

Accidents on rural roads: single carriageway 'A' class roads

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Cost: 29,000 per year over four years

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In a reconnaissance study of rural roads (speed limits greater than 40 miles/h) published in 1994, it was found that 'A' class roads were the scene of the majority of accidents in Cambridgeshire. This 1996 report focuses on single carriageway 'A' class roads in Cambridgeshire. Accidents were examined for six roads which had been selected on the basis of their traffic flow. In addition to STATS19 accident data, road environment information was collected, and a driver questionnaire was effected. Statistical models were developed which examined interactions between the three data sources.

A profile of the drivers involved in accidents on the six roads - as determined from the driver questionnaire - showed that most were experienced drivers who were familiar with the road on which the accident occurred. The majority were relaxed or contented, and mainly cited the driving of the third party as having been an important factor in their accident. Few elements of the road environment were cited, and most drivers did not consider their own driving to have been at fault. It emerged that younger drivers had more problems overtaking while older drivers had more problems turning right. It is a cause for concern that neither age group perceived the problem. It is clear that drivers need to be made aware of their exposure to risk so that they can make an informed judgement about their own driving.

Accidents on the links between junctions increased as bendiness and the number of lay-bys increased. Accident numbers decreased with wider carriageways and as the proportion of double white centre line or centre hatching increased. Fair forward visibility was associated with fewer accidents than either poor or good forward visibility. In the proximity (within 200 metres) of a public road junction or 'business' private access, and with the presence of a hedge, the odds of a stacking type accident increased. One-third of accidents on the links involved just one vehicle.

At T-Junctions, it was found that accident numbers decreased with increasing carriageway width of the main road. In a comparison of accident types, it was found that stacking and overtaking accidents on the major road were fewer when a ghost island was present, but these features were associated with relatively more accidents of the type where a vehicle was entering the major road. The standard relating to junctions and its applications needs to be re-examined in the light of these findings.

Private accesses have similar problems to junctions in terms of accident types. Type of use emerged as important, with the greatest problems being associated with the busier 'business' type accesses. A common feature of these junction types is that they have lower design standards. However, under current legislation, there is little scope for improving these locations as the Highways Act contains no explicit powers or requirements for improvements to private accesses. A clear message to emerge from this study is that new single-carriageway rural roads need to be designed, and the existing roads modified, to minimise flow breakdown. It is clear from the busier roads that flow breakdown is resulting in many accidents. One way of minimising flow breakdown would be to widen the carriageway at those locations where flow breakdown occurs. Greatest accident benefits would be derived from a whole route approach to any carriageway modification rather than piecemeal junction alone, even though the presence of a junction on a busy route could be giving rise to accidents elsewhere.

The findings of this report also have relevance to the application of remedial measures arising from accident investigation on existing roads, and provide new perspectives that should be taken into account in the safety audit of new highway schemes.

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