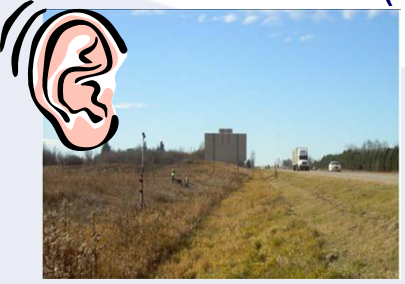
Introduction- US Quiet Pavements

Measurement

- Wayside Measurement (50ft vs 25 ft) Offset
- Close Proximity Method (1990s)
- **O**n **B**oard **S**ound **I**ntensity (OBSI) (AASHTO TP76)
- Standard Tire (ASTM SRTT)
- Decibel (dBA)



Design

- FHWA Traffic Noise Model (TNM)
- Agencies Typically only Use Distance, Barriers, or Berms for Noise Mitigation (23CRF772)
- Determine Impact on Community
- Feasible/Benefited Residences
- Minimum Amount of Noise Reduction (5dBA)
- Interference with Communication and Not Annoyance

Contribution to Sustainable Pavements

Agency

- More Design Options-Walls Versus Pavements
- More Cost Effective Solutions
- More Tools to Address Atmospheric Effects
- Sustain Greater Traffic Density with Similar Impact
- Greater Mobility (traffic speed)
- Impact Avoidance Vs Mitigation

Consumer

- Quality of Life
- Health Benefits
- Quieter Surroundings
- Impact on Property Values
- Potential for Greater Overall Noise Mitigation

Current Gaps in Knowledge- US

Measurement

- Acoustic Longevity of Pavements
- Measurement Variability and Time Stability of the Measurement System
- Use of Environmental Correction in OBSI Measurements
- Trucks Versus Cars
  - Pavements Interaction
  - Effect on Abutting Properties
- Annoyance Measurement

Design

- How Best to Represent Multiple Pavement Solutions in TNM (Cars & Trucks) (REMELS)
- Understanding Fundamental Mechanisms Change over Time
- Economic Issues: How is Cost Effectiveness Determined and over What Period is it evaluated
- How to Integrate Pavement Noise into Pavement Management
- How to Select a Representative OBSI Level for Project Design

Main Research Questions

- Defining Cost Effectiveness of Viable Pavement Options
- Defining Performance Periods and Performance Values
- Quantifying Benefit to Consumers
- How to Integrate Pavement Noise Measurement into Pavement Management
- Determine the Fundamental Mechanisms Involved in Increasing Tire Pavement Noise Over Time