TPF 5(063)
"Improving the Quality of Pavement Profile Measurement"

RPUG UPDATE

November 3, 2015

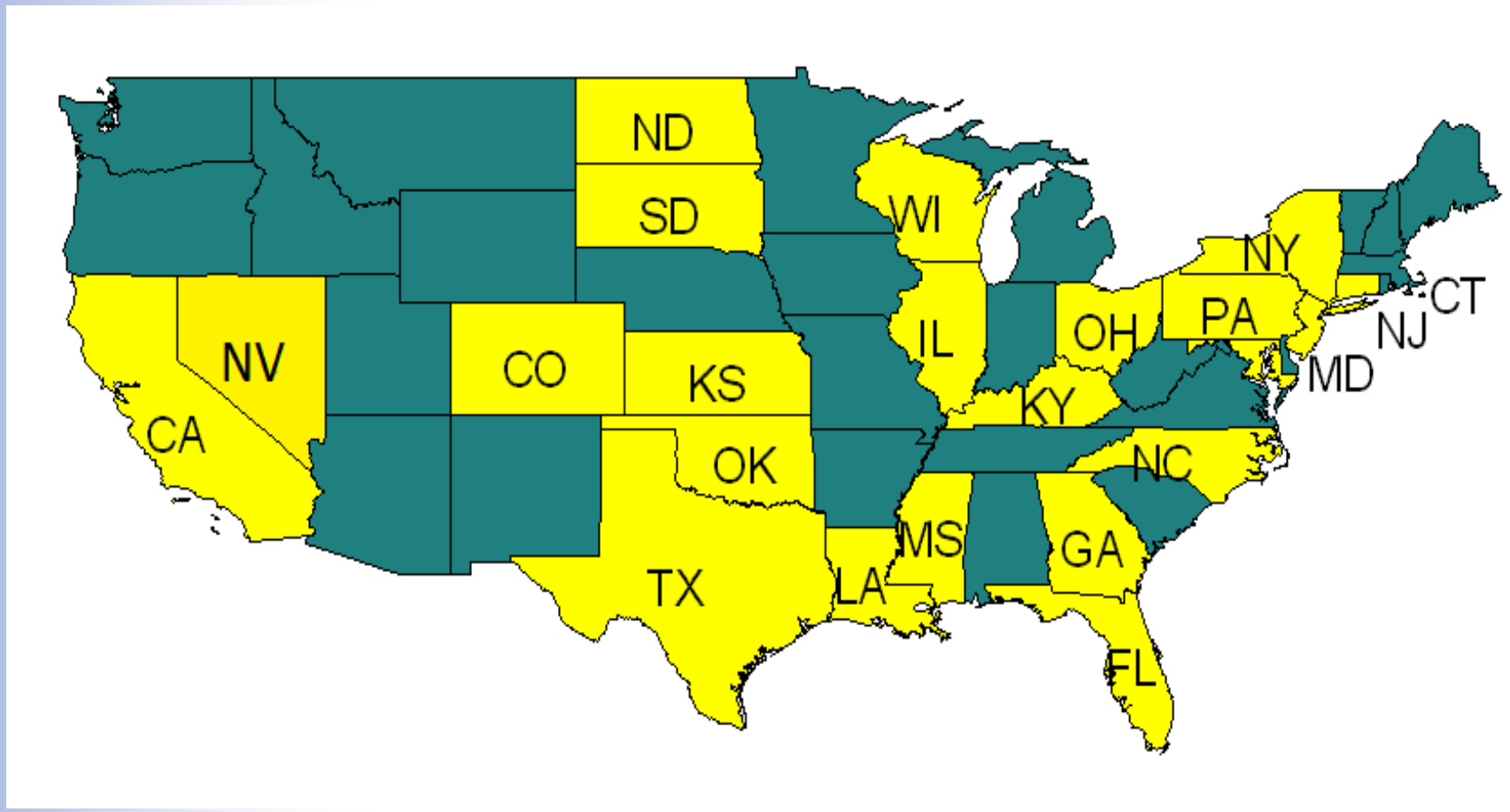
Overview TPF 5(063)

- Study initiated in 2003
- http://www.pooledfund.org/Details/Study/280
- FHWA is lead agency with 22 participating State Highway Agencies (SHA's) $1.8M Study: Partners include:
  - FHWA Office of Asset Management, Pavement and Construction (HIAP)
  - FHWA Long Term Pavement Performance (LTPP)
  - FHWA Federal Lands

Participating State Agencies (22)

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

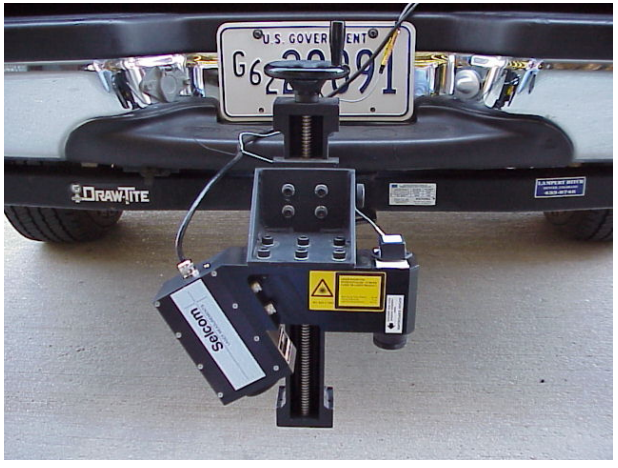
Participating State Agencies



TPF 5(063) Priorities

1. Build Reference Profile Device - Ongoing
2. Critical Requirements - Completed
3. ProVAL Software - Ongoing
4. Certification/Validation Sites - Ongoing
5. Evaluating Upper Limits of Single Accelerometer – Phase I & II complete
6. Emerging Technology that Enhances Profile Measurement - Ongoing
7. Support for RPUG - Ongoing

Inertial Profilers??? Yes/No?



Proposed SHA Quality Assurance Data Collection Vehicle

AASHTO M328???

Outcome – Quality Management

- Need to manage Inertial Profilers
  - AASHTO M328 – Obtaining
  - AASHTO R56 – Certification
  - AASHTO R57 – Operation
- Need to manage profiles – NOT just IRI
  - Allow low pass filters of 250 mm to 1 m
  - Have vendors provide actual profiles (if outsourced)
- Need to manage specifications
  - Modify if warranted after implementation

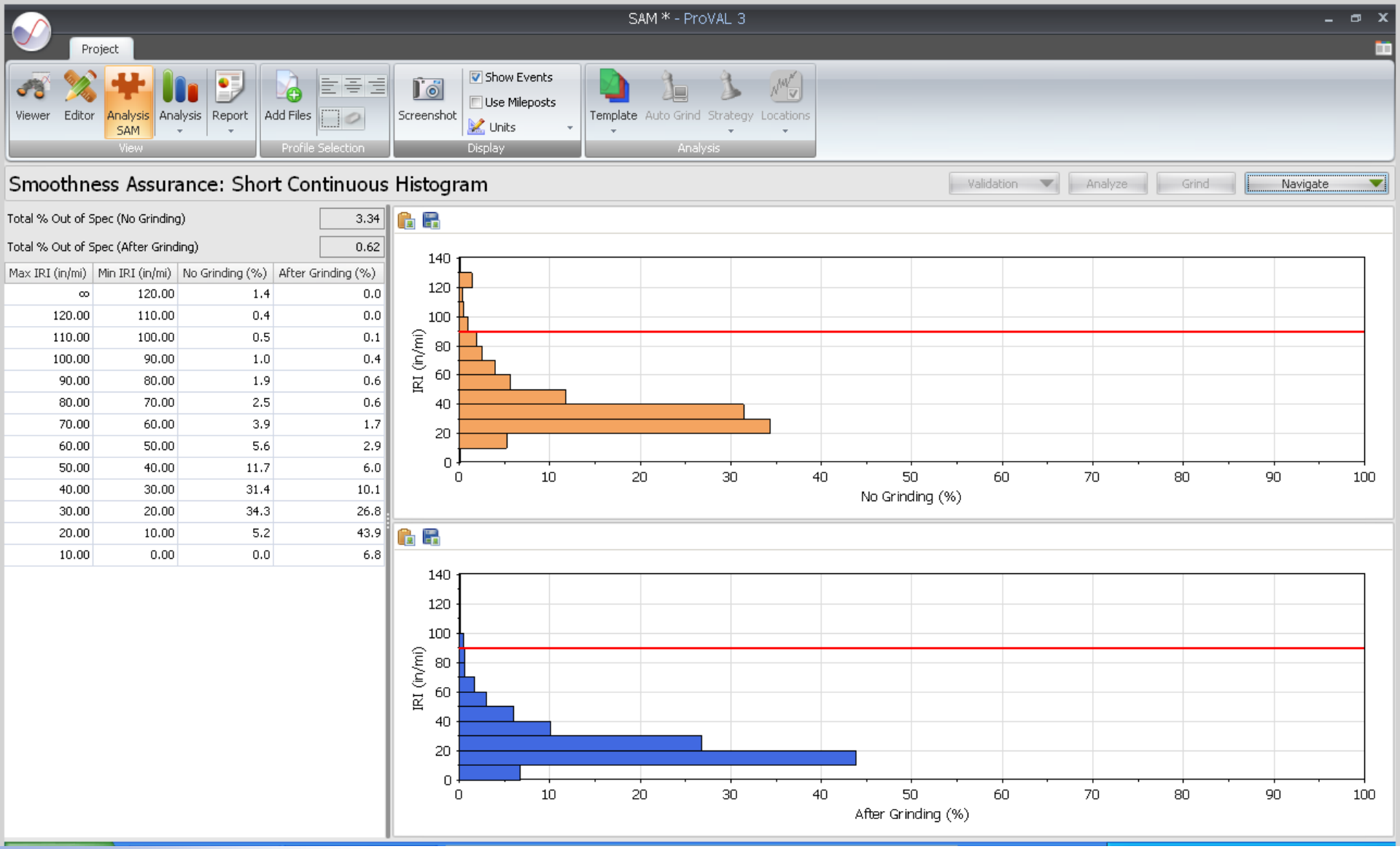
Progress on TPF 5(063) Priorities

1. Build a Reference Profile Device (ongoing): Two parts –
   i. Benchmark Testing – UMTRI - Completed
   ii. Reference Devices – New round of evaluations September 2015 at MnROAD – Participants were:
      i. Shima - Japan
      ii. ICC - Florida
      iii. SSI - California
      iv. ARRB - Australia
2. Critical Requirements (completed): UMTRI; final report on pooled fund study website – “Critical Profile Accuracy Requirements”

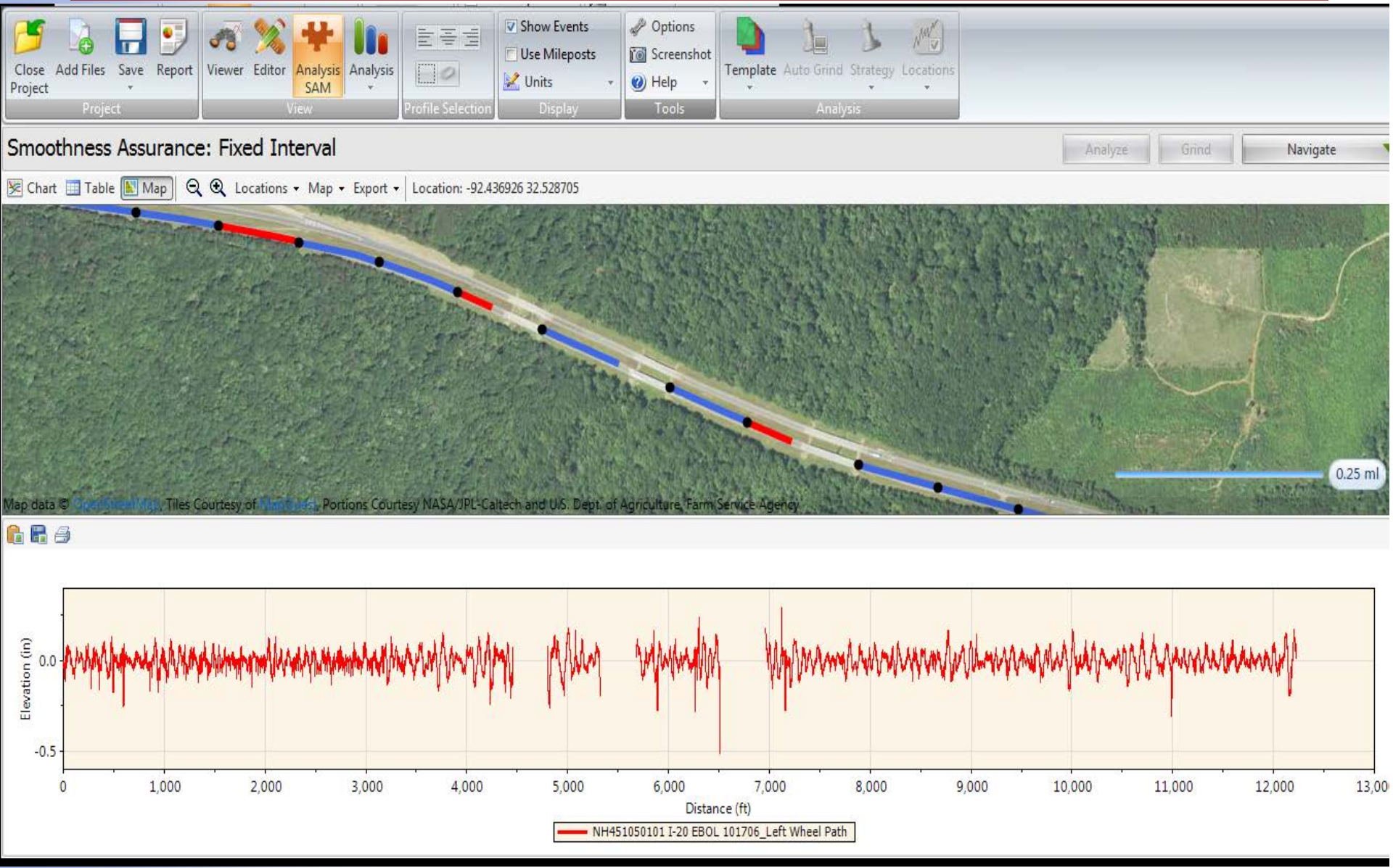
TPF 5(063) Priorities - continued

3. FHWA ProVAL Software: The Transtec Group, Inc. – www.roadprofile.com
   - ProVAL 3.5 released Sept. 2014
     - Includes GPS & mapping capabilities
   - Version 3.6 due in six months
   - Multiple workshops – 4 of 6 remain
     - Scheduling underway for FY16
     - Next round??

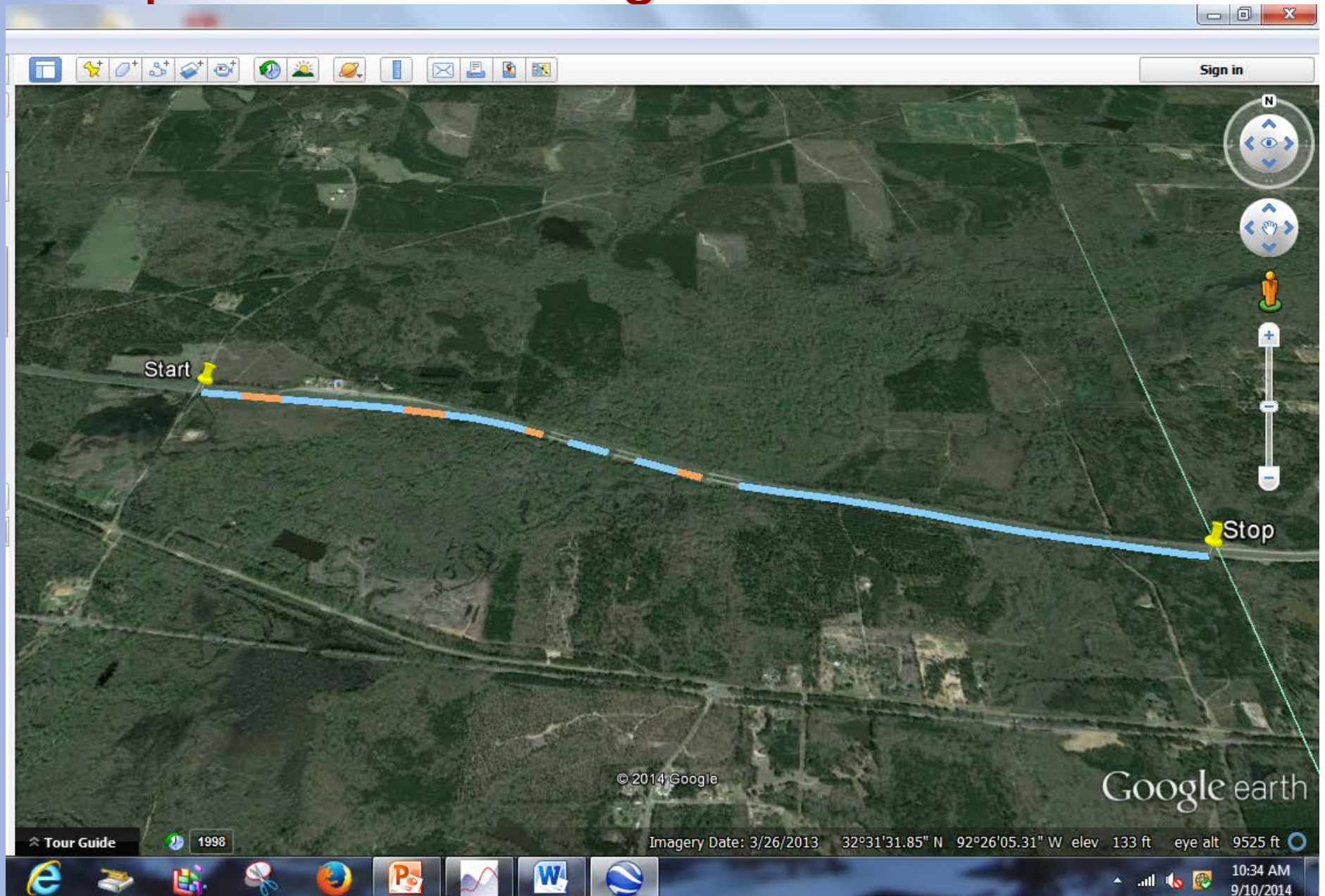
ProVAL 3.5 software & workshops



ProVAL Version 3.5 includes mapping



Export files to Google Earth



TPF 5(063) Priorities continued

4. Certification/Validation Site
   i. Report completed by FHWA
   ii. Trial for National Certification at MnROAD – October 2015 – Participants:
      i. Ames Engineering, Inc. – Iowa
      ii. ARAN – Fugro: Texas/Canada
      iii. ARRB – Australia
      iv. ICC - Florida
      v. Mandli – Wisconsin
      vi. Pathway - Oklahoma
      vii. SSI – California
      viii. Pavemetrics - Canada

TPF 5(063) Priorities continued

5. Evaluating Upper Limits of Single Accelerometer
    i. Phase I: Starodub, Inc. – complete
    ii. Phase II: Completed Dec. 2011
6. Emerging technology that enhances pavement profile measurement
    i. Urban IRI measurement – FHWA WFL
    ii. Urban and low speed profile indices (NCHRP 10-93)
    iii. Distance Measurement Instruments (DMI)
    iv. Non-inertial ride measurement
7. Support for RPUG

FHWA Toolkit – Ride Quality

- Smoothness
  - ProVAL software (www.roadprofile.com)
  - ASTM E2560-14: 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

Questions?

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