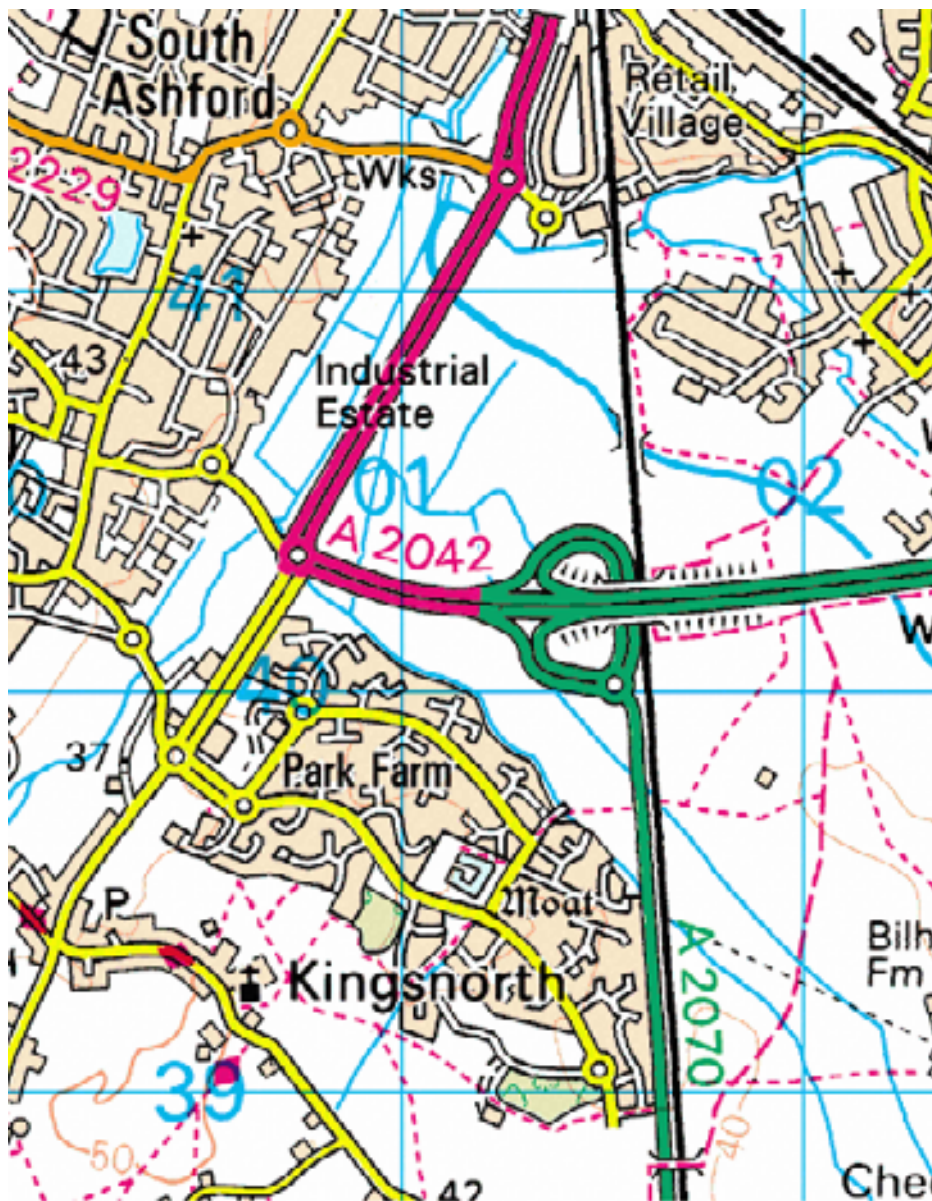


## A2070 Cloverleaf Junction, Ashford, Kent

### Provision Of Bikeguard to Supplement Existing Safety Barrier



## Scheme Description

The provision of a motorcycle friendly barrier system to supplement the existing safety barrier, a combination of Tension Corrugated Barrier and Open Box Beam, to reduce the severity of crashes associated with motorcyclist colliding with the existing safety barrier at the A2070 Cloverleaf Junction, Ashford, Kent.

## Background to the Scheme

The Highways Agency assumed responsibility of the A2070 from Brenzett to Ashford in September 2003 as part of the de-trunking of the A259 from Brenzett to Folkestone.

The Cloverleaf Junction is a combination of bends linking the A2070 Dual Carriageway, part of the Ashford Southern Bypass, to the A2070 Hamstreet Bypass, a single carriageway link to the A259 at Brenzett. The area is notorious for vehicles, particularly high speed motorcycles.

A handover meeting between Kent Highways, Ashford Highways and InterRoute, HA Area 4 MAC, identified an existing problem at the Cloverleaf Junction with numerous fatalities and serious accidents mostly involving motorists losing control and colliding with the support posts for the safety barrier. At the Coroners Inquest to the fatal accident of August 2002, HM County Coroner instructed the Local Highway Authority to undertake such measures as to prevent the likelihood of further accidents of this nature and severity from re-occurring.

*Accident Statistics – Five year history prior to installation – 01/01/1998 – 31/12/2003*

|              | 1999     | 2000     | 2001     | 2002     | 2003     | Total    |
|--------------|----------|----------|----------|----------|----------|----------|
| <b>FATAL</b> | <b>1</b> | <b>1</b> | <b>-</b> | <b>1</b> | <b>-</b> | <b>3</b> |
| Serious      | 2        | 3        | 1        | 2        | -        | 8        |
| Slight       | 2        | 1        | 3        | 1        | 3        | 10       |
| Total        | 5        | 5        | 4        | 4        | 3        | 21       |

*Of the above 21 accidents 14 involved motorcycles as detailed below.*

|              | 1999     | 2000     | 2001     | 2002     | 2003     | Total    |
|--------------|----------|----------|----------|----------|----------|----------|
| <b>FATAL</b> | <b>1</b> | <b>1</b> | <b>-</b> | <b>1</b> | <b>-</b> | <b>3</b> |
| Serious      | 2        | 3        | 1        | 2        | -        | 8        |
| Slight       | -        | -        | 1        | -        | 2        | 3        |
| Total        | 3        | 4        | 2        | 3        | 2        | 14       |

The 21 accidents accounted for 25 casualties (**3 Fatalities**, 8 Serious and 14 slight), of which 14 casualties are attributed to the motorcycle accidents. All of accidents occurred in the dry during the months of February, March, April, May, June, July, August & September.



*Photo of Cloverleaf prior to installation of Bikeguard*

## Proposed Scheme

Ashford Highways Officer's provided InterRoute with a proposal to use a product known a Mototub, a French product which utilised a tubular system attached to the support posts of the French safety barrier to protect motorcyclist in the event of a collision with the safety barrier.

However, upon examination of the proposals by both InterRoute staff and the Highways Agency's SSR Division, it became apparent that the proposed barrier would project in front of the existing safety barrier system with the possibility of compromising its performance. It was, therefore, rejected as a remedial measure to reduce the severity of accidents at this location.

InterRoute's Highway Design Manager, Paul Thompson, and Richard Boswell, Team Leader – Traffic and Safety, then began an exercise to identify possible alternative products that could achieve the reduction in severity of the accidents without compromising the performance of the safety barrier system.

An alternative product, Bikeguard, from Germany was identified as a likely alternative. It used an overlapping steel sheet system fixed to the existing safety barrier to prevent motorcyclists from colliding with the support posts, and did not project beyond the front edge of the existing safety barrier.

## Originality

The use of a barrier retention system such as Bikeguard has not previously been installed in conjunction with safety barrier systems on highways in the United Kingdom. InterRoute staff had to justify to the Highways Agency that the installation of the Bikeguard barrier retention system would not affect the retention properties of the existing safety barrier. A submission was presented to the Highways Agency in January 2004 with approval being granted in March 2004.

## Installation and Current Accident Record

Upon approval of Bikeguard for installation, the German manufacturer commenced fabrication of new fixing brackets, with the barrier retention system being delivered and installed in mid March. As part of the overall design process it was deemed that as the radius for the northbound on slip and southbound off slip were severe, the northbound off slip radius tightens the further you traverse the slip road, approval for a 50 MPH speed limit would be appropriate. This measure was supported by Kent Police and was introduced prior to the installation of the Bikeguard barrier retention system.



*Photographs of Bikeguard installation*

## Safety Benefits

The perceived safety benefit of the Bikeguard barrier retention system was that should a motorcyclist lose control of the motorcycle, the collision with the barrier retention system would be less severe than colliding with the support posts for the safety barrier system. However, analysis of the Accident Statistics for the A2070 Cloverleaf Junction for the period since the installation of the Bikeguard barrier retention system has highlighted that **no personal injury accidents** have occurred.



*Photographs of damaged Bikeguard*

We are aware that a vehicle, probably a motorcycle, has impacted with the Bikeguard barrier retention system without damaging the Open Box Beam barrier, although no accident report has been logged by Kent Police, thus we have achieved the reduction in accident severity originally envisaged by the use of the Bikeguard barrier retention system.

The installation of the reduced speed limit and the Bikeguard barrier retention system seems to have altered motorists perception that vehicles need to travel around the Cloverleaf Junction at a more appropriate speed. Hence the reduction in accidents since the installation of the reduced speed limit and the Bikeguard barrier retention system.



*Photographs of completed Bikeguard installation*

## Further Applications

References have been received from other Highways Agency agents requesting details on the installation of Bikeguard on the A2070 Cloverleaf Junction, for installation of the product at other similar locations within the Highways Agency network. Within the Highways Agency Area 4 network the installation of the Bikeguard barrier retention system is being investigated for locations on substandard radius slip roads.

## Acknowledgements:-

Client : Highways Agency – TOD South - Area 4

Designer : InterRoute

Supplier / Installer : Highway Care Ltd