Virginia “Quieter” Pavement Demonstration Program – 2013 Update

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Assoc. Principal Scientist

2013 Virginia Concrete Conference
Richmond, Virginia
Directs VDOT to:

- Expedite the development of quiet pavement (QP) technologies such that applicable contract solicitations include specs for QP technology if sound mitigation is a consideration.

To that end, VDOT will:

- Construct demonstration projects to assess QP technologies.
- Evaluate functionality/safety in Virginia's climate over two full winters.
Quiet Pavement Task Force

Co-Chairs:
Andy Babish, PE, State Materials Engineer
Richard Schreck, Executive Vice President, VAA

Members:
Emmett Heltzel, PE, VDOT Maintenance Division Administrator
Trenton Clark, PE, VAA Director of Engineering
David Lee, PE, VDOT Salem District Materials Engineer and Chairman VTRC Asphalt Research Advisory Committee
Paul Kohler, VDOT Noise Abatement Section Manager
Michael Sprinkel, PE, VTRC Associate Director of Research
Kevin McGhee, PE, VTRC Associate Principal Scientist
Ed Dalrymple, Vice President, Chemung Contracting
David Helmick, Vice President, Superior Paving Corp.
Bob Long, American Concrete Pavement Association
Del. Jim LeMunyon, JCTA Subcommittee on Quiet Pavements
“Quiet” Pavement

What it is:

• In General – a wearing surface that minimizes tire-pavement noise production and propagation
• Asphalt – “small-textured” porous mix (e.g., open-graded asphalt concrete)
• Concrete – negative-textured longitudinal grind and groove (e.g., “Next Generation Concrete Surface”)

What it isn’t:

• A universal substitute for noise barriers
Noise Measurement

Tire-Pavement (i.e., OBSI)

Wayside
Demonstration Projects 2011/12

1. SR 7 By-Pass in Leesburg (A)
2. SR199 west of Williamsburg (A)
3. SR 288 near Chester (A)
4. I-64 Virginia Beach (C)
5. SR 76 Richmond (C)
6. Fairfax County Parkway near Chantilly (A)
7. US 17 Near Marshall (A)
Concrete Technologies

Diamond Grind

NGCS

Trans. Tined
State Route 76 (Richmond)

Section 1: NGCS

Section 2: Conv. Ground

Section 3: Control
I-64 (near VA Beach)

Section 1: NGCS

Section 2: Conv. Ground

Section 3: Control
Functional Evaluation

- Texture
- Ride Quality
- Tire-Pavement Noise
- Skid Resistance
- Surface Drain-ability
- Wayside Noise
Typical Virginia Pavements vs. QP Demonstration Projects

OBSI (dBA)

2010 OBSI Survey—Typical Virginia Pavements

QP Demonstration Projects – Spring 2012
Tire-Pavement Friction Coefficient

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Ride Quality

![Inertial Profiler]

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VDOT/FHWA Mitigation Criterion

• Noise mitigation *warranted* for affected communities and/or receptors?
• *Feasible* - at least 5 dB(A) noise reduction for 50% of receptors
• *Reasonable* - design requirement of at least one receiver with reduction of 7 dB(A)
Tire-Pavement Noise

7 dB(A)
Activity Update

• Interim report – see website
• Additional demonstration projects
  – NGCS Full (3-step) process
  – NGCS “Economy” (2-step) process
• Status Report – June 2013
• Final Report - June 2015 - will include “…a plan for routine implementation of quiet pavement…”
IGGA Update (NGCS)
IGGA Update (NGCS w/OTCS)
Program Website:
http://www.vtti.vt.edu/CSTI-research/va-quiet-pavement-implementation-program.php