

Validity and use of traffic conflict technique : a study in the Kingdom of Saudi Arabia

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Abstract

In the Kingdom of Saudi Arabia attempts to estimate and evaluate the relative safety of a highway location are fraught with problems that accident records by locations are not available or not reliable. Generally many accidents happen in or at close to the intersections. Traffic Conflict Technique (TCT) can be used instead of accidents to understand the problems at intersections.

The objectives of the study are to investigate the relationships between traffic conflicts and traffic volumes and speeds; to investigate the differences in traffic conflicts at intersections that have different type of control and geometry; to diagnose the operational problems; and recommend improvements at the 4-legged right-angled intersection.

The main methods used are Regression Analysis, One-way Analysis of Variance and Multiple Classification Analysis. In these analyses the dependent variable is traffic conflicts counts. The independent variables are traffic volumes, speed and signal timing, types of control and geometry variables such as existence of median, left-turn pocket, etc.

It was found that Traffic Conflict Technique is a more direct and easier method and can be used as a substitute for accidents. Geometry variables have a positive control over reducing the number of conflicts considerably. Violations of lane discipline, speed limits, crossing red signals, taking u-turn at intersections and lack of channelization, are areas that need improvements. For no controlled, stop controlled, and signalized intersections, some common recommendations are made. Among these are proper channelization, enforcement and education of drivers for lane discipline, the signal crossing, overtaking, and speeding.