6. ACCIDENT COUNTERMEASURES AT HAZARDOUS LOCATIONS

6.1 Introduction

The potential for accident reduction through low-cost, engineering measures at hazardous sites is particularly high. Simple measures can significantly reduce problems at such sites. For example, the use of road signs and markings to channelise traffic through complex intersections, or to provide safe waiting areas for turning vehicles, can often result in substantial reductions in accidents. Yet, because of lack of funds and poor maintenance capability known hazardous locations are often left untreated and remain causes of accidents. Drivers are often presented with misleading information or no advance warning, sightlines may be inadequate, pedestrians may not be catered for and accidents may occur because of a driver's inability to cope with the particular combination of circumstances and environment. By identifying and eliminating the features which make sites hazardous, engineers can improve road safety. This often means reducing the complexity of an intersection or enabling manoeuvres to be made in stages. Reducing the number of decisions drivers must make at any one time simplifies the driving task and helps drivers to progress in safety and comfort with a minimum of conflict with other traffic and pedestrians.

There are four basic strategies for accident reduction through the use of countermeasures. These are:

- Single site (blackspot programmes) - the treatment of specific types of accident at a single location;
- Mass action plans - the application of a known remedy to locations with a common accident problem;
- Route action plans - the application of known remedies along a route with a high accident rate;
- Area wide schemes - the application of various treatments over a wide area of town / city, e.g. including traffic management and traffic calming (speed reducing devices).

Blackspot treatment is likely to be the most effective and straightforward in countries with no prior experience of accident remedial work. Many highway authorities in industrialised countries began in this way and only later moved on to mass and route action plans as experience built up.

All of these strategies rely on the availability of data describing accidents and their locations to identify where accidents occur and what are the common features which contribute to them. Accident data and the use of collision diagrams, a key analysis tool for the traffic engineer, are discussed in the next sections.

Although the improvement of accident blackspots is a very important area requiring attention it has so far received little priority. However, research on this topic is now being conducted in Botswana, Ghana, Egypt, Pakistan, South Korea and Papua New Guinea. The results should demonstrate the effectiveness of low-cost engineering measures (particularly those which are 'self-enforcing').

This chapter first discusses data requirements, then how to identify and analyse accident problems, followed by illustrations of how low-cost countermeasures can be used to improve hazardous locations and to reduce accidents.