

Transport-related noise: understanding the problem

We combine transport planning, geographic information systems and social research skills to analyse, predict and report traffic and aircraft noise and the public perception of the nuisance it creates. We develop information systems that predict the numbers affected by changing noise levels and that monitor complaints from those living in affected areas, for example near airports.

The issue

Significant changes in traffic flows and speeds on a road network can create changes in the noise levels experienced by residents of nearby properties. Noise from aircraft, particularly under the flight paths into and out of busy airports, is also a significant environmental issue.



Our experience

We can assess increases in noise levels and their likely effects on the health and well-being of those affected as part of the environmental appraisal of transport schemes. To satisfy the requirements of the European Noise Directive we prepare noise maps for major urban areas and transport corridors showing noise contours which can be used to identify areas where desirable threshold noise levels are exceeded and also 'quiet' areas whose tranquillity should be protected.

We provide state-of-the art modelling and GIS-based analysis and reporting of noise from traffic and aircraft and have undertaken a number of social research studies exploring public attitudes to noise.



Attitudes to noise from aviation sources in England

We led a 5-year project to establish the relationship between aircraft noise and the annoyance it causes to residents. The study used extensively trialled stated preference techniques to put 'willingness-to-pay' monetary valuations on this annoyance, expressed in terms of numbers of aircraft noise 'events', their loudness and the time of day (or night). The study required in-depth interviews with around 3,000 residents at different proximities to 15 airports across the UK. The study involved regular consultation with leading UK and international experts and stakeholders to ensure acceptance of the research findings by the air travel industry.

Aberdeen Western Peripheral Route noise assessment

We worked closely with the Noise Specialists appraising the noise-related impacts of the Aberdeen Western Peripheral Route. This support included calculation of 18-hour traffic flows and speeds and the geo-rectification of schematic network models to match the actual road alignments, the integration of existing GIS inventories to extract essential information on road features (e.g. road width and surface) and the preparation of thematic noise maps.

Noise impacts of the London Mayor's Transport Strategy

We predicted the noise impacts of the Mayor's Transport Strategy in 2011 and compared these to the 2001 Base and 2011 Reference Case. We converted the results to GIS format and created maps indicating the degree of change between 2001 and 2011 on road, rail and underground networks. By carrying out sensitivity testing of the noise calculation model, we enabled the client to assess the impacts of alternative strategies such as increased investment in quieter buses and noise-reducing road surfaces.



Study of perceptions of Paris traffic noise

We undertook a social research study of noise perception, to improve understanding of Parisians' perceptions of their noise environment and the way in which their sensitivity to noise has developed over the last 30 years. The results of this research were combined with a series of road noise control measures at 13 sites to determine how well current French traffic noise regulations match public perception of acceptable noise levels.

Rolling stock replacement project

For First Group we undertook an environmental assessment of rail rolling stock options, from diesel engines to gas turbines and electrification. We undertook a qualitative appraisal of the noise-related impacts, as part of the environmental appraisal of the various alternatives.

AIRVIRON

We developed and maintained a sophisticated aircraft noise monitoring and public complaints management system at London Heathrow, Gatwick and Stansted airports over a number of years.

