

Transportation
Safety and
Mobility

AUGUST 2022

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

Task Number: 3906

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Completion Date: December 31,
2024

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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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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 2.2:

- Continued cleanup of the Geographic Information System (GIS) network to optimize processing time of the explanatory variables.
- Continued coding explanatory variable processing in PostGIS.

Task 5:

- Completed development of Excel macro-based bicycle systemic tool, implementing the systemic approach developed under SMART3 (Phase 3: Strategies for Reducing Pedestrian and Bicyclist Injury at the Corridor Level).
- Tested and debugged tool and submitted to Caltrans.
- Updated TSAR2XLS tool to handle revised TSAR (TASAS Selective Accident Retrieval Accident) Detail report that includes new injury severity variable.

Task 6:

- Delivered final rate groups to Caltrans.