Abstract

GIS Application for Accident Analysis of the Expressway System of Thailand was to develop a geographic information system for civil engineering, traffic accidents management system and a spatial decision support system in order to identify hazardous location of the Expressway System by using Geographic Information System (GIS) and applying the traffic accident analysis. The study emphasized on designing and creating a database in GIS environment for determining hazardous location of the Expressway System of Thailand. Data which were composed of spatial data and attribute data were obtained from The Expressway and Rapid Transit Authority of Thailand (ETA).

By applying the crash frequency method and the rate quality control method (RQCM), the results of the investigations were found similar, and corresponded to the field check. In the crash severity method, using standard crash severity level, available accident data were not classified. In order to investigate the effect of crash severity level, several incapacitation injuries were assumed as 0% 25% 50% 75% 100% and 9.75% 43.5% 35.9% 93.7% 50.8% randomly. It was found that the accident rate was unequal and inconsistent. Finally, this research recommended that the severity of accident type should be classified in details according to standard crash severity level such as: F level (one or more death) A level (incapacitating injury preventing victim from functioning normally) B level (non-incapacitating but visible injury) C level probable but not visible injury) and PDO (property damage only). The identification of severity level is therefore recommended in order to improve the accuracy of the analysis.