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

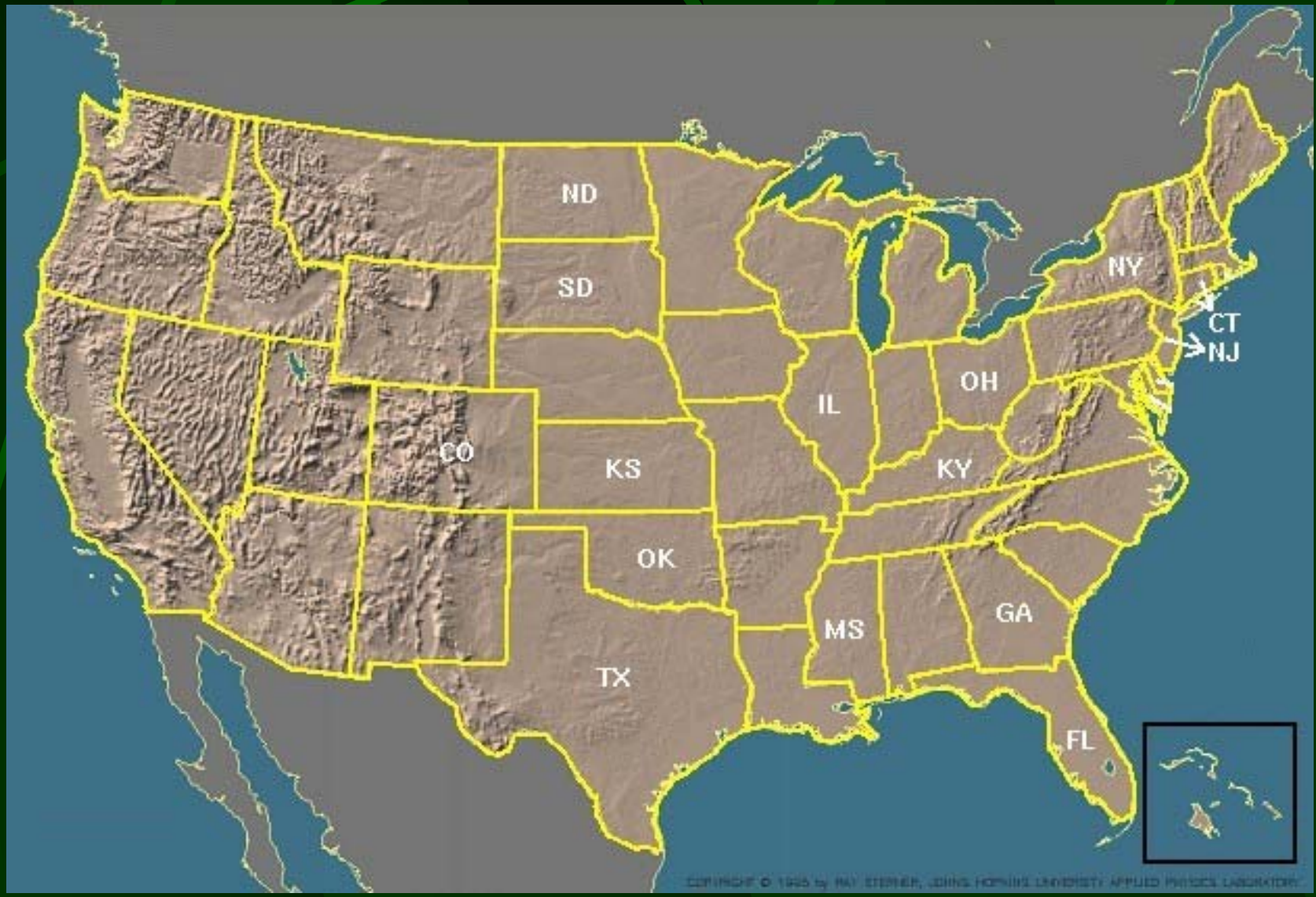
Study Objectives

- 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
- New York
- Ohio
- Mississippi
- North Dakota
- Kentucky
- Oklahoma
- Illinois
- Connecticut
- New Jersey
- Texas
- South Dakota
- Georgia
- Colorado
- Kansas
- 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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