SURREY
COUNTY COUNCIL

A29 DRIVER BEHAVIOUR STUDY
A summary of the work undertaken by Surrey University, Dept. of Psychology

Mole Valley Local Committee (T)
12 February 2003

KEY ISSUE:
The A29 between Beare Green and the County boundary is subject to a substantial number of accidents, over 95% of which involve some degree of human error. This report identifies the key locations where errors occur, evaluates reasons for the error and suggests remedial measures that may prevent both the error and subsequent accident.

SUMMARY:
The high number of Personal Injury Accidents (PIA'S) occurring on the A29 between Beare Green and the County boundary has given officers considerable cause for concern, principally because a high percentage of the accidents involved single vehicles. Some physical engineering remedial measures have been undertaken in the last few years, with no significant impact on the level of accidents. In consideration of the fact that human error is involved in over 95% of PIA's, the University of Surrey Psychology Dept. were employed to investigate what the reasons for these errors may be. This report summarises the methodology, results and analysis of the research and suggests appropriate remedial action for Mole Valley LTS

OFFICER RECOMMENDATIONS:

It is recommended:

i) That the Committee should authorise the establishment of a working group, consisting of local elected members, officers and representatives of the public to consider the detail of the research report and to define the appropriate remedial solutions.

And

ii) that subject to the necessary funding being made available in the future, Officers be authorised to commence any land negotiations necessary and the implementation of the remedial solutions as agreed by the working group.

1. INTRODUCTION AND BACKGROUND

1.1 In February 2002 the University of Surrey, Psychology Department (UNIS) were commissioned by Surrey County Council Local Transportation Services to investigate the reason behind continuing accidents along the A29 from Beare Green to the County Boundary.

1.2 Previous engineering measures installed had focused upon Traffic Management, extra signs, visual and audible warning markings and an interactive speed warning device either side of Ockley village. The measures were designed to increase driver's perception of hazards but have had little significant effect to date on the overall accident rate.

1.3 Concern by local engineers focussed upon the fact that whilst the installation of traffic management measures helped the majority of drivers to realise the seriousness of an approaching hazard, the individual drivers behaviour and attitude to driving along any given section of the A29 was rarely altered.

1.4 Concern focused upon the premise that engineers are reactive to the physical consequences of inappropriate driving behaviour i.e. crashes, and that measures to reduce the frequency of similar events are based upon the physical reasons for the accident i.e. insufficient sightlines, inappropriate speed, loss of control etc. It is suggested by research that the cause of 95% of accidents is person related (ROSPA). Consequently, it is obvious that aside from determining the physical reasoning behind an accident, attention should be placed upon the psychological aspects of the driver's behaviour prior to the crash happening. If the driver's attitude and behaviour is affected by the environment, then attention could be made to the environment to affect behaviour and potentially reduce the likelihood of an accident occurring.

1.5 UNIS were commissioned to undertake research with the following 5 aims:-

i) To develop new methods to control and/or influence driver behaviour and vehicle speed.
ii) To develop measures necessary to reduce Personal Injury Accidents (PIA's) on the A29 within Mole Valley.
iii) To identify predominant accident causation factors at individual accident locations.
iv) To make recommendations for the appropriate remedial measures in response to an identified problem.
v) To make recommendations for the development of the remedial solutions which should incorporate a standard methodology and 'best practise' guidelines to enable engineers to apply similar procedures elsewhere on the County Highway Network.

1.6 To attempt to meet these aims, three separate studies were undertaken:

- In study 1, accident data between 1995 and 2001 was analysed to identify accident clusters and driver/environmental factors that contributed to these accidents.

- In study 2 experts' perceptions relating to the A29 were questioned as well as their perceptions of the public's driving behaviour/ability.

- Study 3, investigated the views and opinions of the public who live near the A29 and of those whom use the road regularly. Their perceptions of the road, accident locations, self reported driving behaviour, demographic details and accident history were investigated.

2. ANALYSIS AND COMMENTARY

2.1 The following methodologies and analysis have been summarised for brevity and by no means represent a full analysis of the research undertaken.

STUDY 1

ACCIDENT ANALYSIS

2.2 A Total of 82 Personal Injury Accidents were recorded on the A29 between Beare Green roundabout and the County Boundary, between January 1995 and July 2001. These accidents were analysed in order to identify: -

- Accident 'Blackspots'
- Environmental and situational factors that make these locations 'blackspots'
- Driver characteristics
- How the interaction between road, driver and situational characteristics may have contributed to the accidents.

LOCATION

2.3 The A29 was divided into 22 sub-sections. Accident frequency analysis identified the following 3 locations (sub-sections) as being the most dangerous.

- The left hand bend at Henhurst Lane junction (18.3%)
- The sharp right bend at Buckinghill Farm (11%)
- The section of road through Ockley village (12.2%)

TIMING

2.4 There are on average 12 P.I.A's per annum on this length of road. Marginally more accidents occur in May, July, August and September than the other months. Most accidents occur at the weekend (62% from Friday) and 28% of all accidents occur on a Sunday.

CONDITIONS

2.5 72% of accidents occurred when it was light, 66% occurred in the day and 80% of all accidents occurred in fine weather.

VEHICLES AND DRIVERS

2.6 71% of accidents involved car drivers and 25% motorcyclists. Only 3 incidents involved a Large Goods Vehicle (LGV) or farm vehicle. 60% of accidents involved a southbound vehicle. 5% of accidents involved a fatal injury (national mean is approximately 0.7%). 12% involved serious injury. 59% of drivers were male, 22% female (remainder not noted).

CONTRIBUTORY FACTORS

2.7 20.7% of accidents involved 'driving too fast for prevailing conditions'. 11% involved wrong course or positioning, 7% involved a slippery road, 7% turning right injudiciously, 6% overtaking offside injudiciously, and 5% for driving too close. Only 3% of accidents occurred after a driver exceeded the speed limit.

2.8 An examination of the type of manoeuvre carried out at the time of the accident shows that four types prevailed in over 80% of all accidents:-

- Manoeuvring on a right hand bend (18%)
- Manoeuvring on a left hand bend (22%)
- Going ahead straight (28%)
- Turning or about to turn right (18%)

Only a minority of accidents occurred whilst overtaking (7%).

ANALYSIS

2.9 When accidents along each section of the A29 were analysed in detail, results showed that 10 out of 23 accidents that occurred in section 2 (Henhurst Lane) were attributable to driving too fast. No clear pattern was observed in section 4 (Buckinghill Farm). In section 6 (Ockley village), there were many different contributing factors with over taking injudiciously accounting for 20% of all accidents. There were twice as many accidents travelling southbound in section 6 than northbound. Section 4 (Buckinghill Farm bend) was considerably more dangerous when travelling south to north, whilst Henhurst Lane was more difficult to negotiate safely when travelling from north to south.

STUDY 2

EXPERTS PERCEPTIONS

2.10 Recent research in risk perception and amelioration suggests that in order to influence public behaviour, we need to understand both experts' and the public's perceptions of risks, such that the gaps between these views can be identified and eliminated.

2.11 The main aim of this study was to explore road safety expert's perceptions of the A29 section and the public's general driving behaviour. These results were then compared to public perceptions and attitudes as well as accident data analysis of the last 7 years.

METHODOLOGY

2.12 The road safety engineers, all of whom had detailed knowledge of the A29 were subjected to an interview schedule comprising of 5 different sections. Responses were collated and classified such that the similarities and differences between views emerged.

COMMENT

2.13 According to the experts interviewed, the public perceive the condition of the road, speed and congestion as the main risk factors associated with road safety. Whilst some of the experts agreed with the public, others believed that it was the way the public drive i.e., not driving to road conditions, which what made the road a 'risk'. The experts believe that the public, on the whole, blame accidents on other peoples driving behaviour, especially others speed. In contrast, experts themselves blame the publics own way of driving, such as, driving without undue care and attention, inattention to prevailing conditions, negligence, incompetence, impatience and inability to take another's perceptions as the main contributory factor.

2.14 In the expert's view, road safety is obtained by maintaining a balance between engineering interventions and preserving the natural environment. They ascribe many accidents to poor driving rather than road conditions, although they perceive that drivers themselves may see the risks differently. Experts prefer a mixture of engineering interventions and driver education as ways of improving safety.

STUDY 3

PUBLIC PERCEPTION OF ROAD SAFETY ON THE A29

2.15 This study examined residents and users perceptions relating to safety and accidents along the A29. In addition, the study investigated the relationship between peoples accident history, their perceptions of accident blackspots on the A29, their self reported driving behaviour and demographic factors.

METHODOLOGY

2.16 The study was carried out by a questionnaire (postage pre-paid) and a response rate of 21% obtained. Over 80% of respondents used the A29 more than once a week.

2.17 The questionnaire asked respondents to agree or disagree to a number of statements relating to perceived driving ability. A plan of the A29 was also given to respondents who were asked to mark on 5 separate locations where they perceived the road to be dangerous. For each location they were asked to give a reason and possible solutions.

2.18 Respondents were then asked to describe thoughts and feelings attributed to the top 3 locations identified in Study 1 as having the worst accident location. In writing down their thoughts or feelings, respondents were asked specific questions relating to the 3 site photos. First they were asked whether they were familiar with the location and how stressful they would find it to drive in such a place.

2.19 Next they were asked to note the average speed they would drive along each stretch of road and finally they were asked to express their level of agreement on 9 items relating to driver behaviour, perceived dangers and awareness.

COMMENT

2.20 When participants were questioned about their perceived driving ability it is notable that the highest mean score was reserved for the statement 'I am confident in my driving ability'. Secondly, some distance behind, is the agreement with the statement that 'I worry about awful things that might happen when I am driving'. This supports the statement that drivers assume that other people are the cause of accidents, not their own actions.

2.21 Of the places identified by the public as dangerous, 5 places stood out Buckinghill Farm bend, Henhurst Lane junction, Coles Lane junction, Ockley Village and Beare Green roundabout. In the 3 cases where perceived driving behaviour was measured in relation to photographs, the participants claimed that they would drive at speeds significantly lower than others along the same spot. The participants claimed that they would drive slowest at Buckinghill Farm bend and quickest through Ockley village. They also expected others to do likewise.

3. FINANCIAL IMPLICATIONS

3.1 There are no financial implications at this time as indicative LTP funding levels are such that this scheme will not receive priority funding during 2003/4.

4. SUSTAINABLE DEVELOPMENT IMPLICATIONS

4.1 There are no significant sustainable development implications at this time.

5. CRIME & DISORDER IMPLICATIONS

5.1 There are no significant crime and disorder implications at this time.

6. EQUALITIES IMPLICATIONS

6.1 There are no significant equalities implications at this time.

7. CONCLUSIONS AND REASONS FOR RECOMMENDATIONS

7.1 ANNEXE 1 provides a comparison between the accident data, expert's perceptions and the public's perception of accident problems on the A29. The possible solutions to the 5 prime accident locations are also detailed.

7.2 The 3 studies highlight the need to deal with the following five locations as a priority:

- Buckinghill Farm Bend
- Henhurst Lane junction
- Coles Lane junction
- Ockley Village
- Oakwood Hill junction

7.3 The treatments appropriate to each location need to consider the implication of the research undertaken i.e.

- Driving too fast for conditions is the primary contributory factor, both in car and motorcycle accidents. All possible speed reducing measures should be considered.
- Some places along the A29 are more dangerous for motorcycles than cars. Intelligent measures should be considered that improve riders awareness.
- Parking in the village is a serious problem. Measures to redress this problem should be considered in consultation with the public.
- The various possible improvements suggested by experts and the public seem to differ when addressing safety issues near the village than in any other place along the A29. The reasons for these differences need to be tackled by experts and their views communicated to the public clearly, such that there is an understanding between both groups.

7.4 In summary, the extent of the accident problem is quite considerable, but there is a difference between public and expert perceptions as to the cause of accidents. To resolve this, it is proposed that a working group is established in the future, between local elected Members, Officers and representatives of the public to produce a series of measures to reduce all accidents on the A29.

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BACKGROUND PAPERS:
