

TRANSFORMING IDEAS INTO SOLUTIONS

Research Notes



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

Task Number: 4057

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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

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Phase 4: Pedestrian Safety Improvement Program



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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?

In Task 2.1, the focus was on clustering hour-to-week and seasonal activity patterns into similar types. This process involved analyzing the data to identify and group similar activity patterns that occur within specific time frames, such as by hour, week, and season. Once these patterns were identified and categorized, choice models were estimated to establish connections between these time-based patterns and various land use types. The objective of these models was to understand how activity patterns correlate with different land use types, which could then be applied to predict or analyze land use behaviors in different contexts.

In Task 2.2, the task of developing explanatory variables was completed. These variables were carefully constructed to serve as independent factors in the models, offering deeper insights into the patterns and relationships observed in Task 2.1. The explanatory variables were designed to capture key factors influencing activity and land use, providing a solid foundation for further analysis and model development.

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