U.S. Transportation Noise Control Research & Policy-Making: A Preliminary Agenda for the Next Decade

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Background

- Transportation Noise is the Largest Contributor to Community/Environmental Noise
- Human Effects are the Major Driver of the Need for Research and Policy-Making Activities (i.e., “Protection of the Public Health”)
- Noise Exposure is Still Increasing
- No National Agenda or Coordinated Funding Support
- Little Coordination between Stakeholders
- Some Progress is Still Being Made, but the Pace is Very Slow
- New European Commission Directives will Impact the US
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Background (2)

• Current Status of Research & Policy-Making in the US
  – Noise Measurement/Monitoring/Modeling - Good Progress
  – Research on Effects of Noise on Humans, Animals, Structures - Decreased Progress
  – EPA Office of Noise Abatement and Control (ONAC) No Longer Funded
  – Current Policies Need to be Updated & Better Coordinated
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Background (3)

• How Does the the US Compare with the Rest of the World?
  – New World Health Organization “Guidelines”
  – European Commission Initiatives
  – Progress in Individual Countries in Europe, Asia, etc.
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Research & Development Requirements

• Better understanding of effects of noise exposure on humans, animals, & structures
• Standardized exposure prediction & impact assessment methodologies
• Improved techniques for control of noise at the source
• Less expensive noise barriers & sound insulation techniques
• Improved active/passive noise reduction & noise cancellation technologies
• Design guidelines/tools for architects, engineers, & city/urban/environmental Planners
  – “Soundscapes”

• Public Education/Awareness Programs
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R&D - Noise Measurement/Monitoring/Modeling

- Agreement on Appropriate Metrics
- Modeling Exposure to Combined Noise Sources
- Weather/Seasonal Variation & Terrain
- Models for Unique Noise Sources (e.g., helicopters, rotocraft/hovercraft)
- Remote Area Monitoring
- Source Identification Algorithms for Major Noise Sources
- Personal Noise Monitor for Portable Monitoring
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Research on Effects of Noise on Humans

- Need to Consider Noise as a Public Health Problem
  - Need to Quantify the Economic Impacts of Noise
- Health Effects
  - Non-Auditory (Cardiovascular) Health Effects
  - Auditory Effects
- Community Annoyance (one vs. three curves?)
- Sleep Disturbance
- Speech/Communication Interference
- Task/Job Performance
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Research on Effects of Noise on Humans (2)

- Combined Noise Effects & Combined Environmental Stressors
- School Classrooms - “Learning Environments”
- Recreational Noise
- Effects at Levels Below 65 dB(A) DNL
- Noise Exposure Policy/Noise Control Evaluation Research
  – International Initiative to Evaluate Effectiveness of Noise Policies & Noise Control Technologies (I-INCE, ICBEN, WHO, UN, etc.)
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Support Requirements

• Need Congress to Identify Agencies with Responsibility for National Noise Control Policy --->DoT, EPA, DoC
• Need to Clarify Relationship between National, State, & Local Authorities – for both Policy-making and Enforcement
• Need Coordinated Research & Development Programs to Support Policy-Making Activities
• Need Increased Participation in Development of National & International Noise Control Guidelines, Regulations, Standards
  – Need Support from Employers
  – Improved Coordination with European and other Foreign Governmental Agencies
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Opportunities for Professional Coordination within the US

- ANSI Standards Committees - S3 (Bioacoustics) & S12 (Noise)
- ASA TCN
- INCE TCCN
- NCAC
- SAE (A-21, etc.)
- **NRC TRB**

- ICBEN
- WHO (Geneva)
- UN
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Summary

• The U.S. was the world’s leader in addressing 
environmental/community/transportation noise for nearly fifty years, but this momentum has been lost
• Noise must be considered a significant environmental “Public Health” problem - Most of the world’s developed countries accept this and are making good progress on managing noise exposure
• The US population needs for involved federal agencies and professional organizations to make a renewed commitment to addressing noise control problems in the 21st Century
• The NRC TRB can be a major player in making this happen!