THE INSTITUTE FOR SAFE, QUIET, AND DURABLE HIGHWAYS

U.S. Department of Transportation
University Transportation Center
at
Purdue University
Outline

- The DOT's UTC Program
- The SQDH Institute Mission
- The SQDH Institute Strategic Plan
- The SQDH Long Range Vision
DOT Goals

- Safety
- Mobility
- Economic Growth
- Human and Natural Environment
- National Security
THE UTC PROGRAMS

- The University Transportation Centers were first funded in 1987.
- DOT administrators are very aware of criticism of federally designated centers and have developed procedures to successfully manage these programs to avoid problems.
- 10 regional centers and 23 “designated” centers; Purdue’s center is a designated center.
UTC Mission & Goals

Mission: To advance U.S. technology and expertise in the many disciplines comprising transportation through the mechanisms of education, research, and technology transfer at university-based centers of excellence.

Goals:
1. Education
2. Human Resources
3. Diversity
4. Research Selection
5. Research Performance
6. Technology Transfer
Mission of the SQDH Institute

• Integrate education and research in noise and vibration control, pavement construction, and traffic management focused on the development of highway systems that are quiet, safe, durable, and economical.

• Contribute to the Mission of the University Transportation Program
## Budget for Years 1-6

1:1 Matching funds required for UTC

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Strategic Plan

- Administration structure
- Matching funds
- Research
- Education
- Technology transfer
Administrative Structure

Schools of Engineering
Richard Schwartz, Dean

School of Civil Engineering
Vincent Drnevich, Head

Joint Transportation Research Program
Kumares Sinha, Director

Joint Transportation Research Program Advisory Board

US Dept. of Transportation Liaison
Research and Special Programs Administration (RSPA)

Research Advisory Committee
Representatives From: FHWA, INDOT, Penn State, Industry Assoc., Auto and Tire Mfg., Other Researchers

Institute for Safe, Quiet, and Durable Highways
Bob Bernhard, Director
Vincent Drnevich, Co-Director
Nancy Franchak, Program Manager

North Central SuperPave Center
Jan Olek, Director
Rebecca McDaniel, Tech. Director

SQDH Institute Projects and Educational Programs

NCSC Projects and Educational Programs

Steering Committee from States and Provinces

Research Study Advisory Committee
Executive Committee

Bob Bernhard
Vince Drnevich
Head of the School of Mechanical Engineering
Kumares Sinha (Director, JTRP)
Bohdan Kulakowski (PTI)
Advisory Committee

- FHWA - DC, Noise
- FHWA - IN
- INDOT
- PENNDOT
- FTA
- FRA
- Marquette
- Purdue
- JTRP
- PTI
- AASHTO

- NHTSA
- AMA
- Tire Manufacturers
- Truck Manufacturers
- ACPA
- Asphalt
- transportation noise consultants
- EU Representative
Potential University Subcontractors:

- PTI (Penn State)
- Marquette
- Texas - Austin
- Central Florida
- Ohio University
- UC - Davis
- Rutgers
- Other universities with transportation noise programs
Matching Funds

- University cost sharing (research equipment, salaries, administration and facilities costs, etc.)
- JTRP projects
- Industrial contracts
- In-kind support from INDOT and others
Research

The research program will be focused on:

- development of an understanding of the *fundamental* noise generation mechanisms created by the interaction of tires and pavement (*laboratory based research*)
- development of *practical* pavement materials, tire designs, and pavement construction techniques which are quiet as well as durable and safe (*combined laboratory and field research*)
Research Project Selection Process

Research projects will be selected through a 2 step proposal evaluation process:

- 1 page proposal ranked by the Advisory Committee. Top ranked project ideas will be invited to prepare full proposal
- Full proposal evaluated by a peer review panel. Executive Committee will select final proposals based on peer reviews.
A Study Advisory Committee (SAC) of 3-4 individuals will be assigned by the Executive Committee for each project

- Semi-annual meetings with SAC
- Monthly reports
- Archival publications
- Reports at conferences and meetings
**SQDH Education Program**

- New research findings incorporated into existing classes
- 1 new CE class in tire/road noise control
- Increased number of graduate students in noise and transportation studies
- Undergraduate internships/scholarships
- K-12 summer programs for women and underrepresented minorities
SQDH Technology Transfer Programs

- Purdue Road School
- Herrick Labs Partners Program (HLPP)
- Purdue Highway Extension and Research Program for Indiana Counties and Cities
- Workshops, conferences, and short courses
- Archival publications and reports
- Web Site
- Semi-Annual Newsletter
The initial focus will be on road/tire noise mechanisms - we will build world class facilities for study of road/tire noise mechanisms - we hope to make breakthroughs in the understanding of pavement and tire interaction - this will be a real interdisciplinary research and education effort between pavement specialists (CE) and acoustics specialists (ME)
Long Term Vision (Cont.)

• We will investigate how this knowledge can be implemented in a practical fashion

• As time passes we will also incorporate other aspects of noise control such as traffic management

• We hope to eventually move to other aspects of highway noise and other transportation noise problems