Wet and Nighttime SPFs Development

Develop and support Caltrans in the implementation of an SPF-based network screen methodology with the goal of substantially reducing fatalities and injuries in California.

WHAT IS THE NEED?

Identifying high collision concentration locations is a major objective of many state and local transportation agencies. In parallel to efforts that are establishing the necessary methodological and functional capability to conduct network screening at high levels efficiently, it is also necessary to consider a subset of unique circumstances that may be sensitive to a different set of safety concerns.

These circumstances can include wet conditions, night time, and congestions. Considering this, to better account for safety during these situations, it is necessary to develop Safety Performance Functions (SPFs) for such conditions and considerations for congestion-related crashes.

Moreover, to provide comprehensive operational support, there is a need to modify and update existing traffic safety tools so that they are aligned with these newly developed tools.

WHAT ARE WE DOING?

The techniques and SPFs developed in this study will help California Department of Transportation (Caltrans) to more efficiently target locations under specific circumstances, that will likely benefit from safety improvements and would result in the greatest reduction in fatal and injury collisions.
WHAT IS OUR GOAL?

The project is complementary of the first and second phase of the SPFs Implementation Project. The goal of these projects is to develop and support Caltrans in the implementation of an SPF-based network screen methodology with the long-term goal of substantially reducing fatalities and injuries in California.

The proposed project has several goals:

1. Supporting economic evaluation (Safety Index) for safety performance;
2. Developing an inventory of all data elements for wet, night time, congestion, and run off road-based safety evaluation;
3. Updating the existing rate group estimates in Traffic Accident Surveillance and Analysis System; and
4. Analyzing crashes under congested traffic conditions.

WHAT IS THE BENEFIT?

This project represents an effort to enhance the network screening capability under certain circumstances. These refinements can provide a more concerted effort to identify high collision concentration locations across the state highway system. For example, identifying locations that demonstrate a higher-than-expected wet crashes, will help identify locations requiring a traffic safety investigation and might benefit from implementing countermeasures to reduce wet crashes.

Similarly, evaluating the effect of congestion-related collisions on network screening will provide an opportunity to flag congestion-related property damage only collisions, which are less likely to result in a safety recommendation and are commonly labeled as False-Positives. Developing a package of capabilities and tools to account for such circumstances will provide a better overall networks screening program.

WHAT IS THE PROGRESS TO DATE?

This research is expected to begin in early 2020.