

# DRISI

CALTRANS DIVISION OF RESEARCH,  
INNOVATION AND SYSTEM INFORMATION

TRANSFORMING IDEAS INTO SOLUTIONS

# Research

# Notes

Transportation  
Safety and  
Mobility

MAY 2023

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

Task Number: 3906

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## Phase 4: Strategies for Reducing Pedestrian and Bicyclist Injury at the Corridor Level (SMART 4)

Identifying sites for safety investigations under these programs will enable Caltrans to utilize investigative resources more efficiently.

### WHAT IS THE NEED?

Pedestrian and bicyclist fatalities in California increased by 49 percent and 56 percent respectively, between 2010 and 2018. As stated in Caltrans' 5 priorities, Caltrans aims at increasing mode share of pedestrians and bicyclists, while also moving towards zero deaths. To do so, Caltrans must work to improve safety for nonmotorized users.

This study builds on the bicycle exposure modeling and pedestrian and bicycle safety monitoring program work from SMART3. It will help Caltrans understand the risk to bicyclists on the state highway system (SHS) and continue implementation of the monitoring programs to prioritize selection of sites for safety investigations. In addition, the rate groups models will enable safety investigators to select appropriate countermeasures.

### WHAT ARE WE DOING?

This research has three objectives:

1. Produce bicycle exposure estimates on the SHS based on the pilot model developed in SMARTs
2. Continue enhancements of the pedestrian and bicycle monitoring report tools, by incorporating updated data, combining the spot, corridor, and systemic methodologies into one tool, and responding to functional needs that arise
3. Update all rate group estimates on the SHS based on the most recent five years of crash and traffic volume data.



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knowledge that improves  
California's transportation system

## 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 automobile users, but also pedestrians, 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 safety investigations under these programs will enable Caltrans to utilize investigative resources more efficiently and allocate resources to the most critical locations. This will provide opportunities for safety investigators to recommend countermeasures that reduce crashes and save lives. Furthermore, preventing crashes can lead to significant reduction in non-recurring congestion costs for road users.

## WHAT IS THE PROGRESS TO DATE?

The following tasks have been accomplished within this period:

### Task 1:

- Presented research progress at Quarterly Meeting on March 29, 2023.

### Task 2.1:

- Finalized count standardization process, including calculating expansion factors, defining factor groups, and developing an approach to matching short-term count sites to appropriate factor groups.

### Task 2.2:

- Finished coding explanatory variable processing in PostGIS.
- Manually collected bicycle facility data at non-SHS locations where count data will be used for the model.

### Task 3:

- Began model estimation with the finalized dataset.

### Task 4.2:

- Continued requesting and collecting data for equity indicators.
- Began processing data for equity indicators.