Sustainability Award

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Winner

AtkinsRéalis - SWTRA Vegetation Attenuation Noise Study

The South Wales Trunk Road Agent (SWTRA) Vegetation Attenuation Noise Study was recognised by the judges as a significant step forward in understanding how roadside vegetation contributes to noise reduction. Addressing a long standing evidence gap within the UK acoustics sector, the project delivered one of the first comprehensive real world datasets exploring the acoustic performance of vegetation across multiple environments, seasons and structural conditions.

The study brought together multi site and multi season measurements to examine how factors such as vegetation density, verge width and topography influence road traffic noise. A standout feature was the comparison between winter and summer conditions, enabling the team to quantify the additional attenuation provided by full foliage. Results showed that vegetation can reduce road traffic noise by up to 12 dB depending on local characteristics, with summer foliage offering as much as 3 dB more attenuation than winter conditions. Judges highlighted this as a rare and valuable dataset, noting its potential to reshape industry assumptions.

The research also challenged established modelling practices. Analysis revealed that the standard CRTN soft ground correction significantly underestimates the acoustic benefits of dense vegetation. This finding has important implications for future modelling, design and policy – particularly as the industry increasingly seeks nature based solutions to complement or replace traditional noise barriers.

The outcomes are already influencing SWTRA's decision making, supporting more informed strategies around vegetation management, noise mitigation and wider environmental planning. In their testimonial, SWTRA emphasised the practical value of the research, noting that it had delivered "*valuable insights into the inter relationship*" between verge width, topography and vegetation types. They highlighted its role in helping SWTRA "*design and manage the soft estate to reduce noise impacts on sensitive receptor sites,*" reinforcing the study's direct operational relevance.

Judges praised both the innovation and long term significance of the project. One described it as "*genuinely quite innovative,*" noting the complexity of developing a new methodology that required collaboration with ecologists and landscape architects. Another judge emphasised the sustainability impact, stating that quantifying vegetation attenuation "*has the greatest impact when it comes to sustainability.*"