCCL identification and prioritization
- Incorporate the new HCCL identification and prioritization techniques into the pedestrian safety monitoring report (PSMR) tool

## WHAT IS THE BENEFIT?

This project represents an effort to enhance pedestrian safety and to refine the capabilities and resources needed to address the imbalance between pedestrians and motorized roadway users in California. The improvements to the pedestrian exposure modeling will allow Caltrans to perform more advanced safety analyses, involving risk. Pedestrian-specific SPFs will allow Caltrans to incorporate Empirical Bayes methods in their evaluation of pedestrian countermeasure effectiveness. The crash typology and risk-based HCCL identification and prioritization techniques are intended to more efficiently identify HCCLs with the greatest potential of safety improvements and reduce the number of false positives. Pedestrian corridor identification is meant to identify groups of contiguous segments or intersections with similar features and safety problems that can be addressed systematically.

## WHAT IS THE PROGRESS TO DATE?

The following tasks have been accomplished within this period:

### Task 2:

- Completed modeling enhancements and produced revised estimates.

### Task 3:

- Developed and implemented pedestrian corridor identification methodology in PSMR tool.

### Task 6:

- Incorporated pedestrian exposure model calibration into Task 2 modeling enhancements.

### Task 10:

- Prepared final report.