



To: Neighbourhoods and City Development

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Subject: Essential Evidence on a page: No 103 Traffic noise and health

Top line: Fifty-five per cent of those living in urban areas with more than 250 000 inhabitants in the EU - almost 67 million people - endure daily road noise levels above the lower EU benchmark for excess exposure.

A growing body of research reveals that road transport noise can cause sleep disturbance, cardiovascular disease, elevated hormone levels, psychological problems and even premature death; studies on children have identified cognitive impairment, worsened behaviour and diminished quality of life. People with existing mental or physical health problems are the most likely to be sensitive to traffic noise.¹ The serious effects of transport noise have been recognised since the 1970s. For a long time, however, they received relatively little attention while the public focused instead on transport's air pollution impact. Little effort went into collecting harmonised transport noise data in Europe, which in turn weakened the case for an effective response. Noise is also a problem in rural areas² where disturbance from traffic noise can be severe even in lightly populated rural areas.

Vehicle noise is created by tyres interacting with the road as well as the noise from engines, exhaust systems, transmissions and brakes. In general, tyre-road interaction is the main cause of noise above 55kph for most cars, with engine noise predominating at lower speeds. Although individual vehicles have become quieter in the past two decades, this is almost entirely due to reduced engine noise, with little effect on tyre noise.³ Cutting motor traffic will clearly be crucial in addressing many of transport's environmental impacts. As a strategy to reduce noise volumes, however, it has limitations. Reducing car traffic on roads with a high proportion of lorries and busses, for instance, has little impact on the overall traffic noise since car noise is masked by the heaviest vehicles. To be effective the noisiest vehicles have to be targeted first. But even on roads where vehicles produce roughly the same amount of noise (e.g. mostly cars), a traffic reduction of at least 40 % would be needed to start perceiving reduced noise.

Policymakers therefore need to identify complementary, cost-effective measures that primarily reduce noise at source. These include:

- technological improvements to vehicles and components, including low noise tyres
- improvements to infrastructure, such as low noise road surfaces
- urban planning that limits encroachment close to busy roads, railways or airports
- traffic management e.g. traffic calming & 20mph speed limits, to control traffic speed
- restricting access for the noisiest vehicles and aircraft (e.g. at night)

In road transport, as experience in London and elsewhere has demonstrated, technology exists to charge road users according to vehicle type and time of day, with proceeds supporting, for example, expanded public transport systems. As recognition of noise pollution's impact grows, such technology should facilitate the introduction of creative policies like France's airport noise charging scheme across the entire transport sector.

¹ Stansfeld, S., Haines M. 1997 Environmental noise and health: a review of non-auditory effects. In: *IEH report on the non-auditory effects of noise*. Leicester: Institute for Environment and Health.

² Transport for Quality of Life, 2008 *Traffic noise in rural areas: personal experiences of people affected*. The Noise Association.

³ Transport and Health Study Group, 2011 *Health on the Move 2*. Ch.6 <http://www.transportandhealth.org.uk/>