Pooled Fund Study
TPF-5(063)

Improving the Quality of Pavement Profiler Measurement

SE Pavement Management and Design Conference
June 24, 2003
Profile Quality Study

Initiated by the TRB LTPP ETG on Distress and Profile to:

- Address Equipment Calibration and Verification issues
- Use LTPP expertise and profile data to assist with calibration endeavors
- Assist with LTPP profile software implementation
Study Objectives

Deliver AASHTO Standard Practices and Standard Equipment Specification

Establish Criteria for Calibration Centers

Develop & Deploy Calibration Device

Technical Review of Software & Bump Measurement
Commitment Forms Received

Florida          Connecticut
New York         New Jersey
Ohio             Texas
Mississippi      South Dakota
North Dakota     Georgia
Kentucky         Colorado
Oklahoma         Kansas
Illinois         FHWA
Commitment Forms Received
States Expressing Interest

- California
- Pennsylvania
- Wisconsin
- Maryland
Kick Off Meeting

Held first week in May
Fourteen States Attended
Adopted Charter
Reviewed Existing Research & Projects in Smoothness Area
Established Priorities
FHWA ETG on Smoothness

- Developed AASHTO Provisional Standards
- Published in June 2003
- Addressed Comments at ETG on Smoothness April 2003
- Subcommittee on Materials to Review Comments in August
FHWA ProVAL Software

- ProVAL version 1.0 released in March 2003
- Revisions and Comments are Pending for a Version 2.0
- Training Sessions are Planned
Operation of Inertial Profilers

- NHI Course 131100 “Pavement Smoothness: Factors Affecting Inertial Profile Measurements used for Construction Quality Control”
FHWA Accelerometer Study

• Conducted by Federal Lands
• “Effect of Accelerometer Sensitivity on Inertial Profile Measurements for Proposed Certification Procedure”
• Draft Report
• Additional Effort to look at LWP
Accel. Study Objectives

- Quantify variability in accelerometer response
- Assess the feasibility of developing an inertial profiler that can pass proposed certification procedure at speeds between 15 and 70 mph with filter wavelengths of 200 and 300 feet.

Assess need for one or multiple accelerometers
FHWA Concrete Pavement Technology Program

- Smoothness Criteria for Concrete Pavements
- Use of inertial profilers for construction quality control and acceptance
- Profile characteristics
  - How smooth is smooth enough?
ACPA Michigan Study

- Concrete Pavements
- Summer of 2002
- Different surface characteristics
- Phase I results can be found on their website: www.pavement.com
Profilograph
Rolling Dipstick
ARRB Walking Profiler
Ames Engineering - LISA
KJL-Dynatest
ICC - MULE
SSI - LWP
SSI - Full Size
Dynatest - Full Size
Pooled Fund Priority List

- Topic list of eight potential projects
- Established top priorities
- Develop budget
- Meet with Contracting Officer in July
- Publish Request for Proposals
Priorities

1. Reference Profile Device
2. Critical Profile Accuracy Requirements
3. Construction Acceptance and Correction Software
4. Certification / Validation Sites
Priorities (cont.)

5. Evaluating Upper Limits of Single Accelerometer and Single Height Sensor

6. Emerging Technology that Enhances Profile Measurement

7. Portable Validation Device Feasibility

8. Lightweight Profiler Unique Problems
Funding

- $1,097,200 Committed to Date
- Four Year Study
- FY 2003 - $231,200 Obligated
- $40,000 Allocated by FHWA LTPP
Questions ????

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