

# North Central Superpave Center Update

by

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# What is the NCSC Up To?

- **Equipment/Protocol Evaluations**
  - ◆ Binder direct tension, Performance Tests, Test standardization
- **Communication and Technology Transfer**
  - ◆ Website, Newsletter
  - ◆ Presentations
- **Research**
- **Training**
- **Future Plans**

# Research



# HMA Surface Friction

- Funded by Iowa, Indiana and SQDH
- Optimize microtexture and macrotexture in Superpave HMA
- Maintain friction level, but reduce need for imported high friction aggregates
- Identify test methods for lab use to test *mixtures*, not just aggregates
- Phase I complete, Phase II - April 2005

# Dynamic Friction Tester



# Circular Texture Meter



# Field Data Comparison

Surface	DFT 20	CTM	F60
Porous	0.51	1.37	0.36
SMA	0.37	1.17	0.28
HMA	0.52	0.30	0.19

Porous and SMA tested before trafficking.

# Slab Polisher





# Future Applications

- Research
- Forensics
- Material selection
  - ◆ Especially new, unknown sources
- Other issues besides friction
  - ◆ Noise, for example
  - ◆ Variation in surface texture - segregation, uneven maintenance treatments, wear

# Porous Asphalt for Noise Control

- Study funded by Institute for Safe, Quiet and Durable Highways
- Field trial of Porous Friction Course
  - ◆ Compare PFC, SMA and conventional
  - ◆ Compare different noise measurement techniques in field and lab
- Thanks to INDOT and Heritage Research

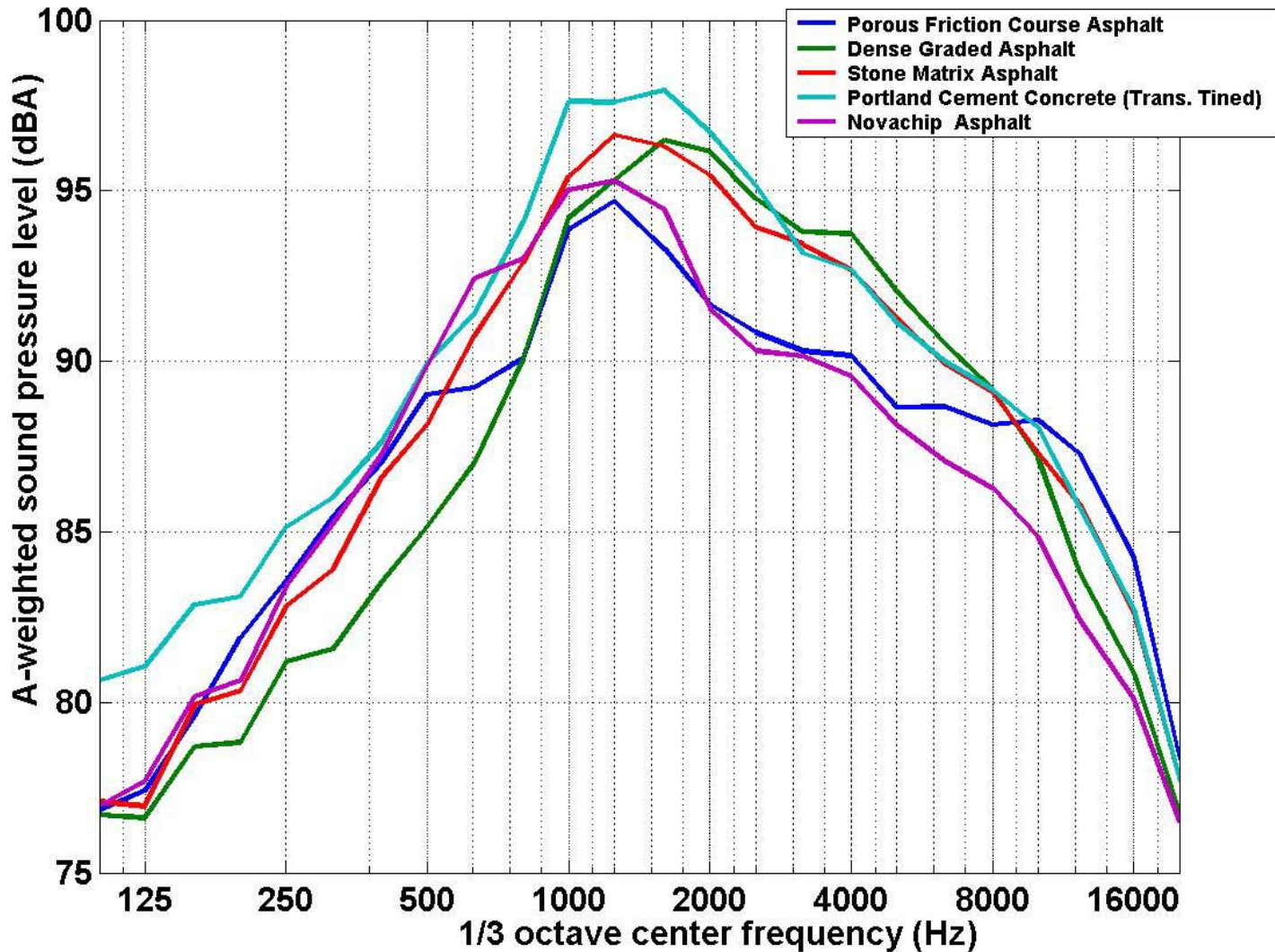
# Sideline Noise Measurements



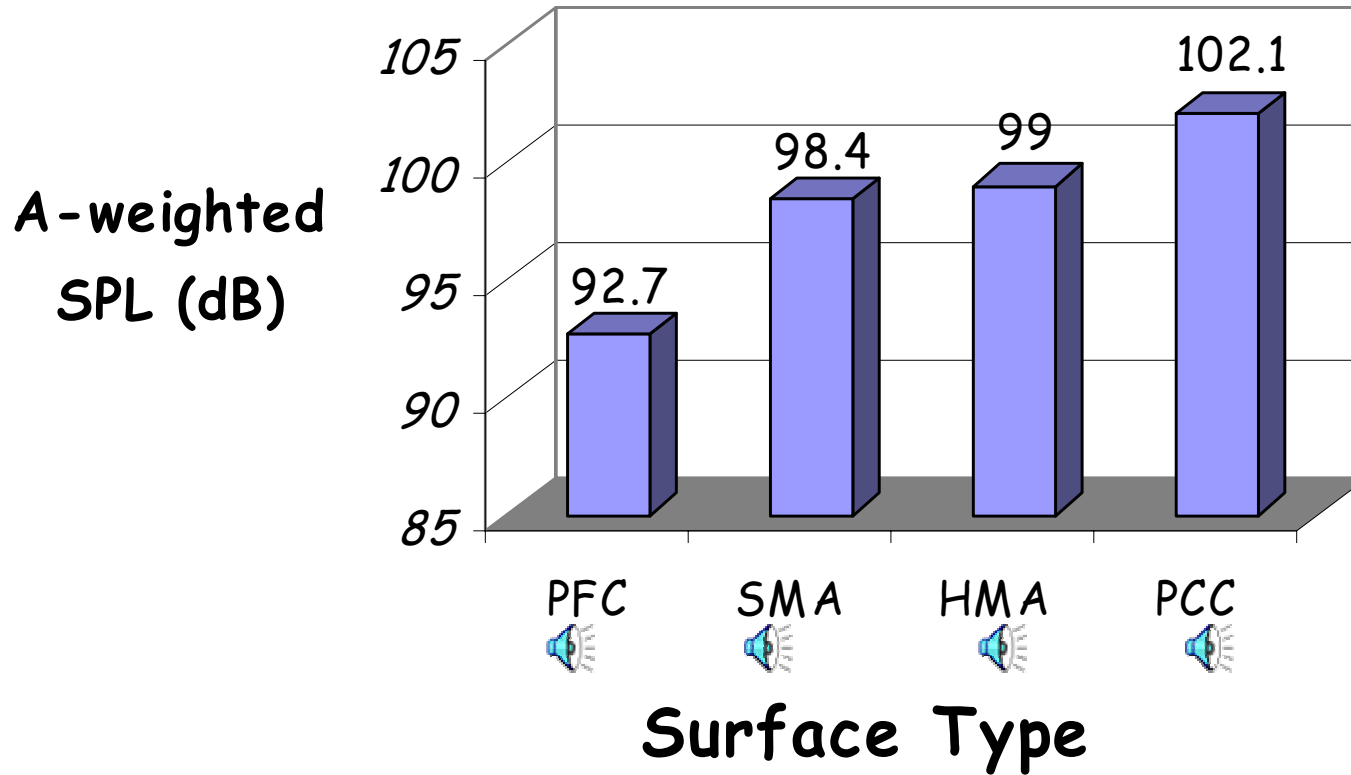
# Close Proximity Trailer



# Pavement Type/Noise (Treaded Tire, 60 mph, NCAT CPX Lead Mic. Location)



# Overall A-weighted Sound Pressure Level



# Preliminary Findings

- PFC significantly quieter than SMA or conventional HMA
- Examine spectrum of the noise
  - ◆ SMA perceived as quieter than HMA
  - ◆ Some frequencies more annoying
- In car noise significantly different and lower on PFC

# Tire-Pavement Test Apparatus





# Asphalt TPTA Specimens



# What's Next

- TPTA testing completed, analysis underway
  - Follow-up long term performance
  - Continue analysis of full spectrum data
  - Report available in February or March on SQDH website
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- Fundamental study of noise generation and propagation needed, proposed with NCAT

# Other Research at the NCSC

- *Performance Certification of Indiana Superpave Hot Asphalt Mixes Superpave Simple Performance Testing*
- *Effects of Hot Plant Fuel Characteristics and Combustion Conditions on Asphalt Concrete Quality - SDDOT*
- *Evaluation of Surface (Top-Down) Longitudinal Wheel Path Cracking in Indiana*
- *Stiffness of HMA*
- *Ignition Oven for Dolomitic Aggregates*

# Training in 2004

- Binder course, February 10-12
- Mix Design for Beginners, Feb 17-20
- Mix Design for Experienced, Feb 26-27
- Developing training for Local Agencies for Minnesota
- New Direct Tension testing video posted
- Customized courses available on request

# Future Plans







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