UK NOISE ASSOCIATION MANIFESTO

PAPER 6:

RAIL NOISE

Rail noise disturbs far fewer people than noise from aircraft or motor vehicles. But it does remain a problem. Noise from freight and high-speed trains can be a particular concern.

Most of the noise from trains comes from the wheels rolling over the rails. It is the roughness of the rails and the wheels which causes the noise. The more roughness there is, the more disturbing the noise. The roughness is caused by wear and tear. A European Commission study found that roughness may cause noise levels to rise by up to 5dB(A) (1).

Reduce rail and wheel noise

The noise from rails can be cut by 'polishing' which reduces the roughness of the rails and wheels. The vibrations which cause noise can be minimised with rail dampers, lengths of elastic material fixed to the rails. But the big gains can come from cutting the noise of the wheels by replacing the brake pads used. A change from cast iron to composite material could cut the noise by as much as 50% (2). It would also reduce the vibration from freight trains. There is little difficulty in fitting new vehicles with the new technology but retrofitting is expensive. However the savings are considerable, many arising from the reduced need for noise walls and the insulation of neighbouring buildings.

Install noise barriers

Richard Greer, Fellow and Director at Arup, told the recent House of Lords investigation into noise (3) "Noise barriers are very effective for railways, because we can put them very close to the trains. A noise barrier can straightforwardly halve the wayside noise level, a 10-decibel or greater reduction."

Put mitigation at the heart of all High Speed Rail plans

There are particular problems with high speed trains. Not when they are travelling at lower speeds, i.e. not much faster than conventional trains. At those speeds they are likely to make less noise than the conventional ones because they will be fitted with all the latest noise-reducing features. The problem arises at speeds of more than 250/300 kilometres per hour. That is where aerodynamic noise starts to kick in. Travel at these speeds can also generate ground vibrations, similar to the sonic boom associated with supersonic aircraft. And there is the problem of brake screech as the trains slow down or come to a halt. Although there is work underway to find solutions, tunnels, noise barriers and insulation programmes need to be integral to all plans.

Cap the number of High Speed trains using a line

A cap should be imposed on the number of trains that will be operated: it would be very difficult, in noise terms, to justify a frequent high speed service on any line.

(1). Technology Report, A Rust, 2003
(2). Rail Transport and the Environment, UIC/CER, 2008
(3). https://publications.parliament.uk/pa/ld5803/ldselect/ldsctech/232/23202.htm