Communication, Comprehension & Empowerment: A route to annoyance reduction?

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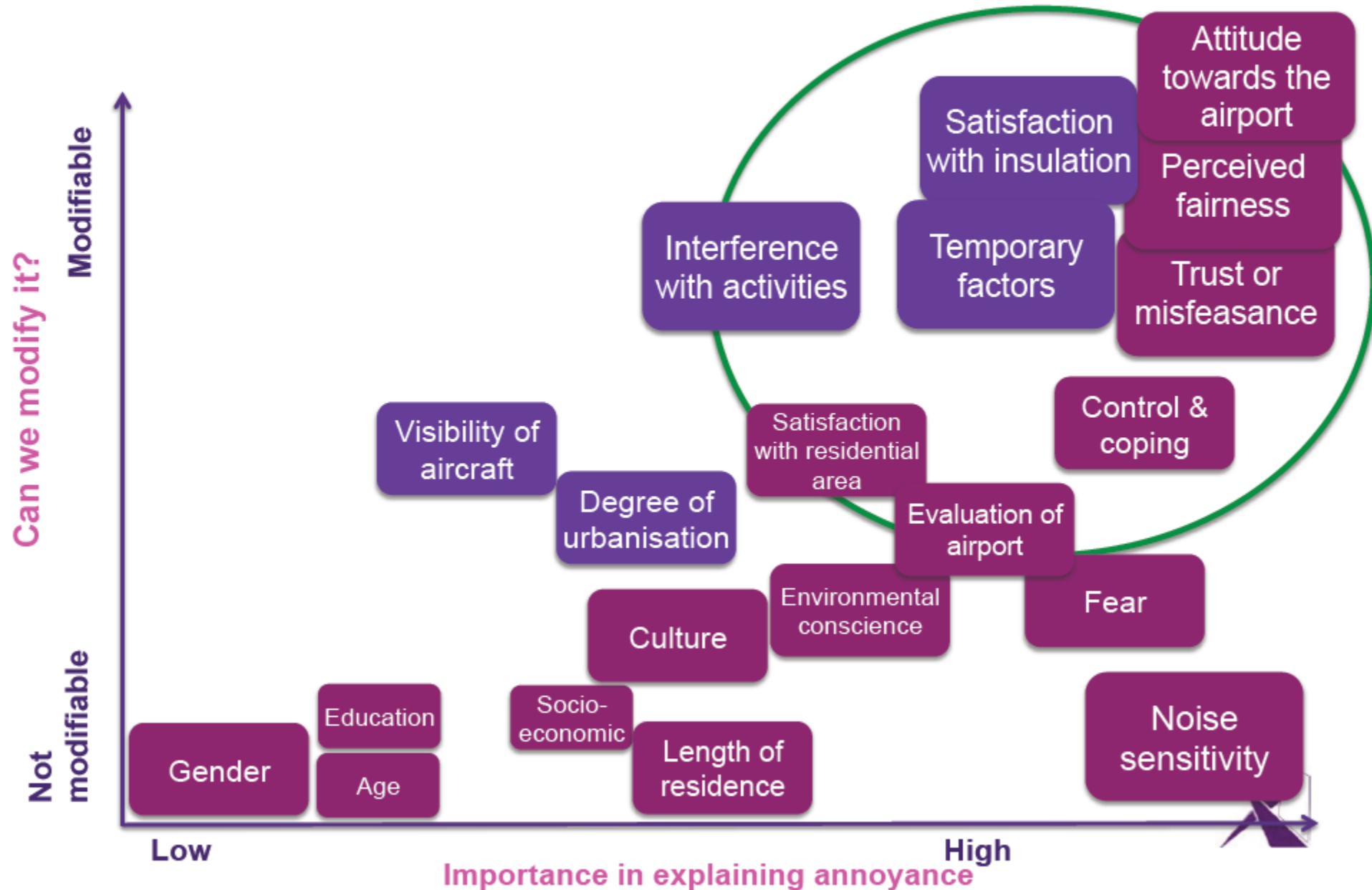
Session 8: Community Engagement & Cooperation

Background

- Increased community annoyance during a period of falling aggregate noise levels?!
- Research points to non-acoustic factors as explaining this anomaly:
    - Biological systems of audition (variability)
    - Psychological processes – influenced by health status, stress, lack of control, etc.
    - Social conditions – socio-economic status, culture, lifestyle, etc.
    - 'Other' factors – fear of accidents, timing of events, airport development, etc.

Non-acoustic factors in noise management strategy.

Factors that can be influenced & are important to build understanding, trust and tolerance

Can we modify it?

Modifiable

Not modifiable

- Attitude towards the airport
- Satisfaction with insulation
- Perceived fairness
- Interference with activities
- Temporary factors
- Trust or misfeasance
- Satisfaction with residential area
- Control & coping
- Visibility of aircraft
- Degree of urbanisation
- Evaluation of airport
- Environmental conscience
- Fear
- Culture
- Socio-economic
- Education
- Length of residence
- Age
- Gender
- Noise sensitivity

Low

High

Importance in explaining annoyance

Noise annoyance part of a bigger picture – social negotiation of a license to operate

- Airports generate both positive and negative impacts
- Community acceptance of the balance of impacts requires:
  - Better understanding of causes
  - Engagement in arriving at a more acceptable 'balance'
  - Transparent decision-making processes
  - Proactive management of both positive and negative impacts by airports
- Key questions:
  - How to achieve a better understanding?
  - Who to involve in the balancing act?
 - Where to expend resources to greatest effect?

A Better Understanding - Noise communication efforts

- Considerable resources expended; but seem to be missing the mark! Why?
  - Misplaced focus on long-time average aggregated metrics – better suited to planning
  - Conventional metrics conceal information on numbers, timing and magnitude of noise events
  - Difficulties in the interpretation of contour representations overlap on maps
  - Inappropriate linking of objective long term noise exposure information to predicted levels of disturbance

  …..fuelled general dissatisfaction!!
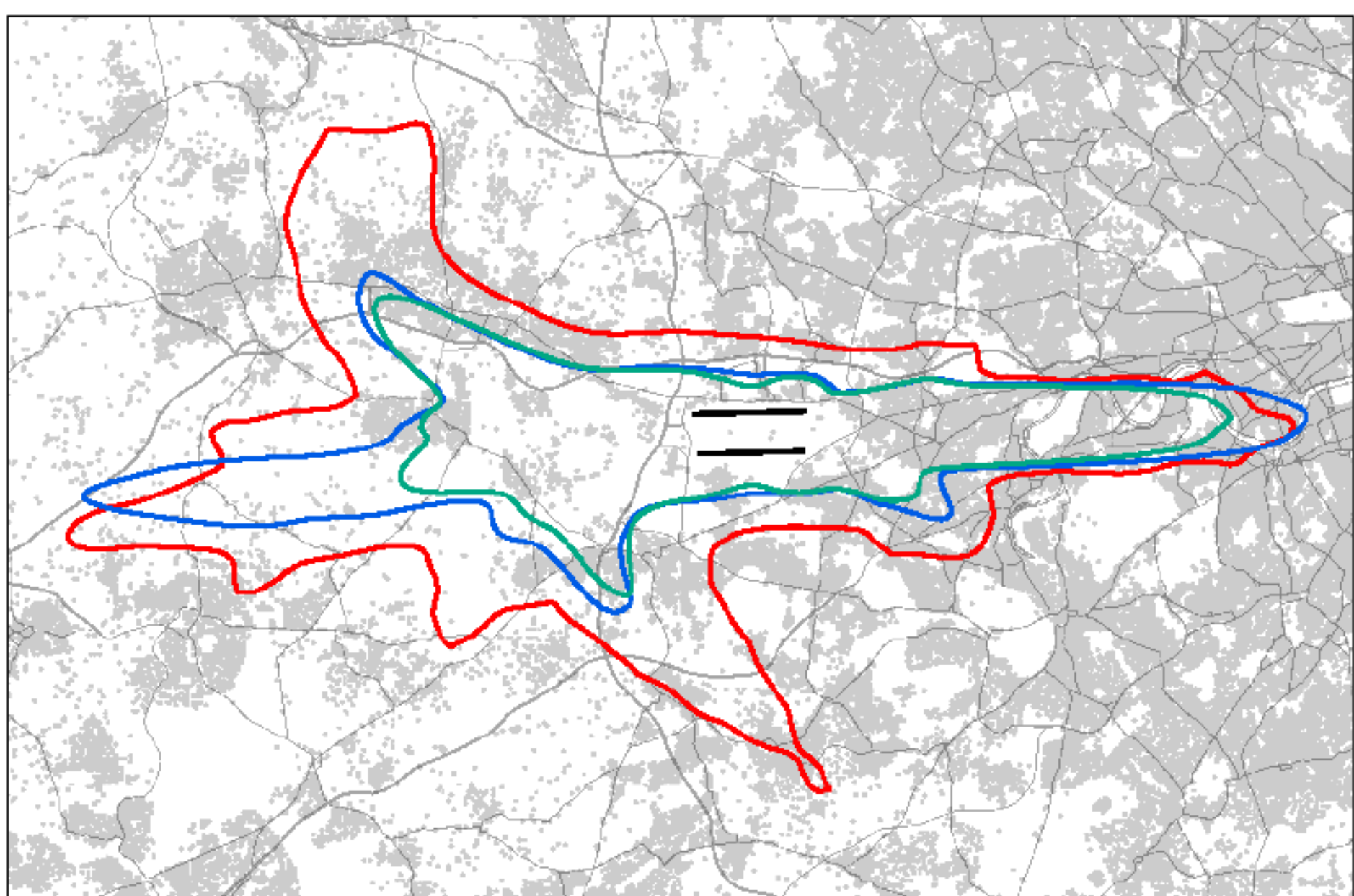
1988 318km²   1998 164km²   2007 120km²

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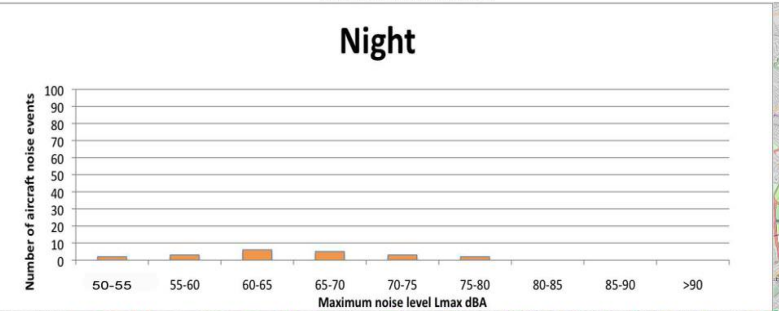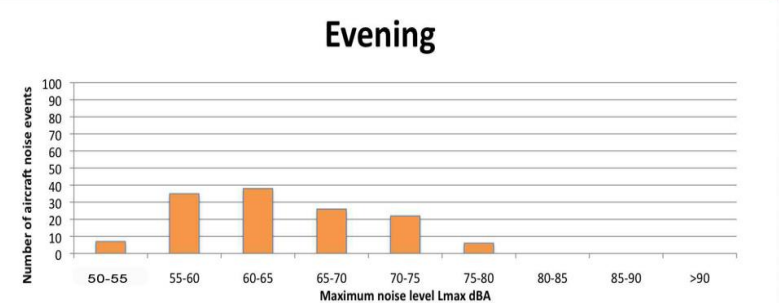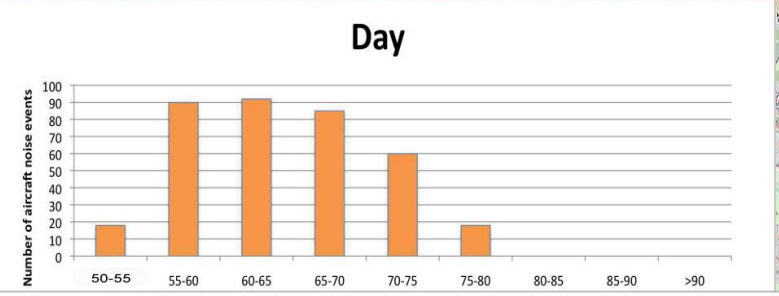
So what do local residents want?

- How does the airport affect **ME!**
  - Overall spatial pattern of, little/no interest

- Information relating to an individual location that resonates with actual experiences:
  - Number of events
  - Loudness of aircraft movements
  - Timing of events

- Can be easily presented in the form of a histogram

Day

Number of aircraft noise events

50-55 | 55-60 | 60-65 | 65-70 | 70-75 | 75-80 | 80-85 | 85-90 | >90

Evening

Number of aircraft noise events

Maximum noise level Lmax dBA

50-55 | 55-60 | 60-65 | 65-70 | 70-75 | 75-80 | 80-85 | 85-90 | >90

Night

Number of aircraft noise events

Maximum noise level Lmax dBA

50-55 | 55-60 | 60-65 | 65-70 | 70-75 | 75-80 | 80-85 | 85-90 | >90

**Easterly Operations
(Average 30% of year)**

**Evenings ONLY (7pm-11pm)
Average total movements 220
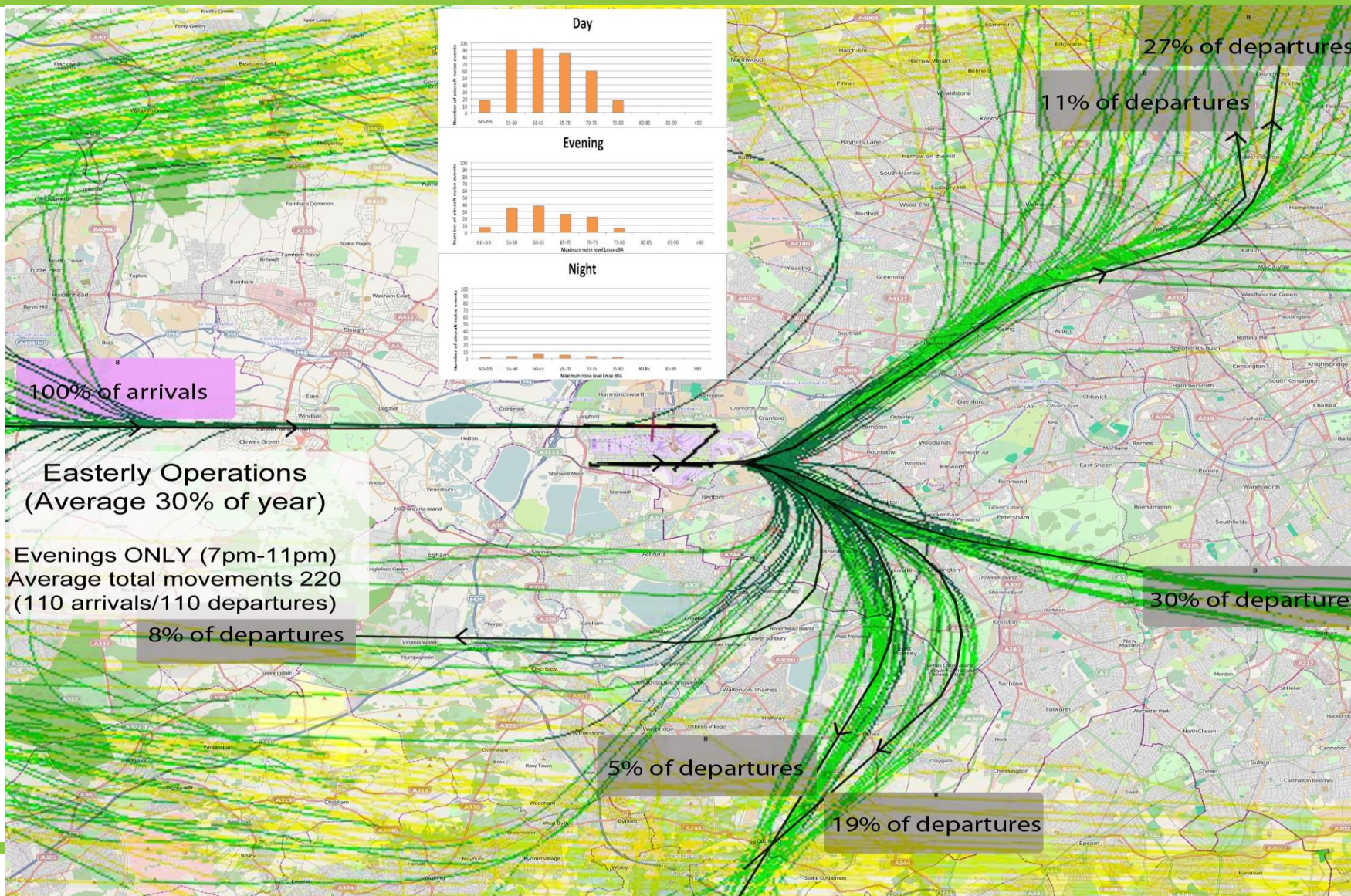(110 arrivals/110 departures)**

But……

- Single event pattern often radically different for a specific location depending on operational mode
- Full picture requires several maps with radar flight tracks used to 'explain' the histogram pattern

- Outcome can a complex series of images that require some understanding of airport operations to be fully appreciated

Day

Evening

Night

100% of arrivals

Easterly Operations
(Average 30% of year)

Evenings ONLY (7pm-11pm)
Average total movements 220
(110 arrivals/110 departures)

8% of departures

27% of departures

11% of departures

30% of departures

5% of departures

19% of departures

RFTCs & Histograms

- Illustrate consequences of landing and take-off activity linked to a particular mode of operation

- Track location and density can be linked to noise event histograms

- Demonstrate that aircraft range beyond the limits often perceived to be associated with contours

- Used to explain operational procedures designed to mitigate noise impacts
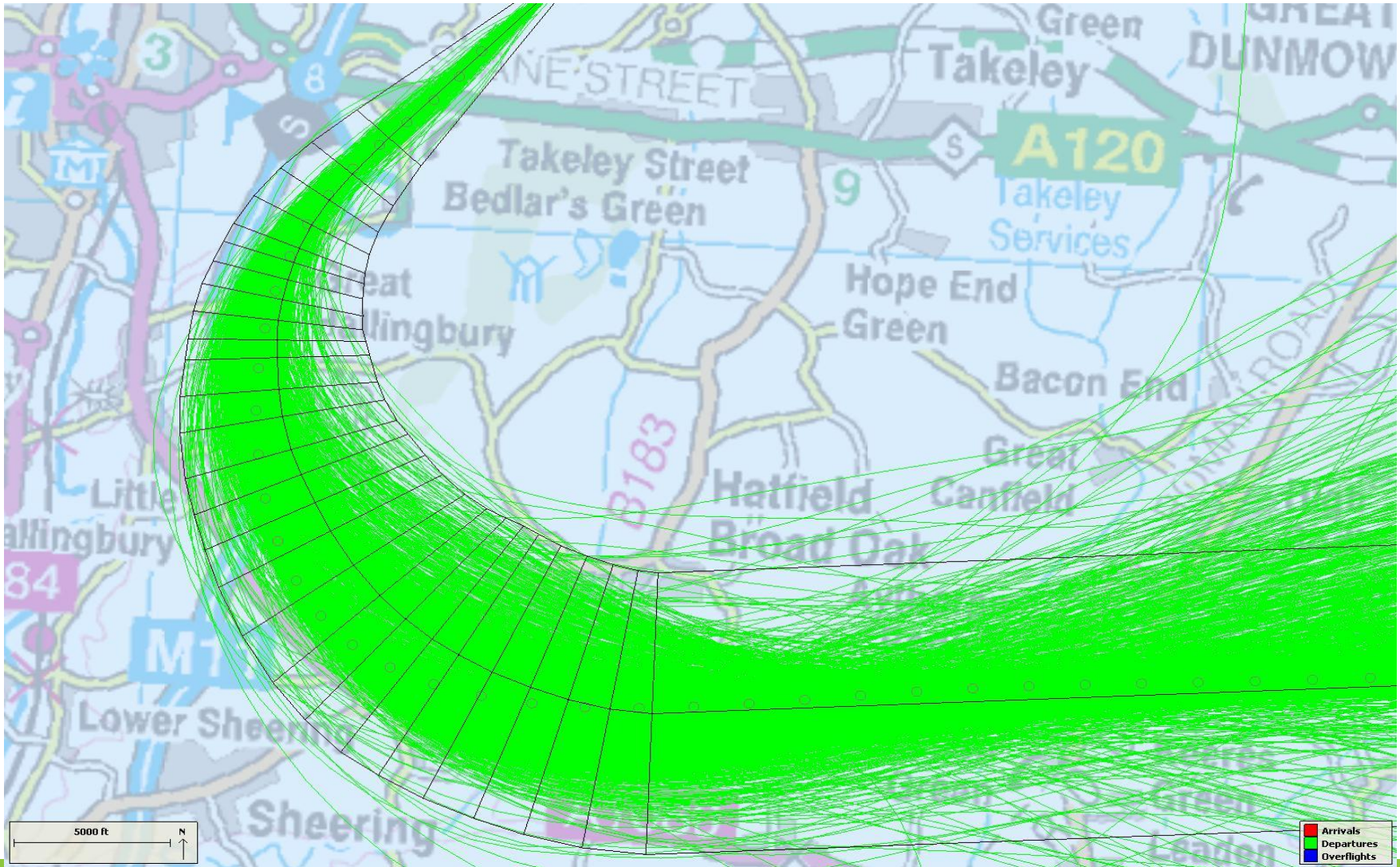
So what?

- Insights and comprehension afforded by more comprehensible communication tools need to be harnessed
- Inform decision-making processes
- Empower and influence
- Shift in attitudes?

Arrivals
Departures
Overflights

5000 ft   N
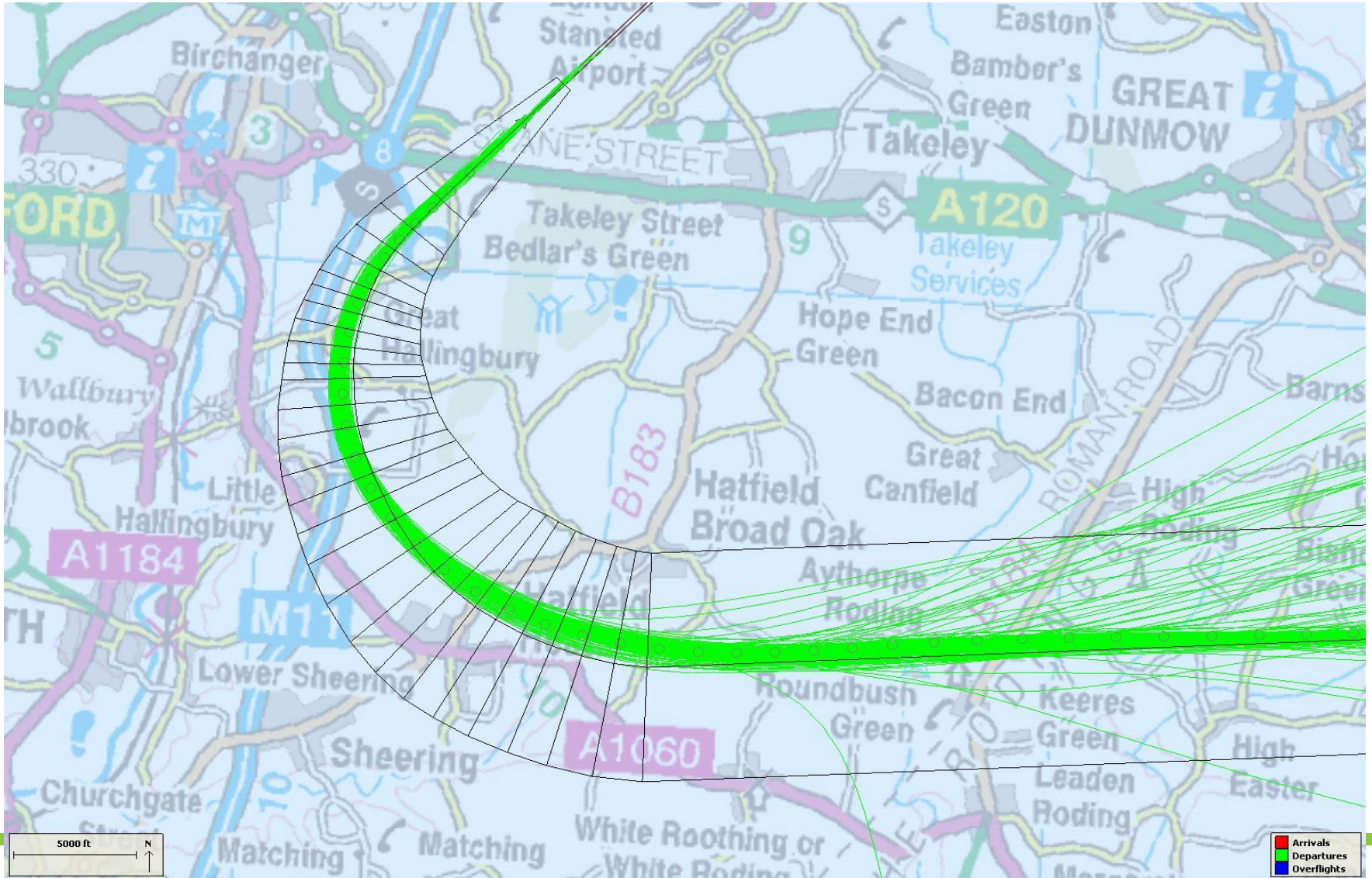
Greater transparency creates opportunities

- By illustrating the consequences of changes to technology and/or operational procedures, local communities can:
  - Understand the implications for them
  - Form an opinion
  - Participate in decision-making
  - Build trust and potentially tolerance
- Examples of PBN:
  - Respite
  - Flight path concentration

Greater transparency comes with risks!

- Impression of spatial impact greatly extended

- Makes explicit the 'winners' and 'losers' from any changes in FT management

- Heightened awareness of positive impacts of any proposed changes will raise expectations. If these are not met…..

- A dis-aggregated image is often a complex one – potential to confuse and alienate if not understood (animations and verbal explanations)

Conclusions

- **Supplementary metrics are meaningful**
  - Link operational activity to noise consequences
  - Heighten appreciation of mitigation actions

- **But to influence attitudes need to be used proactively**
  - For specific interventions supplementary metrics offer a means of empowerment
  - Understand-> Inform-> Participate->Influence
  - Positive impact on attitude/tolerance?

Future Challenges

- Community engagement in noise management needs to be part of wider dialogue over the social acceptance of air transport
- Engagement techniques are intensive and thus expensive – are there more efficient means of achieving similar outcomes?
- To what extent does community engagement need to be tailored to local circumstances?
- Will a more consistent airport community approach lead to greater credibility?
- How can airport activity be linked to/positively influence wider quality of life

ANIMA – Aircraft Noise Impact Management through novel Approaches

This H2020 project involving 22 partners (including airport operators) from across Europe will:

- Set noise impact management in the context of wider QoL considerations

- Establish consensus on what constitutes best practice in terms of noise communication and community engagement (tools, procedures and outcomes)

- Identify and attempt to address knowledge gaps:
  - What does success look like (improved attitudes/reduced annoyance/enhanced/QoL?)
  - Understand the information and interventions necessary to achieve more socially acceptable airport development

Questions?