

## Accommodating Road Accident Records in a Comprehensive Highway Management System

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It has become important to improve planning, design, construction, operation and maintenance standards and manage road system efficiently. There are number of management systems such as pavement management system, road inventory systems, accident data recording system, traffic and passenger demand models, traffic assignment models have been established to handle different stages of road transport. As different organizations are responsible for the above different processes it is imperative to have these systems coordinated to have an integrated highway management system that will share information, expectations and experience.

Today road accidents have become a significant negative impact to all road users. To reduce the number of accidents, it is important that manage the accident data in systematic manner because it will provides lot of information. This data is very important to traffic and highway engineers because it helps them to identify the unsafe location of the roads and the reasons for that. This is essential in road improvement projects to carry out safety audits and find the solution to minimize the number of accidents.

This paper presents how a road inventory and accident data system could be integrated to share information from one another. In addition the paper highlight how road inventory data and accident data can be used to analyze accidents at road link, road type or administrative area vise and identify accident prone locations or reasons for different types of accidents.

The programme was written using VBA (Visual Basic for Applications) which is more relevant to customize ArcGIS Desktop Applications to store the data in a Microsoft access database and filter the database using the developed VBA interface. For example, users can find out the number of accidents on a location according to various crash factors contributing to the accident from human side, vehicle side and road environment side. According to filtering combinations, model is developed to show the number of persons died, injured and detail list of accidents. The model has capability to connect road inventory data and accident data with attribute tables in ArcGIS. Therefore, engineers can directly use the GIS tools to represent and analyze the above data in an efficient manner.

*Key words: Road Accidents, Accident Data Recording, Comprehensive Highway Management System, ArcGIS Customization, VBA (Visual Basic for Applications)*

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