Evaluation of Surrogate Measures for Pedestrian Safety in Various Road and Roadside Environments

Most analyses of pedestrian traffic safety measure safety in terms of police-reported traffic accidents. For pedestrian safety, it may be more useful to observe surrogate measures of safety, such as a “severe conflict” between a pedestrian and a motor vehicle in order to offer a broader picture of the safety at a particular road location than just considering police-reported accidents. This could help planners and designers learn how to select road and roadside elements to make pedestrians feel safer and thus increase the effectiveness of strategies or development patterns aimed at increasing the livability of communities. The objective of this project is thus to investigate the relationship between roadway and roadside design elements and traffic incidents involving pedestrians. Specifically, the researchers will select a set of intersections known to have substantial pedestrian volumes and with targeted roadway and roadside characteristics, such as the pedestrian crossing distance, presence or absence of on-street parking, type of traffic control, 85th percentile traffic speed, and the surrounding land use type and density. At these intersections, the team will count the flow of pedestrians and motor vehicles and the conflicts between pedestrians and vehicles over a period of several hours using the Swedish Traffic Conflict Technique. Appropriate and accurate statistical models will then be fitted in order to predict conflict counts as a function of these road and roadside features. The researchers will also gather from a crash database reported pedestrian accident counts at the locations over several years, and estimate statistical models relating the occurrence of incidents with the crash counts, to learn more about the relevance of the incident count as a surrogate for accidents in safety analysis.

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