

TECHNICAL REPORT

**A20 LONDON ROAD BETWEEN M26 AND M20 OFF SLIP
(EASTBOUND), WROTHAM, KENT**

ROAD SAFETY ISSUES

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1.0 Introduction

- 1.1 Les Henry Associates Limited have been instructed by Wrotham Parish Council to provide this Technical Note in respect of concerns over road safety issues on A20 London Road between its junctions with M26 motorway in the east and junction 2 (eastbound off slip) of M20 and Old Coach Road in the west.
- 1.2 My name is Leslie James Henry. I am an Incorporated Engineer, a Fellow of the Institute of Highway Engineers and a Member of the Chartered Institution of Highways and Transportation.
- 1.3 I have been involved in highway and traffic engineering issues for the past 30 years in connection with new development and road safety schemes within both the private and public sector.
- 1.4 This Technical Note will provide a critique of the Kent Highway Services report presented to Tonbridge and Malling Council's Joint Transportation Board on 29th November 2010, identify a number of problems associated with the aforementioned route and discuss options for overcoming the concerns expressed by the local Parish Council and local residents.

2.0 Location and Existing Highway Conditions

- 2.1 A20 London Road is a classified road and is designated as a Secondary Route within the Kent and Medway Structure Plan's Inter-Urban Route Hierarchy.
- 2.2 The route is punctuated by 4 roundabout junctions, moving east to west as follows: -
 - i). Serving north-western and south-eastern arms of A20 London Road and the on and off slip roads for the M26 motorway located to the east of Wrotham Heath.
 - ii). Serving north-western and south-eastern arms of A20 London Road, A227 Wrotham Road, a classified secondary route and the on slip for the London or west bound M20.
 - iii). Serving north-western and south-eastern arms of A20 London Road, A227 Gravesend Road, a classified secondary route and Pilgrims Way, an unclassified access road located to the north of the M20 and Wrotham Village.
 - iv). Serving north-western and south-eastern arms of A20 London Road and Old Coach Road, an unclassified access road, located to the east of Wings of the Morning Field at the top of Wrotham Hill.
- 2.3 The section of the route between the M26 Nepicar junction and the Whitehall roundabout takes the form of a single carriageway with central hatching forming ghost island right turning facilities at numerous locations. There are also a number of kerbed islands which provide protection for vehicles waiting to negotiate right turning movements. Refer to photo VII and VIII in Appendix. The statutory speed limit is 50mph except for a section approximately 100m to the southeast of the Whitehill roundabout which is unrestricted at 60mph. This section of the route is approximately 1.3km long

- 2.4 Between the Whitehill Roundabout and the roundabout junction with A227 Gravesend Road the route takes the form of a three lane single carriageway with 2 lanes including a nearside climbing lane for the uphill traffic and a single downhill lane.
- 2.5 Sections close to the roundabouts at either end are marked with double white lines prohibiting overtaking, refer to photo VI in Appendix, but between these sections the dividing road markings take the form of a solid white line on the 2 lane side and a dashed line on the single lane side allowing overtaking where conditions allow. The statutory speed limit is 60mph and the length of this section is approximately 600m long.
- 2.6 The road layout is similar between the junctions of the A20 with A227 Gravesend Road in the east and the M20 off slip and Old Coach Road in the west. The statutory speed limit here is also 60mph and the length of this section is approximately 1.4km long. Refer to photo I, III and V in Appendix.
- 2.7 The gradient is a significant factor along the route and levels increase east to west with the steepest section being between the M20 on and off slip roads.
- 2.8 The route is very popular for cyclists as the route provides a particularly attractive challenge for cycle clubs who often use the route for informal cycle trials and in preparation for organised events elsewhere. Refer to photo II in Appendix.
- 2.9 The route is also attractive for motor cyclists due to its proximity to Brands Hatch and there is much anecdotal evidence, spread over many years that suggests the route is often used for informal racing against a stop watch.

3.0 Vehicle Collision or Crash Record

- 3.1 The 5 year crash record for the entire route under consideration has been analysed and this shows that a total of 26 personal injury collisions have been recorded 2 resulting in fatalities, 6 resulting in serious injuries and 18 resulting in slight injuries. Refer to photo VI in Appendix.
- 3.2 An analysis of the same data to obtain the record for the most recent 3 year period shows 12 collisions with 2 resulting in fatalities, 3 resulting with serious injuries and 7 resulting with slight injuries.
- 3.3 The majority of the vehicle collisions in the most recent 3 year period occurred within the section between Whitehill roundabout and the M20 off slip junction with Old Coach Road, amounting to a total of 8 collisions, 2 resulting with fatalities, 2 resulting in serious injuries and 4 resulting in slight injuries.
- 3.4 Based on the Department for Transport's figures, the cost to the community of a fatal crash is around £1.9 million, a serious crash costs in the region of £215,000 and a slight crash costs £22,000.
- 3.5 The crashes in this section of the route have therefore cost the community a considerable sum financially.

4.0 Highway and Safety Considerations

- 4.1 Wrotham Parish Council have expressed concern over the crash record, vehicle speeds, road markings and the general provision for cyclists for A20 Wrotham Hill, the western most section of the route under consideration in this Technical Report, and presented a petition to Tonbridge and Malling Council's Joint Transportation Board on 14th June 2010.
- 4.2 At a subsequent Board meeting on 29th November 2010 a report prepared by Kent Highway Services was presented in response to the petition. The report is very dismissive of the concerns raised by the Parish Council in so far as little attention has been paid to the issues involved.
- 4.2 Little attention was paid to the issue of the highway layout and road markings and the report simply states the current arrangement is "a standard crawler lane arrangement which allows for slow moving traffic to be overtaken safely with relative ease, preventing tail backs and minimising irrational manoeuvres".
- 4.3 It would appear there has been no attention paid to the Highways Agency's Design Manual for Roads and Bridges and in particular the guidance provided in document TD 9/93.
- 4.4 There does not appear to any assessment of the proportion of heavy goods or slow moving vehicles using the route, the gradient of the road, the average annual daily traffic flow, forward visibility or the actual speed of vehicles using the route.
- 4.5 The report suggests the vehicle collisions recorded have no specific pattern or causation factor but does suggest the provision of "graduated transverse bar markings (getting progressively closer together) at the approaches to both roundabouts" which apparently would be a useful to "alert drivers of their speeds when approaching these roundabouts."
- 4.6 The Royal Society for the Prevention of Accidents states that a study of speed related collisions involving vehicles that were exceeding the speed limit or travelling at inappropriate speed found most collisions involved some loss of control of the vehicle. Other reasons for speed related crashes included following other vehicles too closely.
- 4.7 Bearing these factors in mind, it is relatively easy to assimilate a link to inappropriate or excessive vehicle speeds as a causation factor for the crashes on this section of highway.
- 4.8 It would therefore appear that 5 of the 8 vehicle collisions in the 3 year period up to 31st December 2010 in this section of highway are speed related crashes.
- 4.9 It therefore follows that an investigation into remedial measures should have been undertaken but it would appear that other than the suggestion of graduated transverse bar markings on the approaches to the roundabouts, little more was considered.
- 4.10 The report suggests cyclists should be dissuaded from using the A20 carriageway and that a tortuous route via rights of way and bridleways be promoted.

A20 London Road, Wrotham, Kent

- 4.11 It is evident from the site investigations that I have carried out and from local knowledge that the route is used by cycle clubs and possibly semi professional riders. The route provides a challenge for cyclists preparing for organised trial events.
- 4.12 It is extremely unlikely that such riders would be persuaded to use such a route in preference to A20 and only very casual riders or children would take advantage of such a route. In any event there is no continuous route and it may take many years to negotiate with private land owners to form a system of linked paths and bridleways.
- 4.13 An assessment of the impact of removing the climbing lane to provide facilities for cyclists over two relatively short sections of road could have been undertaken, particularly as a recent fatal collision involved a cyclist.
- 4.14 A reduction in the speed limit would have some impact on vehicle speeds but it is accepted would not overcome those drivers who disobey the law and drive aggressively and at excessive and inappropriate speeds. Nonetheless, it may assist in reducing the number of accidents in this section of highway and reduce incidences of loss of control and helping drivers assess the distance between their vehicle and the one in front.
- 4.15 The introduction of a safety camera would also be appropriate as the crash record demonstrates 4 fatalities and at least 2 serious injuries have occurred in the past 3 years over this 1.4km stretch of road.
- 4.16 Furthermore the changing of the road markings to prevent overtaking for the downhill or eastbound traffic would also assist in reducing vehicular collisions at minimal cost with enormous benefits to the community returning large first year rates of return for the relatively small expenditure required.

5.0 Conclusions

- 5.1 It is suggested that amendments to the road markings on Wrotham Hill to prohibit overtaking for eastbound or downhill traffic would significantly improve highway safety.
- 5.2 A reduction in the speed limit to 50mph would also have a significant impact on highway safety.
- 5.3 The installation of a safety camera would enforce the speed limit, overcome the problems associated with speeding motor cyclists and also improve highway safety.
- 5.4 A total rethink over the road markings on Wrotham Hill would make provision for cyclists rather than to force them onto an incomplete and tortuous route of public footpaths, bridleways and rights of way and also provide an opportunity to improve highway safety.
- 5.5 It is therefore contended that Kent Highway Services revisit their report to Tonbridge and Malling Council's Joint Transportation Board and make a full assessment of the possibilities of providing some if not all of the above proposed amendments to the highway.

6.0 Appendix



Photo I

Top of Wrotham Hill.
Speed Limit : 60mph on steep gradient.
Central lane hatched allowing overtaking where conditions allow.



Photo II

Top of Wrotham Hill.
Speed Limit : 60mph on steep gradient.
Central lane hatched allowing overtaking where conditions allow.

Cyclist approaching the top of Wrotham Hill. It is a good illustration of the effect on traffic flows.



Photo III

Centre of Wrotham Hill.
Speed Limit : 60mph on steep gradient.
Central lane hatched allowing overtaking where conditions allow.



Photo IV

**Centre of Wrotham Hill
Speed Limit : 60mph on steep
gradient.
Central lane hatched allowing
overtaking where conditions
allow.**

**Note the vegetation is
obstructing the pathway.
Cyclists have been observed
attempting to use this safer
alternative but the vegetation
prevents this at several
positions.**



Photo V

**Bottom of Wrotham Hill.
Speed Limit : 60mph on steep
gradient.
Central lane solid approaching
Gravesend Road roundabout.**



Photo VI

**Past Gravesend Road
roundabout.
Speed Limit : 60mph on steep
incline.
Central lane solid close to
roundabout only.**

A20 London Road, Wrotham, Kent



Photo VII

Past Whitehill roundabout
Speed Limit : reduces to
50mph as gradient reduces.

Single carriageway with
central hatching forming ghost
island right turning facilities at
numerous locations.



Photo VIII

London Road, outside of the
Marley depot.
Speed Limit : 50mph on
moderate gradient.
Accident involving
motorcyclist in 2008.