

ABSTRACT

Highways play vital roles for the economic development of any nation. The road network in India is 3.3 million kilometres. It is the second largest in the world. At the same time safety is the foremost attribute that affects the travel. The rate of accidents in developing countries is much higher when compared to developed nations. There are rare chances for occurrence of highway accidents when compared with accidents in urban roads but if it occurs, the severity is high in highway accidents. The overall objective of this study is to investigate the major factors causing highway accidents with respect to different Traffic conditions and road environments. The entire investigation is divided into four distinct phases of activities.

In the first phase the road inventory details were collected along the study stretch of National Highway-67 between Coimbatore and Karur, using GPS instrument. The number of access roads including intersections and drive ways, number of horizontal curves and nature of the area on both sides of segment were collected. The entire length of about 120 Km was divided into nine segments with varying distances with respect to the jurisdiction of respective police stations. The segments with maximum number of access roads and horizontal curves were observed and also segments with minimum number of access roads and horizontal curves were identified.

In the second phase the accident details were collected from the secondary sources in the respective segments of NH-67. From the police records accident details for the monitoring periods (2005-2010) were

extracted. There was lack of uniformity in maintenance of accident details in records maintained by police stations. The segments under maximum and minimum number of accidents were kept under observation. The accident rates in different segments were compared with road environment and nature of the area. Generally, maximum occurrences of accidents were identified with greater number of access roads.

Traffic flow surveys and speed studies were carried out every year from 2005 to 2010, at all segments. The Traffic flow and 85th percentile speed of Light Commercial Vehicles in different segments were analysed. The segments under maximum and minimum Vehicle Kilometres of Travel (Traffic flow multiplied with segment distance-VKT) were identified. These observations were compared with accident rates and a strong positive relationship was found while speed also was in positive correlation.

In the fourth phase, a multiple linear regression model was generated using SPSS software. The number of accidents was selected as dependent variable. Traffic volume, heavy vehicles, speed, segment length, number of access roads and horizontal curves were taken as independent variables. The relationships among the accident rate, Traffic variables and road environment were analyzed. Segment distance was under negative correlation while other variables were under positive correlation with number of accidents.