Proposed Standards for Measurement of Cracking and Rutting

ETG on Quantification of Pavement Cracking and Rutting

May 2009

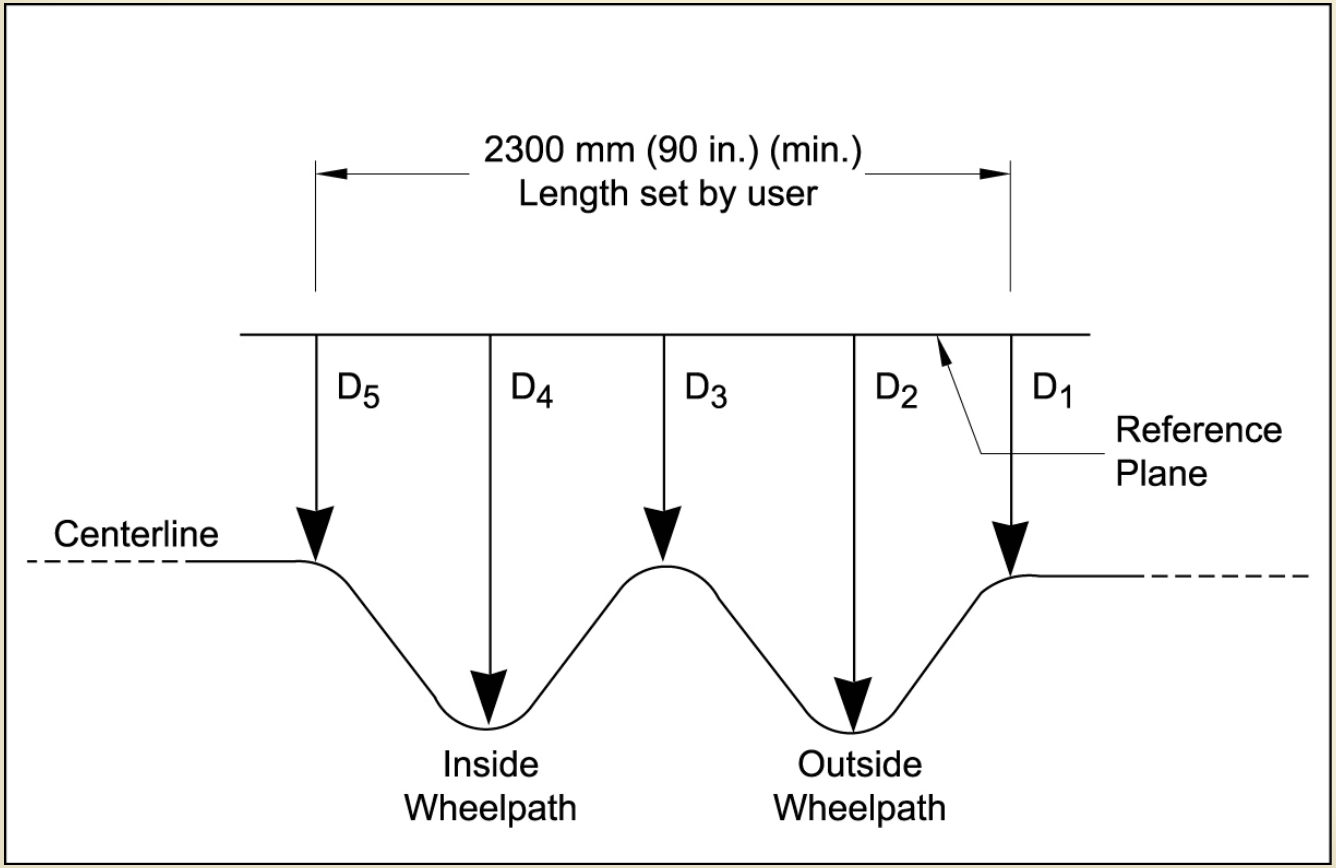
US Department of Transportation
Federal Highway Administration

Why New Standards?

1. **Expiration of AASHTO Provisional Standards PP-38 and PP-44**
2. **Development of newer technology**
3. **Increasing need for precision and accuracy**

Rutting

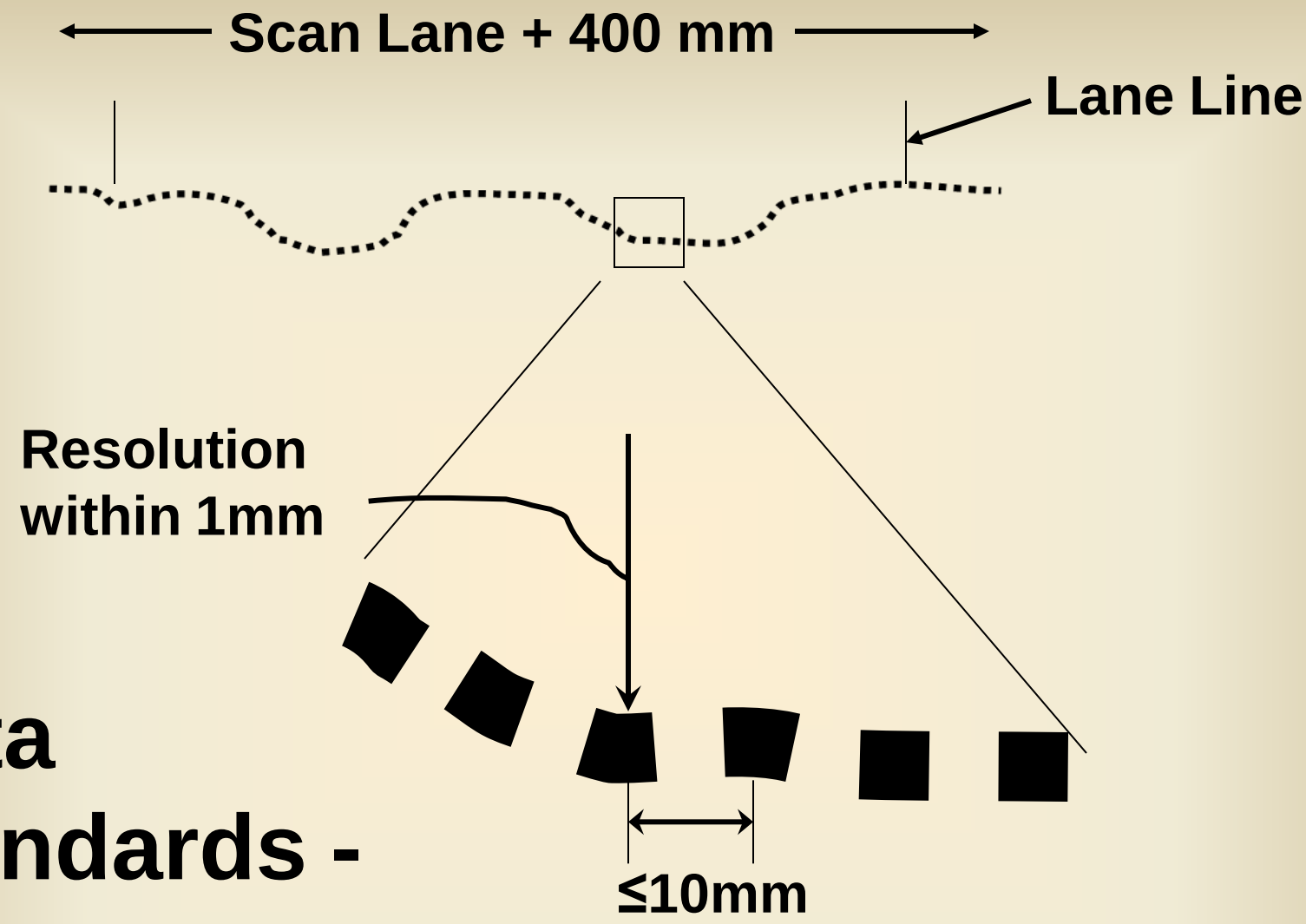
Provisional Standard 38
Now AASHTO Standard R 48-09



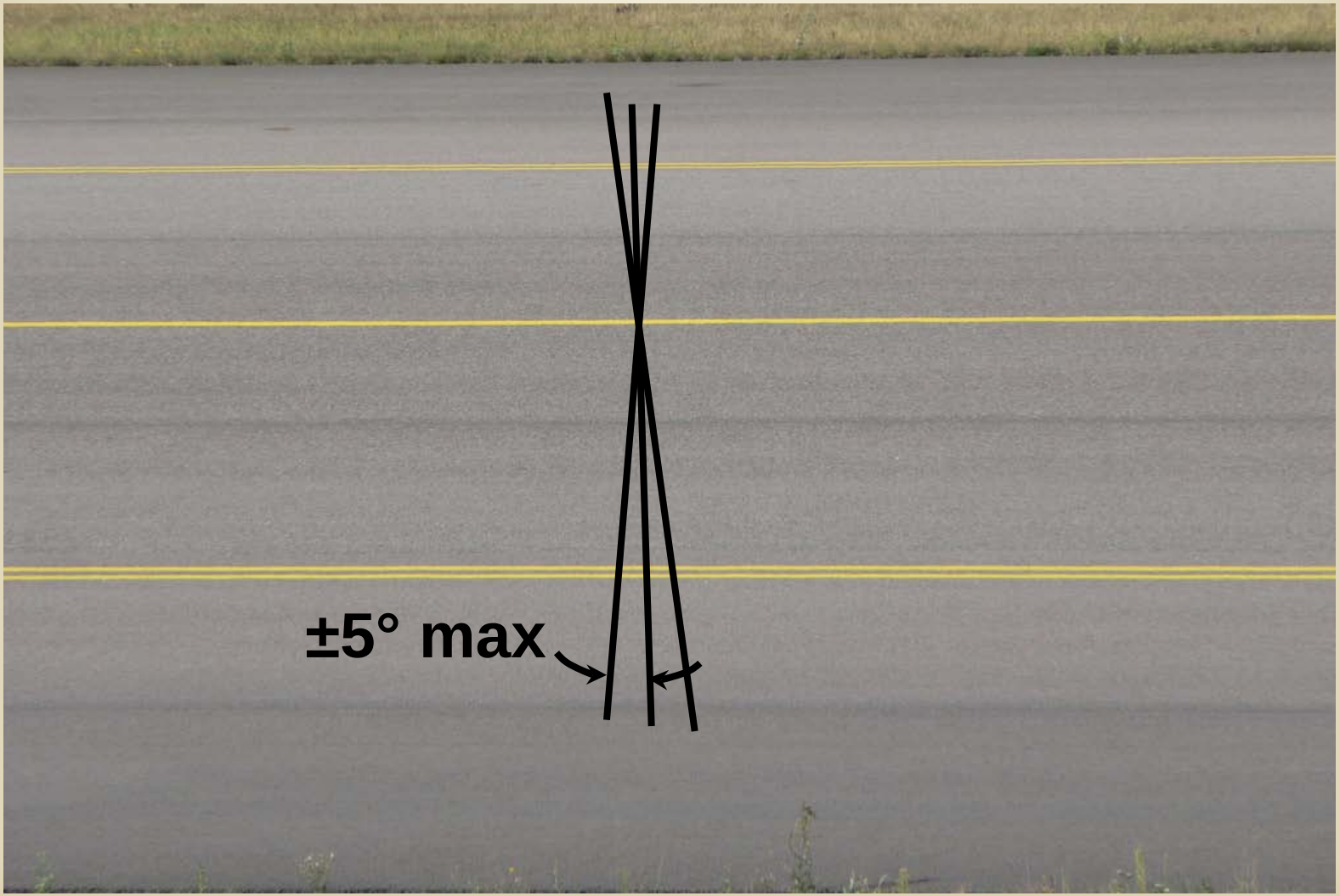
Proposed new Standards for Transverse Profile

1. Transverse Profile Measurement
2. Transverse Profile Analysis

Data Standards - Transverse Profile Measurement

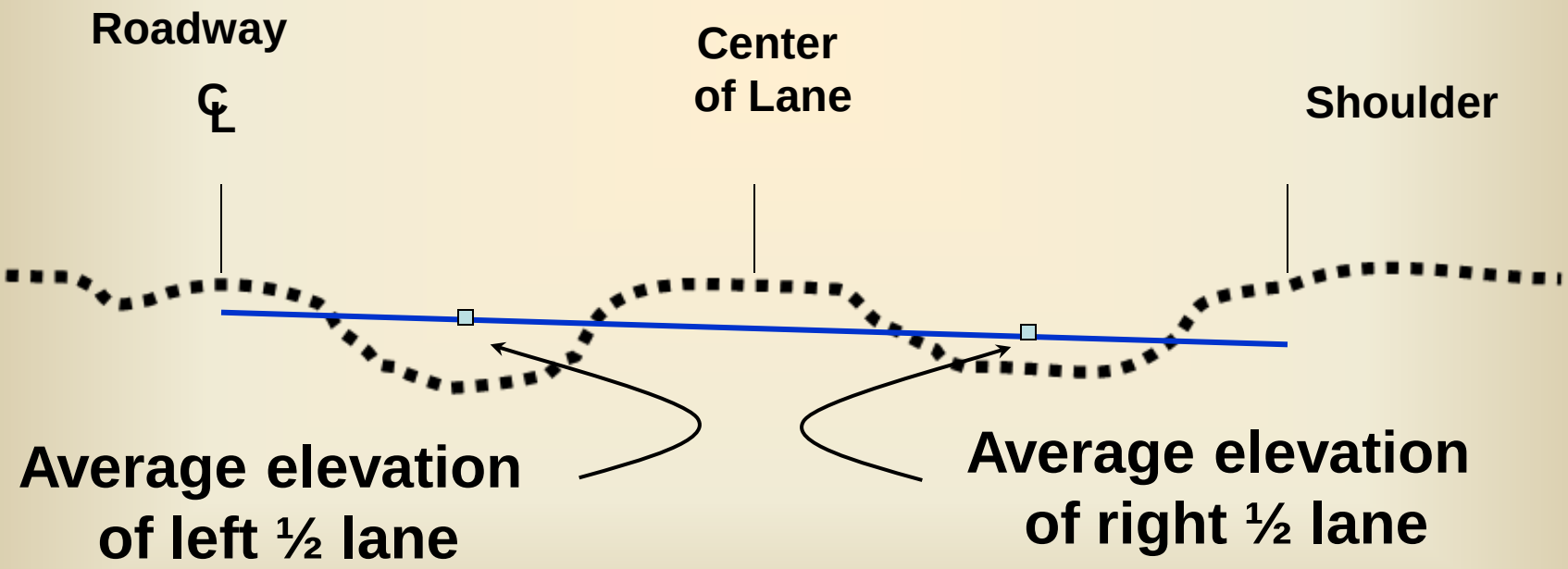


Transverse Profile



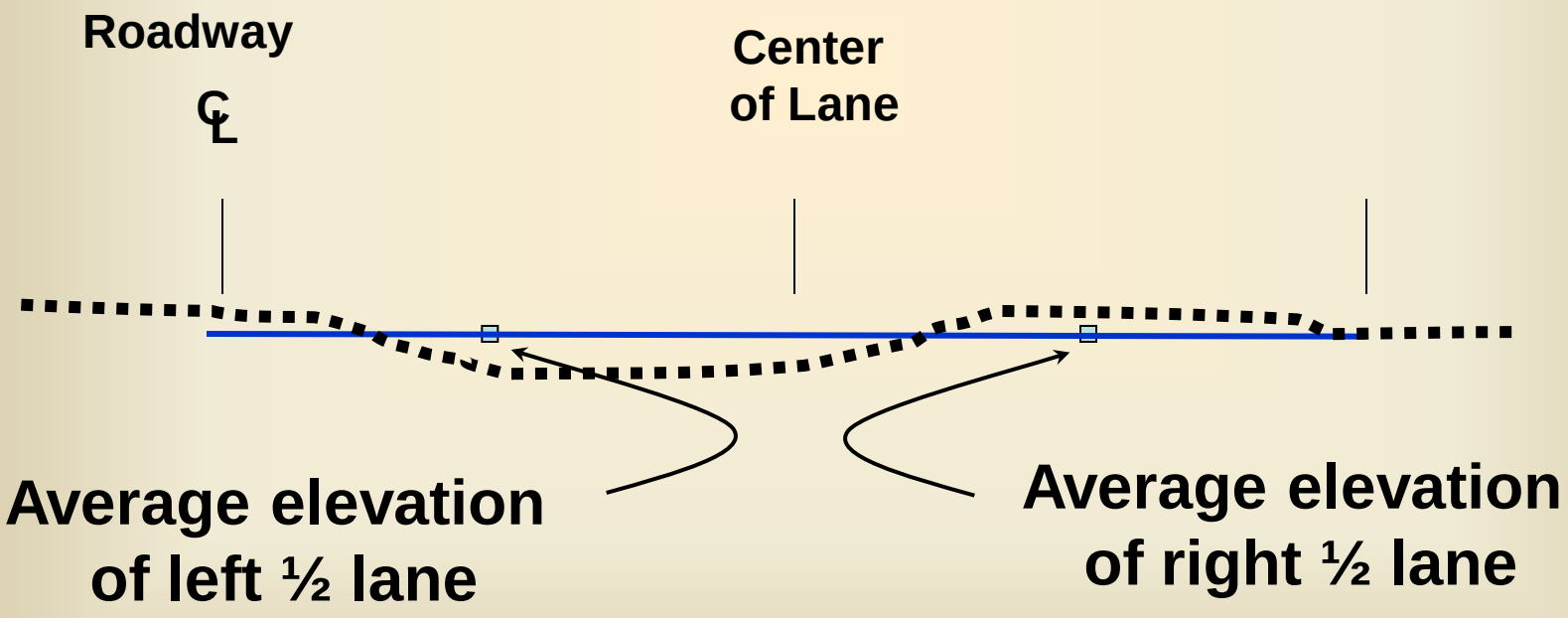
Transverse Profile Analysis

1. Calculate Cross-slope



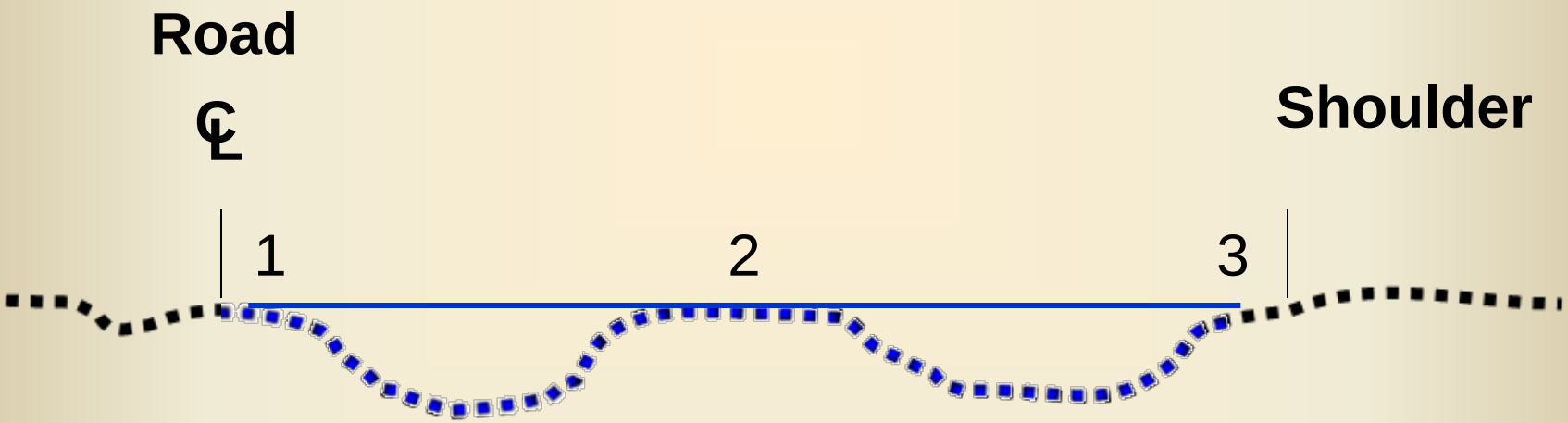
Transverse Profile Analysis

1. Calculate Cross-slope



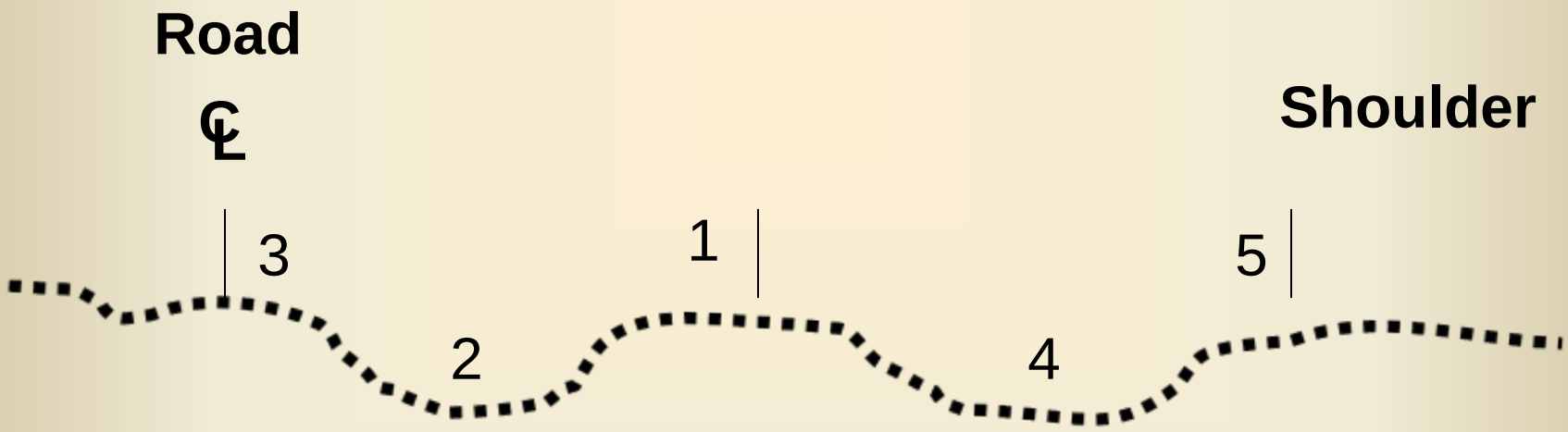
Transverse Profile Analysis

2. Calculate Percent Deformation:



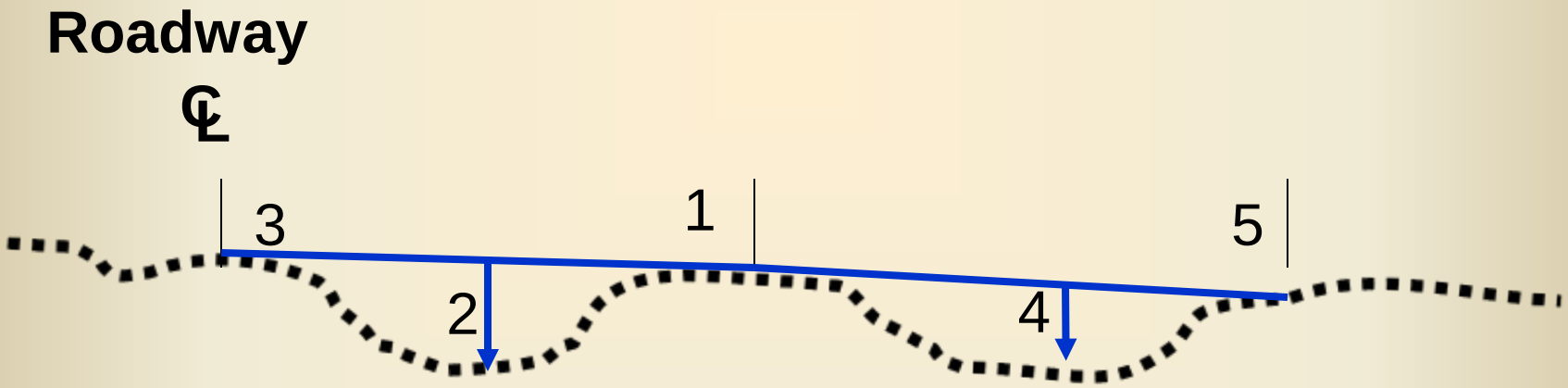
Transverse Profile Analysis

3. Calculate Rut Depths



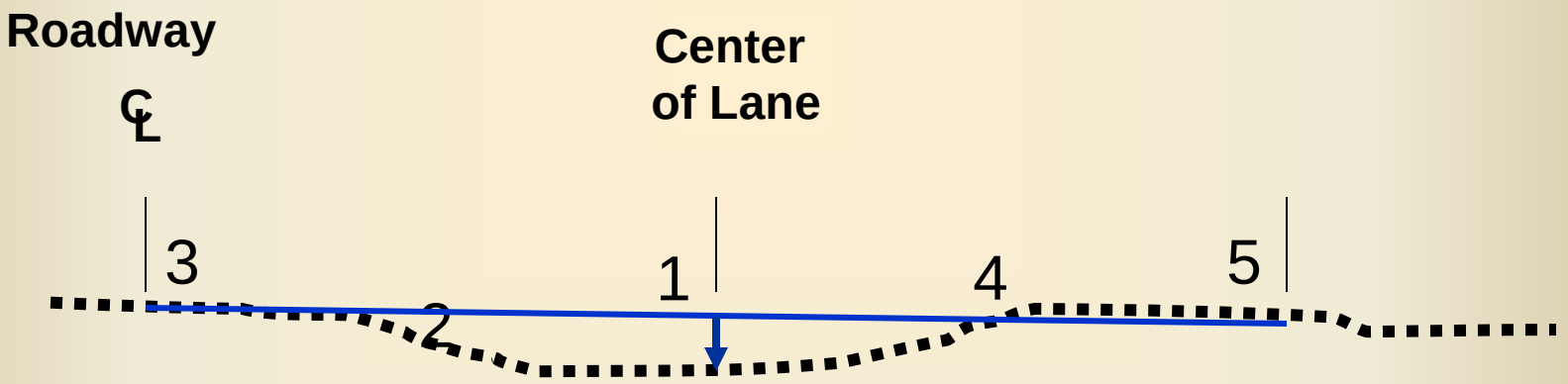
Transverse Profile Analysis

3. Calculate Rut Depths



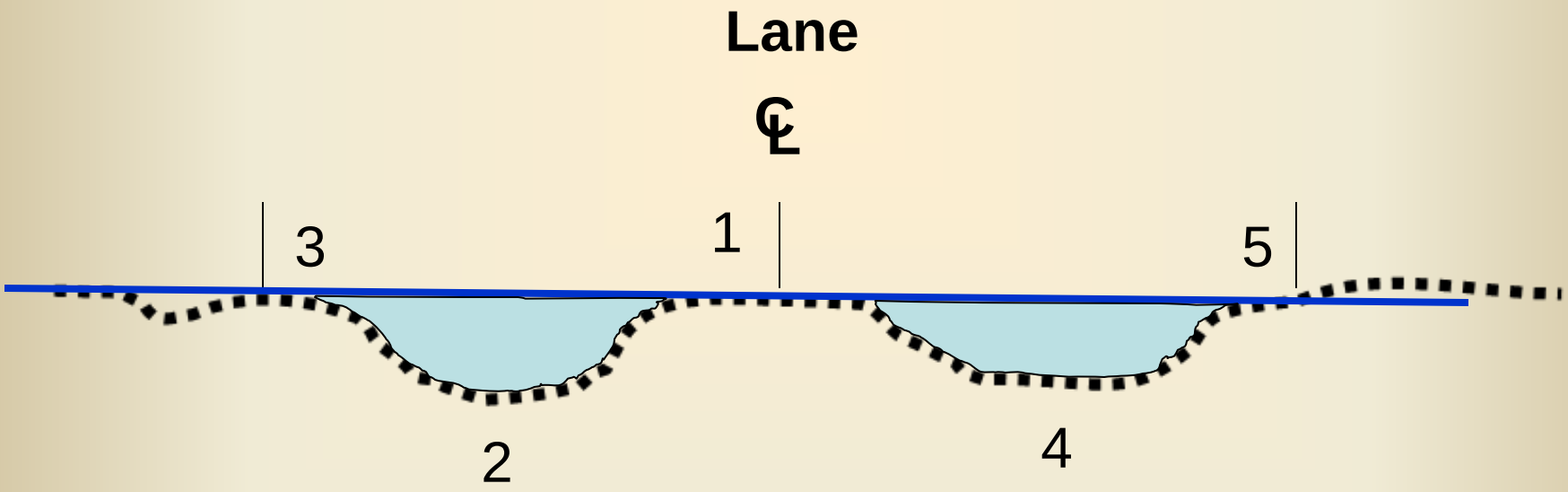
Transverse Profile Analysis

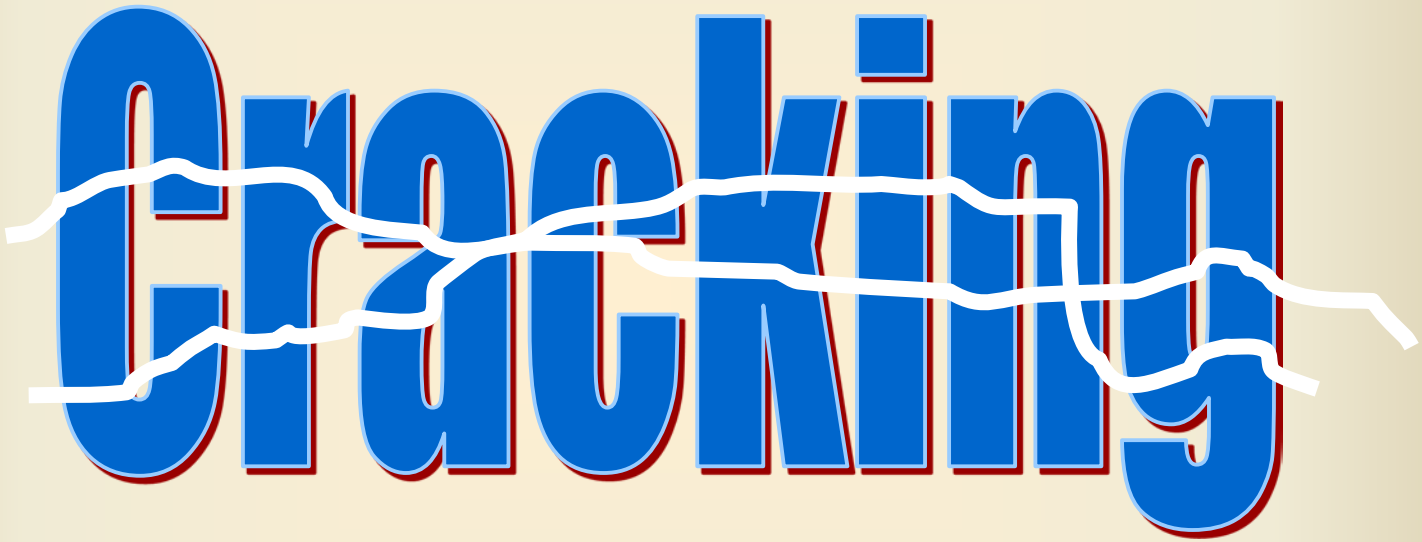
3. Calculate Rut Depths



Transverse Profile Analysis

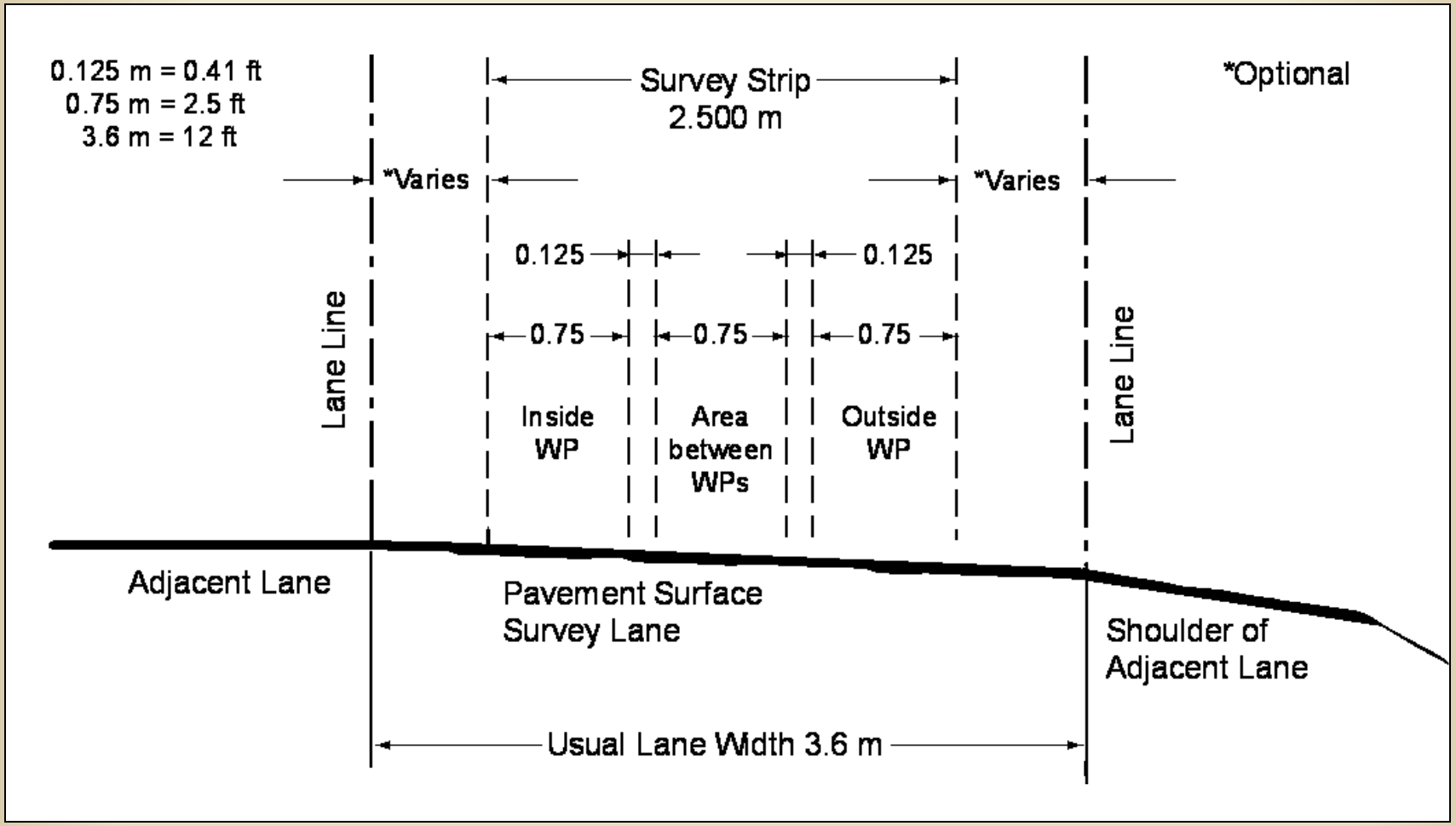
4. Calculate Rut Area




Cracking

Provisional Standard 44 Expiring in 2009

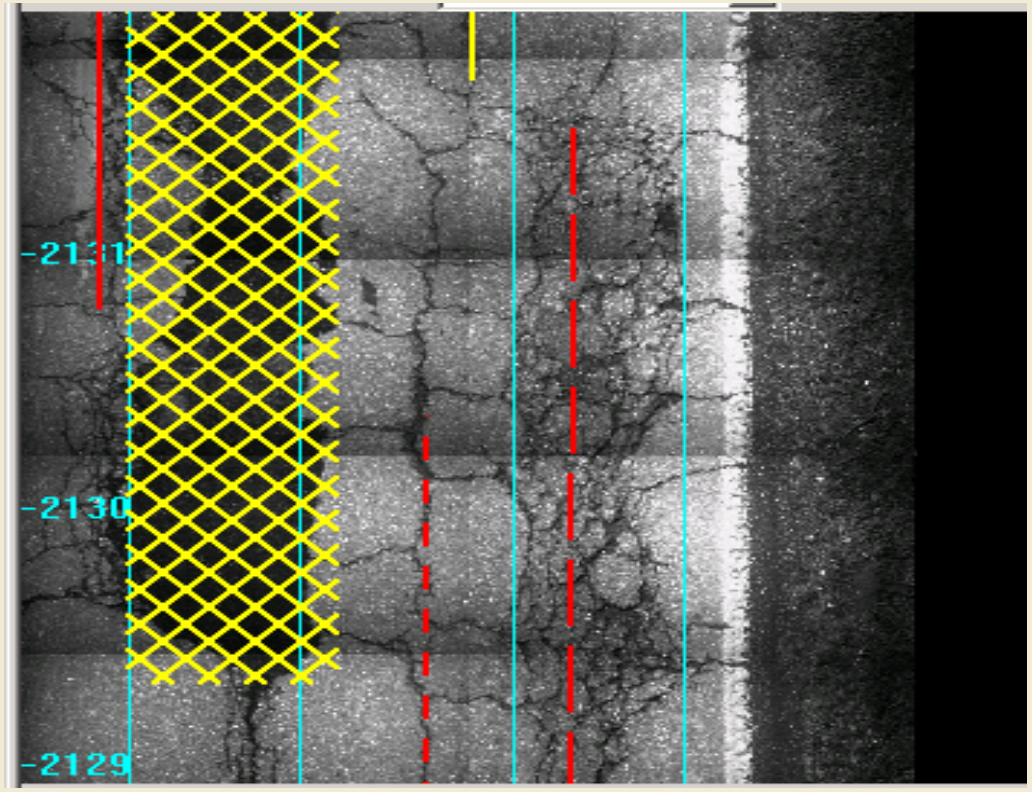
Provisional Standard 44



Proposed Standard for measuring pavement cracking

- Image Characteristics
- Detection Minimums
- Reporting

Pavement cracking



100 m
Max.

4.0 m minimum
4.25 m preferred

Pavement cracking

Detection Criteria:

Resolution ≤ 1 mm

Min. Detection

- **30% if width is ≤ 3 mm**
- **50% if width is 3 mm to 5 mm**
- **85% if width is ≥ 5mm wide**

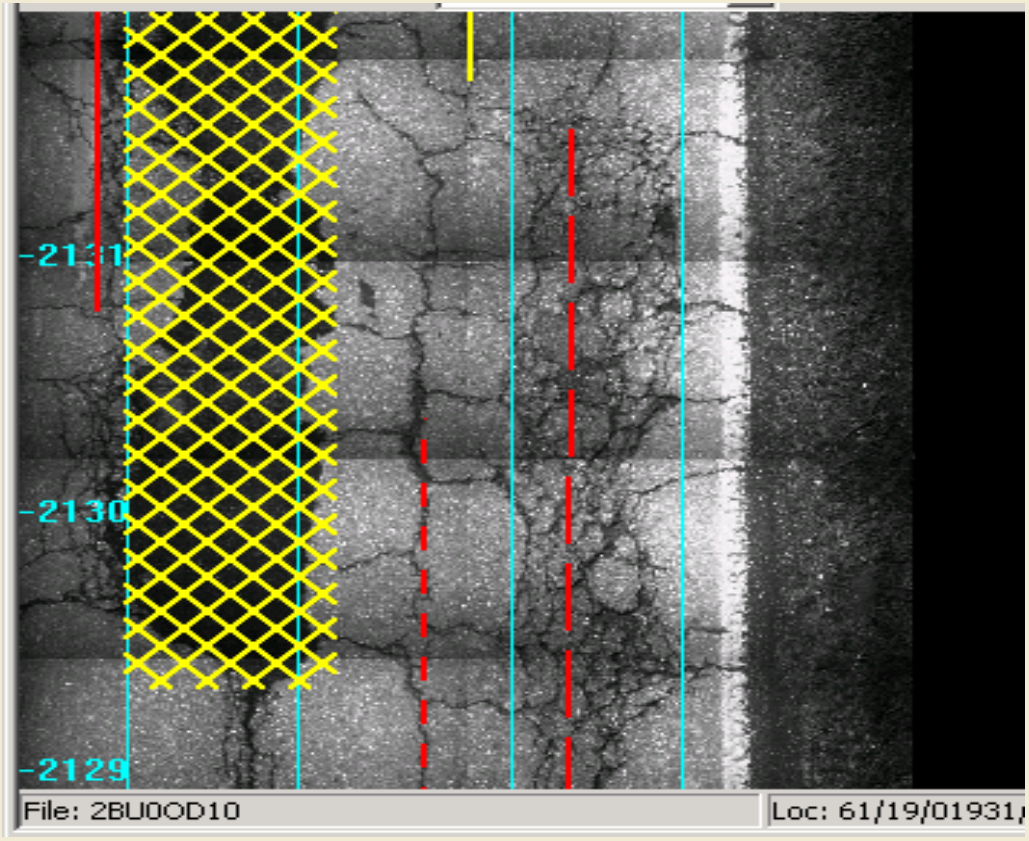
False positives ≤ 3 m in 50 m^2

Crack width within 20%

Proposed Standard for analyzing pavement cracking

- Uses 5 zones
- Classifies into 3 types
- Classifies by extent and severity

Pavement cracking



.75m .75m

←.875m→ ←.875m→

(Shoulder)

Zones 1 2 3 4 5 ⟶

ETG Activities:

1. Finalize R48 (5-point Rutting Method)
2. Submit Proposals for Automated Methods to AASHTO SOM Technical Committee 5a.
3. Conduct Verification Project
4. Present Methodology to Pavement Community.
5. Work with AASHTO Committee to finalize standards.

ETG State Members:

Rick Miller, Kansas DOT
John Andrews, Maryland DOT
Jeff Seiders, Texas DOT
Bouzid Choubane, Florida DOT
Cole Mullis, Oregon DOT
Judith Corley-Lay, North Carolina DOT
Todd Copenhaver, Texas DOT

ETG Industry Members:

Gary Elkins, MACTEC
Chuck Larson, STANTEC
Frank Holt, Dynatest
Richard Fox-Ivey, Fugro-Roadware
Jerry Daleiden, FCLAU

ETG FHWA Members:

Thomas Van, HQ Asset Management
Jack Springer, TFHRC
Andrew Mergenmeier, RC
Mike Moravec, HQ Pavements

For more information:

Thomas Van
FHWA – Office of Asset Management
Tel. 202-366-1341
Email: thomas.van@dot.gov