

BRIT74
29th January 2007

UK'S TRANSPORT INFRASTRUCTURE NEEDS CONCRETE RELIABILITY

The UK transport system supports a staggering 61 billion journeys a year. Such a high number of journeys place a considerable pressure upon the network. Unfortunately the network is often unable to cope with the demands placed upon it. Sir Eddington forecasts that the resulting unreliability and congestion could cost the UK economy an estimated £22 billion a year.

Many of the problems facing the UK's transport lie in the actual fabric of the infrastructure and its need for continual programmes of maintenance, repair and replacement. This results in considerable delay and congestion. Concrete's recognised low maintenance and long-term performance could do much to mitigate these delays and congestion by removing the need for on-going repair and maintenance programmes.

The road network carries 95 per cent of all freight traffic. The impact of this on the lifespan of roads is considerable. Typically, one heavy goods vehicle does the same amount of damage to a road as 100,000 cars. The impact of this structural damage means that roads require continual maintenance with motorway lanes regularly being taken out of action.

On a typical UK motorway, 77 per cent of HGV traffic uses the inside lane. On dual carriageways that percentage is much higher. This means that maintenance and repair needs to be focused on the inside lane.

"The provision of a concrete inlay to truck lanes will do much to extend their life", explains David Jones, Director of Britpave, the transport infrastructure group. "Concrete has a stiffness that is some 4 times that of asphalt. Carriageways constructed from asphalt will last a maximum of 40 years (often considerably less) whereas carriageways where the main component is concrete is will last for a minimum of 40 years (often considerably longer)".

The truck lane solution proposed by Britpave calls for a stiff concrete inlay that is surfaced with a thin layer of asphalt. This gives the best of both worlds: reduced need for major repair and maintenance thanks to the superior strength and stiffness of concrete with the low noise benefits of asphalt.

PFI projects, such as the M6 Toll, invariably use jointless concrete roads that are surfaced with quickly and easily renewed asphalt. The benefits are long-life performance and the elimination of premature and undue road repairs. There is a further sustainability benefit. International research has indicated that fuel savings of up to 17 per cent may be achieved by HGVs when they run on concrete pavements as opposed to asphalts pavements. UK research suggests that savings of up to 10 per cent may be achieved.

The benefits of minimum maintenance and long-term performance are also evident with the new concrete step barrier (CSB) that has been approved by the Highways Agency for motorways where the traffic flow is over 25,000 vehicles per day. The

Department for Regional Development Northern Ireland has followed the Highways Agency's lead and specified concrete barrier for their principal trunk road network.

The new concrete barrier can prevent crossover accidents by successfully restraining vehicles and stopping them from crossing over into the path of oncoming traffic. Such accidents result in the death of some 40 people a year on Britain's motorways.

"CSB is designed to be repair and maintenance free for the entirety of its 50-year life. By contrast, steel barriers, with a design life of only 20 years, would not only have to be replaced three times during this period but would also need regular tensioning and maintenance", said Jones. "Furthermore, unlike steel barriers, which usually need to be replaced following vehicular impact, concrete barriers are robust enough to withstand vehicular impact". Ongoing replacement and maintenance of steel barriers is a major factor in the delays and congestion that is experienced on Britain's roads.

The reliability of Britain's rail network could also be significantly improved with the greater use of concrete. For over 150 years trains have run on ballasted track. Such track is unable to cope with faster and heavier trains and trying to maintain the existing network is no longer a viable option. 40 years ago, the Japanese government had the long-term vision to replace much of their ballast system with concrete slab track. The UK government needs the same type of vision.

The use of concrete slab track in Japan has maximised the operating efficiency of the rail network. It has eliminated unplanned maintenance, offers high levels of safety and comfort and impressive whole life cost savings. Throughout Europe ballast track is being replaced by slab track. Germany, the Netherlands, Italy and Spain are all increasing their rail network reliability and efficiency by installing slab track. Apart from the Channel Tunnel and a few isolated lengths of slab track, the rest of the UK rail network has to make do and mend. This has a considerable negative impact on the UK's productivity by limiting the availability of freight train slots and demanding a massive subsidy from government.

"An efficient transport infrastructure is key to a successful UK economy. Concrete has the inherent robustness, low-maintenance, long-term performance and whole-life cost benefits to deliver the type of transport infrastructure that the UK needs", concluded Jones.

For further information on concrete transport solutions visit: www.britpave.org.uk.

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Notes to editors

1. Britpave (British In-situ Concrete Paving Association) promotes the better and greater use of concrete for transportation solutions. Its members include major contractors, specialist equipment and material suppliers, consulting engineers and interested trade associations. Together they provide a single voice for the in-situ concrete paving industry. For further information see: www.britpave.org.uk
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