FHWA Pavement Surface Characteristics Program And Research Update

20th Annual Road Profilers User’s Group
RPUG
October 27, 2008
Bob Orthmeye
Focus Area Leadership and Coordination (FALCON) Teams

1. Pavement Design & Analysis
2. Materials & Construction Technology
3. Pavement Management & Preservation
4. Pavement Surface Characteristics
5. Construction Quality Assurance
6. Environmental Stewardship
FALCON Team 4

Pavement Surface Characteristics

Where the public meets the road

Co-Chairs: Larry Wiser
Bob Ortmeyer

Secretary: Joe Gregory
Focus Area Purpose/Scope

- **Vision**: Safe, smooth, and quiet pavements.
- **Mission**:
  - To provide insight and applications that assist FHWA leadership in assuring that pavement surfaces meet and/or exceed our client’s expectations.
- **Scope**
  - The PSC FALCON Team will provide a multi-year strategic plan that coordinates the activities within FHWA that are concentrated in delivering an effective pavement surface characteristics program.
# FALCON 4 Team Members

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<tr>
<th>Role</th>
<th>Name</th>
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<td>Leadership</td>
<td>Pete Stephanos</td>
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<td>Cheryl Richter</td>
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National Performance Objectives

4.1 – Smoothness
Pavements are designed, constructed and maintained to meet users’ expectations relative to ride quality.

4.2 – Friction
Pavements are designed, constructed and maintained to reduce friction-related crashes.

4.3 – Noise
Highway agencies use quiet pavement systems in noise-sensitive areas.

4.4 – Splash and Spray
Pavements are designed, constructed and maintained to reduce the potential for splash and spray.
Performance Measures

4.1 – Smoothness

- **Good Ride Quality**
  Percent of VMT on NHS with IRI less than 95 in/mi.
  - From HPMS

- **Acceptable Ride Quality**
  Percent of VMT on NHS with IRI less than 170 in/mi.
  - From HPMS

- **Ride Quality Improvement**
  Percent of states meeting the national targets that have maintained conditions or shown improving trends over a 3-year period.
  - From HPMS
Performance Measures

4.1 – Smoothness (Con’t)

- **Ride Technology Deployment**
  Number of states that are using technologies/methods to improve smoothness.
  - Number of Agencies
  - Extent of National Highway Network

- **Ride Quality Consideration Factor**
  Extent to which highway agencies consider ride quality in the pavement design, construction, management, and maintenance processes.
  - Rating by agency (self assessment)
  - Number of Agencies
Performance Measures

4.2 – Friction

- Friction Improvement Consideration Factor
  Extent to which highway agencies consider friction in the pavement design, construction, management, and maintenance processes.
  - Rating by agency (self assessment)
  - Number of Agencies

- Friction Related Crash Rate
  Friction-related crash rate (related to wet-weather and pavement).
  - Number of agencies
  - Extent of National Highway Network

- Friction Quality
  A measure that indicates the quality of friction, nationally.
  - Start with interstate
  - Add NHS
Performance Measures

4.3 – Noise

- Quiet Pavement System Consideration Factor
  Extent to which highway agencies consider quiet pavement systems in the pavement design, construction, management, and maintenance processes for noise-sensitive areas.
  - Quiet pavement systems (initially defined by states in the self-assessments)
  - Noise-sensitive areas (defined by states in the self-assessments)
  - Define “quiet pavement systems”
    - Rating by agency (self assessment)
    - Number of Agencies
Performance Measures

4.4 – Splash and Spray

- **Splash/Spray Consideration Factor**
  Extent to which highway agencies consider splash and spray in the pavement design, construction, management, and maintenance processes.
  - Rating by agency (self assessment)
  - Number of Agencies

- **Rutting Condition**
  Average rutting depth per sample unit.
  - From HPMS

- **Splash/Spray Condition**
  A measure that indicates the splash and spray, nationally.
  - Start with interstate
  - Add NHS
National Strategies

- Develop, promote, and deploy assessment capabilities and technologies to improve highway systems.
- Demonstrate the benefits of using pavement surface characteristics as a highway system performance indicator.
- Develop and implement policy guidance to align with quality assurance, environmental policy, and safety policy.
- Develop a national management program.
Funded FY08 Activities

- 4.001 – Smoothness Provisional Standards Refinement/Deployment
- 4.002 – Smoothness Measurement Technology
- 4.003 – Functional Performance / Satisfaction Indicator Development
- 4.005 – Advanced Texture/High Friction Demonstration Project
FY08 Activities (cont.)

- 4.006 – Friction/Texture Test Equipment Loan Program
- 4.007 – Sound Intensity Test Method Refinement/Validation
- 4.008 – Integrated Texture-Noise Model Development
- 4.009 – Traffic Noise Model (TNM) Pavement Effects Project
FY08 Activities (cont.)

- 4.010 – ProVAL Deployment and Enhancement
- 4.011 – Splash/Spray Potential Assessment Tool Development
- 4.012 – Refinement of Smoothness Requirements for WIM Systems
FALCON Coordination

- State, Academia, and Industry activities

- Concrete Pavement (CP) Roadmap
  Track 4 – “Optimized Surface Characteristics for Safe, Quiet, and Smooth Concrete Pavements”

- National Asphalt Pavement Roadmap
  Program 7 – “Surface Characteristics”
FALCON Coordination

- TPF 5(063) “Improving the Quality of Pavement Profiler Measurement”
- TPF 5(135) “Tire/Pavement Noise Research Consortium”
FALCON Toolkit

- **Smoothness**
  - ProVAL workshops ([www.roadprofile.com](http://www.roadprofile.com))
  - ASTM E2560-07: Standard Specification for Data Format for Pavement Profile
  - NHI 131100 “Pavement Smoothness”
  - AASHTO Provisional Standard PP49 & PP50 Implementation Contract

- **Noise**
  - Noise 101 workshop
  - AASHTO Provisional Standard on Tire/Pavement Noise Measurement
FALCON Toolkit

Friction/Texture

- Equipment loan program: Griptester, Circular Texture Meter – CTM, Dynamic Friction Tester – DFT
- Draft Technical Advisory on Skid-Crash Reduction Program under development
2007 Pavement Condition on the National Highway System (NHS)
National Average = 56.7%, Target 57% in 2009
Good/Very Good (IRI of <95”/mile)

Source: HPMS
Compiled By: Office of Pavement Technology
Federal Highway Administration
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Inertial Profiler
Questions?

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