

EVALUATION OF POST ENCROACHMENT TIME AS A SURROGATE FOR OPPOSING LEFT-TURN CRASHES

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ABSTRACT

Highway safety evaluation has traditionally been performed using crash data though this method has limitations in terms of timeliness and efficiency. Previous studies show that the use of surrogate safety data allows for faster evaluation of safety in comparison to the significantly longer time horizon required for collecting crash data. However, the predictive capability of surrogate measures is still an area of ongoing research. Previous studies have often resulted in inconsistent findings for the relationship between surrogates and crashes, one of the primary reasons being inconsistent definitions of a conflict. This study evaluates the effectiveness of Post Encroachment Time (PET) as a surrogate measure for evaluating the propensity of crashes between left-turning vehicles and opposing through vehicles at 4-legged signalized intersections. The primary method of data collection is through video recording with post-processing using custom semi-automatic video processing software to reduce the video to a useable format ready for analysis. The study evaluates the effectiveness of PET as a surrogate measure by comparing three variations of PET measure with crash history. This comparison shows that a threshold value of PET plays an important role in establishing its correlation with crashes with the best results at a threshold as low as one second.