

# U.K. Highway Authority Insists on Specification of Concrete Road Barriers

by Brian Ó Murchú

A decision by the U.K. Highways Agency to issue Interim Advice Note 60/05, instructing that new concrete step barriers are to be the specified solution for future motorway central reservation barrier installation and replacement works, may well have a knock on effect in Ireland. The instruction in the U.K. could spell an end to the use of steel median barriers in the U.K and eventually in Ireland.

In November 2004 the NRA announced that all future motorways and dual carriageways would be fitted with crash barriers, irrespective of the width of the central median and that a retrofit programme would continue where the road median was 15m wide or less. This decision followed a number of crossover incidents, some involving so called 'joy riders' which resulted in tragic loss of life. The €15 million programme was scheduled for completion in mid 2005.

The U.K. Highways Agency's decision to specify concrete median barriers, where the Average Annual Daily Traffic exceeds 25,000 vehicles per day, follows a campaign by a leading U.K. transport infrastructure group, to provide a concrete solution to increase the safety of Britain's roads and to eliminate the cost and congestion caused by the frequent repair and maintenance of less robust steel barriers. Following a detailed study of alternative solutions, the Highway Agency became convinced of the increased safety, and cost benefits of concrete barriers compared to steel.

The provision of a crash barrier on the central median should prevent crossover accidents, typically where out-of-control vehicles travel across the central median and enter the opposite carriageway with a risk of colliding with oncoming traffic. Irish statistics suggest that there are 3.8 casualties per injury accident where a vehicle crosses the median, compared to 2 casualties where vehicles enter the median but do not crossover.

In the U.K. crossover accidents account for over 200 motorway accidents and some 40 deaths a year. However, a direct per capita comparison with Ireland does not apply since in Ireland, almost double the number of people per head of population



die annually on the roads than in Britain i.e. 11 per 100,000 in Ireland compared to six per 100,000 in Britain.

The U.K. concrete step barrier which is based on slipform technology, has a containment level of H2 which enables it to contain vehicles of 13 tonnes such as coaches, vans or 4 x 4s. This is in comparison to the containment level of N2 for steel barriers which are only capable of containing vehicles of up to 1.5 tonnes such as cars and light goods vehicles.

Ireland's NRA has recently approved the Delta Bloc precast median system manufactured in Co. Offaly by Bannagher Concrete Ltd. The system was recently installed on a 7km stretch of the N11 Glen of the Downs, Kilmacanogue dual carriageway. The Delta Block system is incredibly resistant to impact and has successfully been tested in accordance with the highest containment level Hb4 EN 1317 Part 1 & 2 where it prevented a 38 tonne vehicle from breaking through.

Delta Bloc is a precast concrete median which is installed without the need for ground anchoring or foundations. This is a great advantage saving time and money but also avoids possible contact with existing buried services. As well as acting as a permanent safeguarding on roads, Delta Bloc can also be used for temporary protection of construction sites. Units can be installed rapidly, and installed and dismantled using a coupling insert connector. Each unit is 6m long by 1m wide and is laid directly on top of prepared ground in the median.

Whole Life Cost analysis carried out by the U.K. Highways Agency concluded that rigid concrete safety barriers, with a

containment performance class of H2 have the greatest benefit in terms of cost and safety. Not only were the installation costs comparable with steel barriers but concrete has the added cost benefit of not needing ongoing maintenance or repair programmes. Maintenance and repair costs for steel barriers are considerable. The cost analysis showed that for the M25 alone, the cost of steel barrier repair and maintenance was St.£3.3 million from September 2002 to August 2003. A further cost benefit is that the strength of the concrete barrier

means only one line of barrier needs to be installed compared to the often double lines of steel barrier.

The U.K. Highways Agency decision that concrete should be specified, underlines the fact that steel barriers and wire fences and bushes used on the first motorways built in the 1960's, are no longer adequate to meet the demands of today's traffic. Designed to last up to 50 years, the concrete step barrier provides a proven and cost-effective solution that will meet current and future traffic demands.

