

# UIC, 10<sup>th</sup> Railway Noise Workshop

## Auralisation

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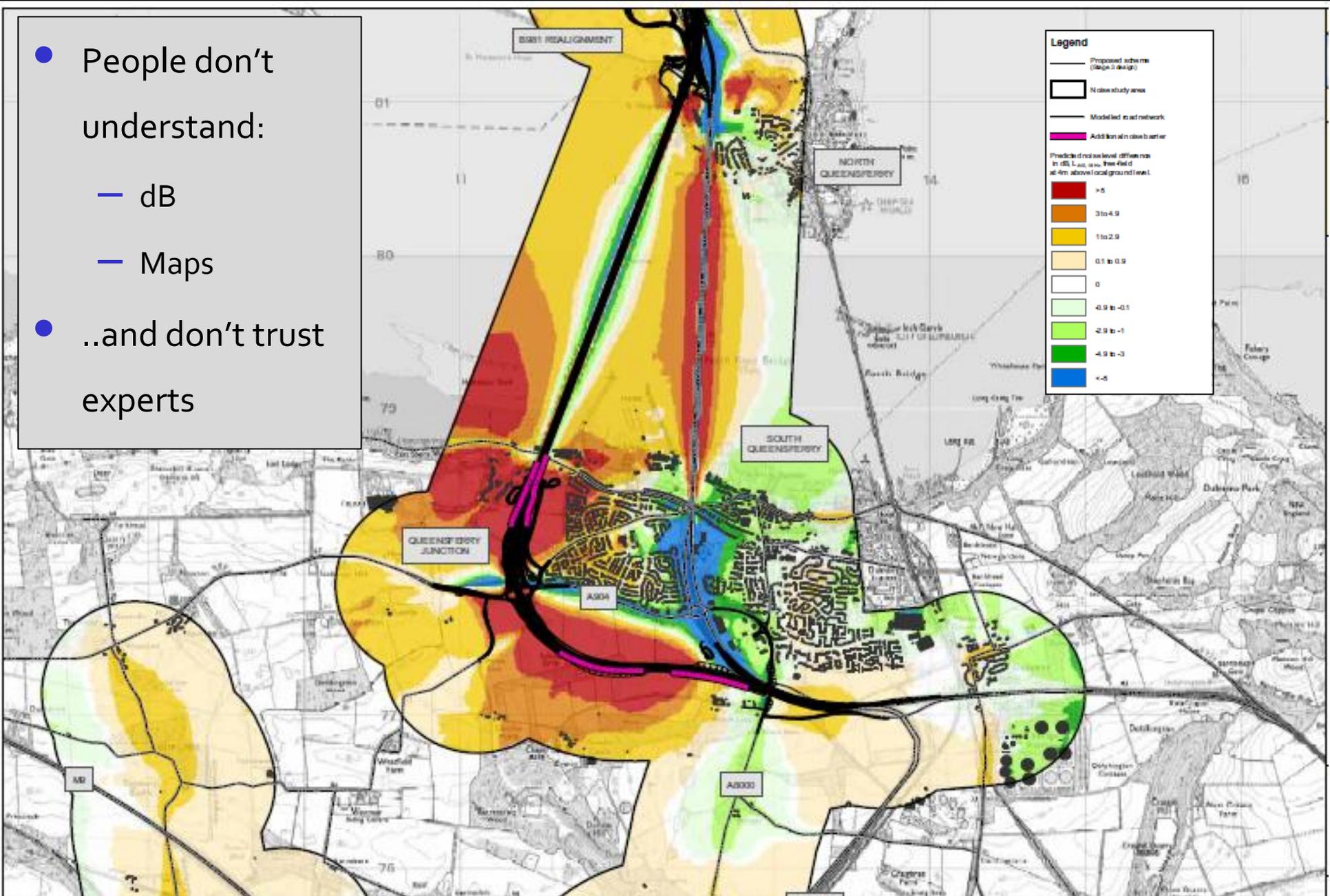
Richard Greer, Director | Arup

# Presentation

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- Auralisation experience
- Effectiveness in engaging with non-technical stakeholders
- Future development of technology

- People don't understand:
  - dB
  - Maps
- ..and don't trust experts



Traditional information for consultation...



Arup SoundLab

# Forms of delivery



**SoundLab**  
(strategic stakeholders & consultees)



**Sound Lab Lite**  
(Seminars)



**Sound Booths**  
(Consultation Roadshows)

# Language

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- Noise
  - Unwanted sound
  - Control
  - Minimise
  - Avoid
  - Prevent
  - Separate
  - Limit
- Sound
  - Neutral term
  - Nature
  - Excitement
  - Vibrancy
  - Culture / Identity
  - Community
  - Comfort
  - Noise

We never tell any listener what they should decide about what they hear in SoundLab. It is for the listener to decide. We talk about sound and let the listener decide if it is noise. The assessment for HS2 is of “Sound, Noise and Vibration”.

# Types of auralisation:

## Are new HS trains noisier than existing trains?

hs2

**'BENCHMARK'**  
SOUND DEMONSTRATIONS



Listen to:

- Pendolino
- ICE

<demo>

What will HS2 sound like?

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# Types of auralisation:

## Does mitigation HS trains a better neighbour?

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### 'TECHNOLOGY' SOUND DEMONSTRATIONS

Effect of speed, train specification and barriers,

Observed 150m from line:

- Current train, 300 km/h
- Current train, 360 km/h
- Mitigated train, 360 km/h, with 3m barrier
- Current train, 360 km/h, with 3m barrier

<demonstration>

Effective with media as well as engagement and consultation

# Types of auralisation: How will the project affect me?

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## **'IN YOUR AREA'** *SOUND DEMONSTRATIONS*

Greatworth: • [Existing](#)  
• [With HS2](#)

Kirkthorpe: • [demo](#)

Hollins Green: • [demo](#)

Kingsbury: • [demo](#)

Normanton: • [demo](#)

Worsborough: • [demo](#)

Huthwaite: • [demo](#)

# Sound Demonstrations Clients & Projects

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# Non-Technical Stakeholders reached ...

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# Impact

- Reduced public concern
- Reduced blight
- Positive media
- Increased mitigation
- Reduced objection



“I’d like a 3m noise barrier to control the noise from my children”

theguardian

“The same “3D” sound technique that shaped the acoustics of Copenhagen and Oslo opera houses is recreating the sonic effect of state-of-the-art intercity trains passing through suburban London and prime swaths of home counties countryside”



“.. Among the closest residential buildings to the line will be houses in Aylesbury. We heard demonstrations of modelled train noise passes for that location at the Arup sound lab. Even based on this very proximate location, we found the noise level significantly noticeable, but not such as to be intolerable.”

## House of Commons

### Select Committee on the High Speed Rail (London - West Midlands) Bill

# The sound of the future?

THE government's plans for a high speed rail line through the Vale were put on display in Aylesbury this week.

Hundreds of people attended the two-day HS2 roadshow at Stoke Mandeville Stadium on Tuesday.

They were able to speak to officials from the Department for Transport and see large scale maps of where the line would cut through in the Aylesbury area - including Stoke Mandeville, Fairford Leys and the outskirts of Southcourt and Walton Court.

A recording of what the government claims the 225mph trains, which

will pass by every 90 seconds, will sound like was also available.

It demonstrated the noise in the vicinity of Southcourt, around 300 metres from the line, and assumed that a sound barrier had been installed.

The general consensus was that the train did not sound as loud as feared. Ian Jordan, project sponsor at HS2 Ltd, said he was 'absolutely confident' in the accuracy of the recordings, which he said had been verified by an independent panel of acoustic experts.

He said: "We are aiming to give people a good understanding of the route

itself, of the effects on property, of the environmental impact and also its noise.

"There has been a genuine mix of views.

"There are those who believe we have got it right, those who believe there needs to be improvements to the line of the route and those who believe the government shouldn't be pressing ahead with this and need another strategy - although in some cases they don't know what that strategy should be."

He said that HS2 Ltd recognised that should the project get the green

light, work would be needed to design noise barriers to screen homes in Aylesbury, some as near as 250 metres to the track.

He added: "Beyond there we recognise the need (for HS2) to cross the current rail line joining Aylesbury and Princes Risborough.

"This will be done without long term closure. There may be a week-end closure, but there will be no long term closure."

● The Aylesbury roadshow continues today, Wednesday. It is being held in Great Missenden on Thursday and Wendover on Friday and Saturday.

Ken Moss, who lives in Oakwood Park, Southcourt: "I can't see where they are going to get all those people from to go on it - they are crazy figures.

"I was reassured by the sound recording, I must admit. We have got to trust that is the right level of noise - and we have also got to trust them when they say how much it is going to cost."

The Bucks Herald

# The Future development of technology...

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- Expansion of use
- Larger listening groups (WFS?)
- Mobile solutions
- On line
- R&D, Attitude studies, VfM
- Vibration
- Immersive
- Rolling stock

## Good practice guidance:

- *Visuals*
- *Technology & data*
- *Verification*
- *Role in decision processes*
- *Responsible application*
- *Independent review*



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