

Influence of junction and traffic characteristics on safety at road junction in Dar es Salaam

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The study investigated the influence of junction and traffic characteristics on the safety at urban priority junctions in Dar es Salaam. Serious traffic conflicts were assumed to indicate safety problems at the junctions. Human observers recorded serious conflicts using the Swedish version of the traffic conflicts technique for three days at each junction. Data collected include classified traffic volume by movement pedestrian volume, speed, junction geometry and location, compliance to the stop rule at minor approaches, gaps in the major street traffic, and land use. Relationships between these basic variables and their derived functions and serious conflicts at aggregate and disaggregate levels were developed within the generalized linear modelling framework. It was assumed that traffic conflict counts were distributed according to the Poisson or negative binomial distribution. Analysis at the junction level gave results that are broadly similar to those based on accident data elsewhere. Analysis at the junction approach level showed that the volume of non-conflicting flows and pedestrians had a strong influence on the expected frequency for the vehicle/vehicle conflict types. Junction geometry, location and speed had significant effect on conflict frequency. The frequency of pedestrian conflicts was highest at junction exits. Turning vehicles were over-represented in pedestrian conflicts. The results confirm that the Swedish traffic conflict technique is a valid tool for safety analysis at road junctions in Dar es Salaam and in similar urban areas. The models may be used for identifying junctions with safety problems, in before-after studies to evaluate effectiveness of safety measures, and as a basis for identifying potential safety measures. It is also apparent that the ability of road users to acquire and process information is over-stretched at four-arm priority junctions with medium to heavy flows. Effective safety measures must reduce the road users' information load. Field validation of the models through before-after studies is recommended. The results of such studies are needed to

confirm and refine the models and for the development of local knowledge of the effectiveness of safety measures.