

FHWA Surface Characteristics Program & TPF 5(063) Study Update

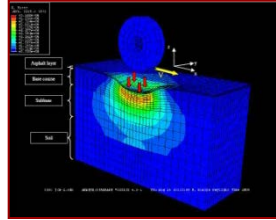
RPUG Annual Meeting

September 24, 2012

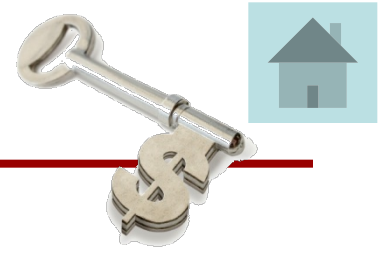




Pavement Surface Characteristics



Key Areas



- Friction / Texture
- Rolling Resistance
- Noise
- Splash and Spray
- Smoothness / Ride Quality





Friction Thresholds

- Investigating most suitable equipment
- Working with States on data collection
- Develop Pavement Friction Management Programs with States



Integrated Texture-noise Model

- Task initiated in the fall of 2009 to develop a work plan for a Texture-noise model
- Collecting a sample of synchronized texture (1-D and 2-D) and noise (OBSI) data to support an approach to define a noise prediction method using macrotexture
- Compiling a database of existing texture and noise data (accessing raw data is essential)

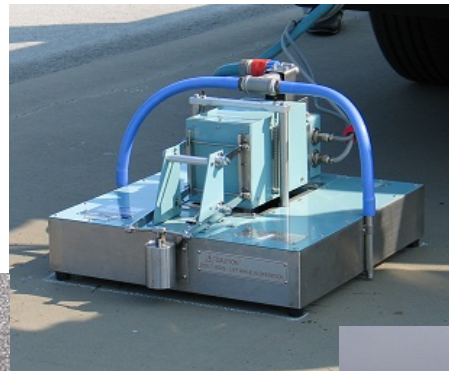


Source: Caltrans/UCPRC OBSI equipment

FHWA Toolkit

Friction/Texture

- Equipment loan program: GripTester (2), Circular Texture Meter – CTM (3), Dynamic Friction Tester – DFT (3), Dynatest Highway Friction Tester (HFT)
- Draft Technical Advisory on Skid-Crash Reduction Program under development



FHWA Toolkit

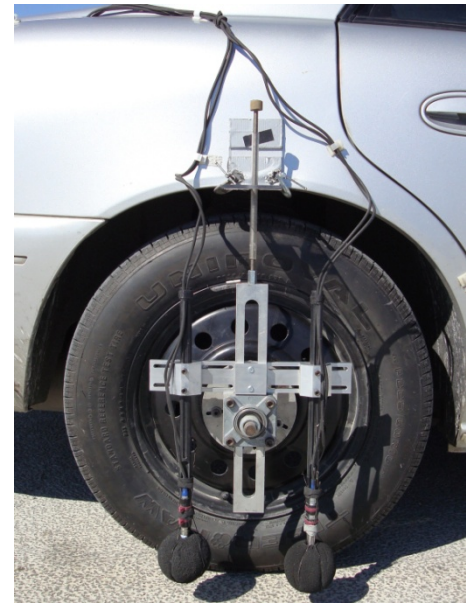
Rolling Resistance: Coordinated with Minnesota Department of Transportation & TPF 5(134)

- Brought European technology to the MnROAD facility near Albertville, MN
- Testing conducted September 11 – 15, 2011
- Report available at:
- <http://www.dot.state.mn.us/research/documents/201207.pdf>



FHWA Toolkit

- Noise
 - AASHTO Provisional Standard on Tire/Pavement Noise Measurement TP-76 using On Board Sound Intensity (OBSI)
 - TPF 5(135) “Tire/Pavement Noise Research Consortium”
 - Develop lower cost OBSI system
 - Conduct equipment demonstration rodeos





Splash and Spray

- Splash – spray assessment tool development study
- Objectives: development of a model to predict water film thickness and splash and spray occurrence on pavement surfaces
- Develop recommendations for threshold criteria to classify the impact of splash and spray on highway users .



FHWA Toolkit

- Smoothness
 - ProVAL software (www.roadprofile.com)
 - ASTM E2560-07: Standard Specification for Data Format for Pavement Profile
 - NHI 131100 “Pavement Smoothness”
 - AASHTO Ride Quality Standards Implementation Contract
 - M328 Equipment Specification
 - R54 Accepting Ride Quality using an inertial profiler
 - R56 Certification of Inertial Profilers
 - R57 Operation of Inertial Profilers



Outcome

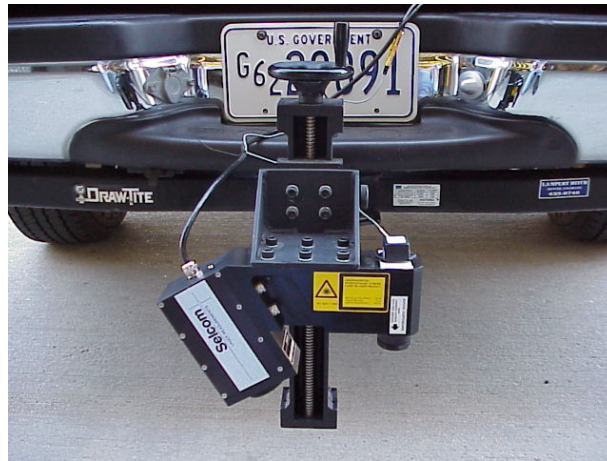
Smoothness (IRI), National Performance Measure

Highlight team efforts in establishing national/AASHTO standards in pavement smoothness, rutting and cracking – need these for pavement condition performance measures.



Inertial Profiler

Recent Materials Technology



FHWA Coordination

- TPF 5(063) “Improving the Quality of Pavement Profiler Measurement”
- TPF 5(134) “PCC Surface Characteristics”
- TPF 5(135) “Tire/Pavement Noise Research Consortium”
- TPF 5(139) “PCC Surface Characteristics: Tire -Pavement Noise Program Part 3 - Innovative Solutions /Current Practices”
- TPF 5(141) “Pavement Surface Properties Consortium: A Research Program”

Overview TPF 5(063)

- FHWA is lead agency with 21 participating State Highway Agencies (SHA's)
 - FHWA Office of Pavement Technology (HIPT)
 - \$1.8 Million 12 Year Study
 - FHWA Long Term Pavement Performance (LTPP)
 - FHWA Federal Lands

Participating State Agencies (21)

- Ohio
- Louisiana
- Kentucky
- California
- Colorado
- Florida
- Georgia
- Kansas
- Mississippi
- New Jersey
- New York
- North Dakota
- South Dakota
- Illinois
- North Carolina
- Maryland
- Oklahoma
- Connecticut
- Texas
- Wisconsin
- Pennsylvania

TPF 5(063) Priorities

1. Build Reference Profile Device
2. Critical Requirements - complete
3. Bumpfinder Software - complete
4. Certification/Validation Sites
5. Evaluating Upper Limits of Single Accelerometer – Phase I complete
6. Emerging Technology that Enhances Profile Measurement

Progress on TPF 5(063) Priorities

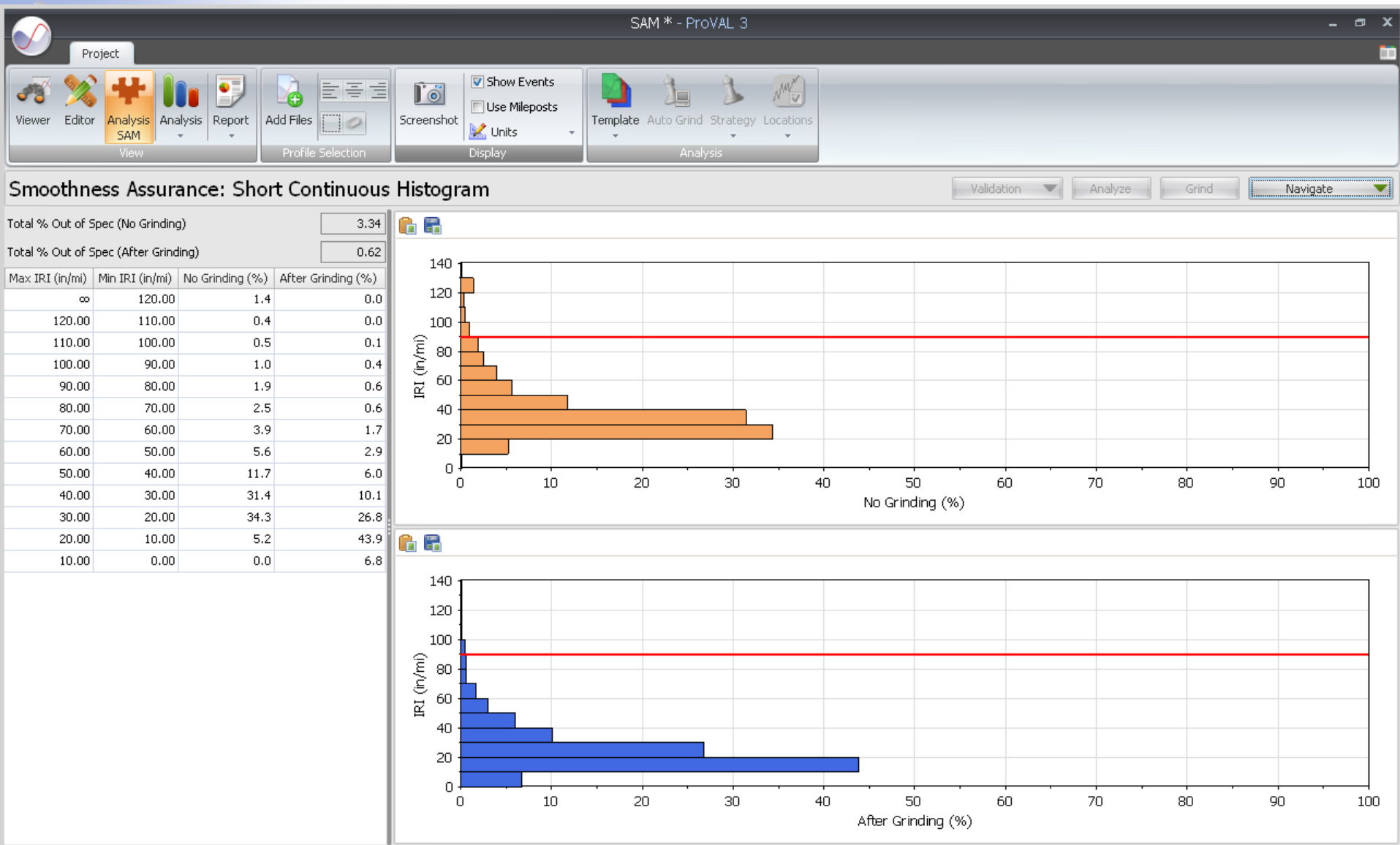
1. Build a Reference Profile Device (ongoing):
Two parts –
 - i. Benchmark Testing – UMTRI
 - ii. Reference Devices – New round of evaluations
Spring 2013
2. Critical Requirements (completed): UMTRI;
final report on pooled fund study website –
“Critical Profile Accuracy Requirements”



TPF 5(063) Priorities - continued

3. ProVAL Software: The Transtec Group, Inc. – www.roadprofile.com
- ProVAL 3.3 released in December 2011
 - Includes Automated Faulting Module (AFM)
 - ProVAL 3.4 scheduled release Dec. 2012
 - Multiple workshops – 10 annually
 - Scheduling has started for FY13

ProVAL 3.3 software & workshops



TPF 5(063) Priorities continued

4. Certification/Validation Site
 - i. Under discussion with FHWA
5. Evaluating Upper Limits of Single Accelerometer
 - i. Phase I: Starodub, Inc. – complete
 - ii. Phase II: Completed Dec. 2011
6. Emerging Technology that Enhances Profile Measurement
 - i. Urban IRI measurement - NCHRP
 - ii. Urban and low speed profile indices

Questions?

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