

SURROGATE MEASURES FOR EVALUATING NEW SIGNAGE AND
INTERSECTION DESIGNS

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ABSTRACT

This dissertation provides two accessible methods for decision makers to compare different alternative designs and then illustrates the methods using case studies. The first method involves collecting and processing video data to get accurate speed related measures. Radar gun and HD cameras are used to provide accurate speed readings comparing to automated video-based vehicle detection method. This method is illustrated with a case study of evaluating alternative merge signs for work zones. The results indicate that the alternative sign encouraged up to 11% more cars to be in the open lane immediately upstream of the merge sign and passenger cars stayed in the closed lane longer than trucks.

The second method utilizes calibrated microscopic traffic simulation models to evaluate alternative designs. Evaluating alternative designs with crash data usually requires a long time span to build the facility and record crash data over at least one year after the facility has been open to traffic. In addition to that, new facility needs to be built or altered if other design features are to be tested. With this method, alternative designs can be evaluated in various scenarios. The J-turn case study then illustrates the effectiveness of this method by comparing the number of conflicts calculated with SSAM and recommending different U-turn spacings for 12 volume scenarios.