Advancing Aircraft Noise Impacts Research

Presented to: Noise Impacts Research Roadmapping Workshop

By: Raquel Girvin, PhD
Manager, Noise Division
AEE-100

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Welcome
Objectives for the workshop

• **Provide FAA background**
  – What are we trying to accomplish?
  – How do we plan to accomplish it?
  – Key outcomes from International Forum in Ottawa

• **Present draft roadmaps and work together to improve**
  – Sufficiently comprehensive?
  – Unnecessary elements?

*Product will be updated roadmap, and next steps will develop next level of detail*
Noise research drivers

• US policy and law, e.g.,
  □ Noise Control Act: *The Congress declares that it is the policy of the United States to promote an environment for all Americans free from noise that jeopardizes their health or welfare.*
  □ National Environmental Policy Act

• FAA 2009-2013 Strategic Plan Goal
  □ Provide increased capacity and better operational performance in the United States airspace system that reduces congestion and meets projected demand in an environmentally sound manner

• Achieving this goal through
  □ Airspace redesign
  □ Airport capacity expansion
  □ Other NextGen initiatives

 depends on a robust environmental program

*Noise remains a key environmental concern*
Our goals for noise impacts research

Provide scientific basis to
• Advance analysis and determination of aircraft noise impacts
• Develop optimal environmental solutions
FAA State-of-the-practice

• DNL 65 dB
  – Threshold* of significant impact under National Environmental Policy Act (NEPA)
  – Threshold* below which all land uses are deemed compatible; deference to local authorities
  – FICON (1992) re-affirmation of Schultz (1978) was last in-depth review for FAA

• Case-by-case supplemental analysis

*Use of these thresholds in no way suggests that there is no noise beyond it!
Critical research needs

1. Noise effects on health and welfare
2. Noise in National Parks and wilderness
3. NextGen noise modeling enhancements: other operational regimes and unconventional aircraft
4. Overall costs of aircraft noise on society

Described in “Advancing Aircraft Noise Impacts Research: A White Paper”
How we are trying to proceed

• **Systematic / comprehensive / collaborative / innovative / practical approach**
  – Interact with stakeholders to develop focused research roadmaps
  – Mine existing data
  – Build on state-of-the-art research
  – Cultivate research partnerships: with international community, beyond “traditional” noise researchers
  – Pool research resources
  – Leverage advanced technologies: IT, noise measurement, etc.
Funding

- Modest for FY10 and FY11
- Currently planning for FY12
- Opportunities for Airport Cooperative Research Program (ACRP) FY11 and beyond
Our challenges

• Balancing pressures for quick answers against technical rigor
• Competing environmental concerns: climate change, air quality, water quality
• Making efficient use of limited resources
Timeline

- International forum - InterNoise Conference, Ottawa, Canada, 27 August 2009
- First research roadmapping workshop – Keck Center of the National Academies, Washington DC, 10-11 December 2009
  • Follow-on workshop, San Diego, CA, 4 March 2010
  • Annual meetings to track research progress
  • Seeking to inform policy with research over next 2-5 years; policy to evolve with research maturity
Planning panels for forum and workshops

- **Annoyance**
  - Kenneth Hume (UK researcher)
  - Sandy Lancaster (DFW airport)
  - Arlene Mulder (Mayor of Arlington Hts, IL; ONCC)
  - Paul Schomer (Consultant)
  - Kevin Shepherd (NASA)
  - Catherine Stewart (US Army)

- **Sleep Disturbance**
  - Mathias Basner (German researcher, soon-to-be US-based)
  - Patricia Davies (US PARTNER researcher)
  - Jim Fields (US researcher)
  - Barbara Griefahn (German researcher)
  - Sarah McGuire (US PARTNER researcher)
  - Nick Miller (Consultant)
International Forum Attendance

- Researchers, 35
- FAA, 6
- Other Gov, 4
- Other Stakeholders, 6

51 attendees

International, 23
US-based, 28

Federal Aviation Administration
Noise Research Roadmapping Workshop
Washington, DC
10-11 December 2009
International Forum Discussions

Annoyance research questions

- Policy-related
  i. Improvements to %HA vs DNL (incl. metrics)
  ii. Impacts other than annoyance
  iii. Steady-state or gradual change vs. step change
  iv. Setting thresholds

- Effective public communication

- Factors that correlate with negative community reaction
International Forum Discussions

Sleep Disturbance research questions
i. Short-term vs. longer-term research
ii. Research & policy metrics
iii. Spontaneous vs. aircraft-noise-induced awakenings
iv. Vulnerable groups
v. Generalizing results
vi. Setting thresholds

Summary Report available online:
Recasting our problem: How to model effects of aircraft noise on communities

Non-acoustic factors

- Sleep disturbance
- Speech interference
- Activity interference
- Short-term annoyance
- ...

Acoustic factors

- Long-term annoyance
- Long-term health effects
- Children’s learning
- ...

Short-term effects

- Short-term annoyance
- ...

Long-term effects

Complaints / Other public action
Over the Next 2 Days

- Walk and talk through the draft research roadmap
  - Ask questions
  - Offer solutions / alternative paths
  - Share perspective / experience / expertise
Thank you very much for your interest.