9th International Conference on MANAGING PAVEMENT ASSETS (ICMPA9)

MAY 18-21, 2015 • Washington D.C.

ICMPA9 • International Conference on Managing Pavement Assets

Advancing Pavement Evaluation

to Support Engineering & Investment Decisions

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AASHTO THE VOICE OF TRANSPORTATION

VirginiaTech Transportation Institute

TRB

U.S. Department of Transportation Federal Highway Administration

WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE 1909-2009

VDOT Virginia Department of Transportation

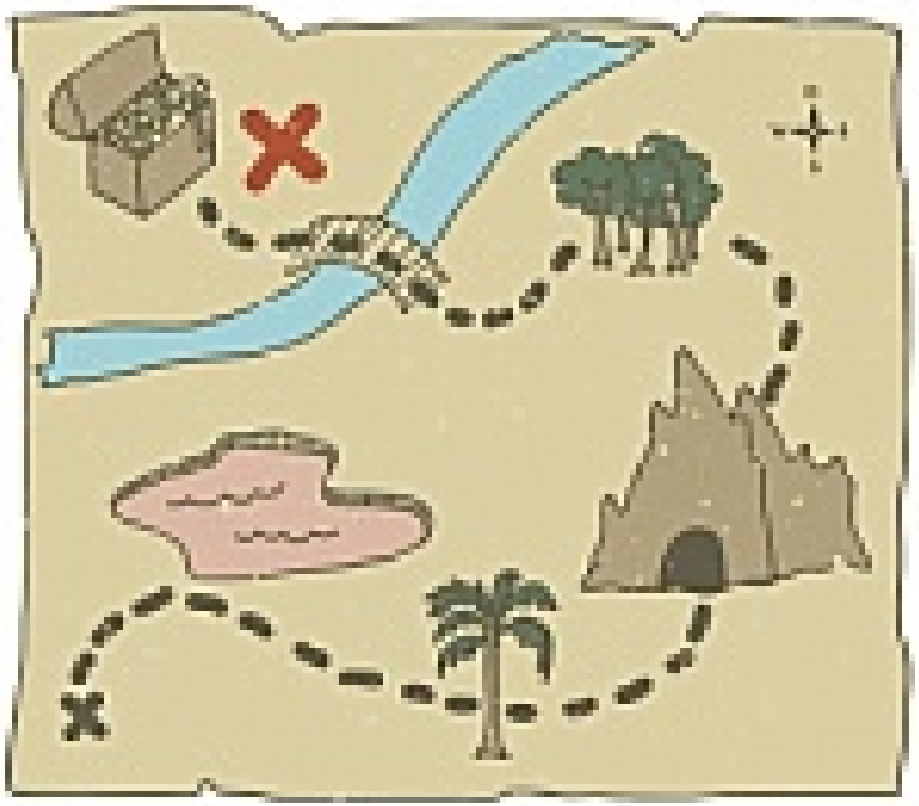
FUGRO

AASHTO American Association of State Highway and Transportation Officials 1914

US Department of Transportation
Federal Highway Administration

Overview

- Why?
- How?
- What's next?

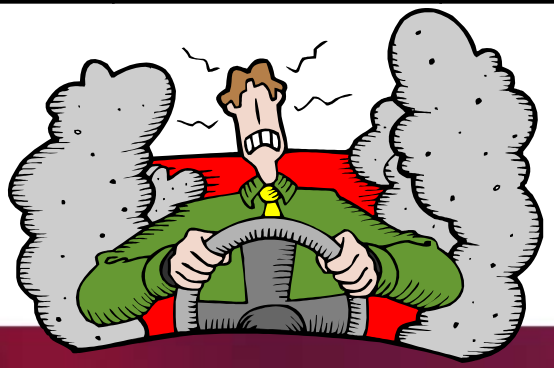


Why New Standards?

1. **AASHTO Provisional Standards**
   - **PP-38 and PP-44 in early 2000's**
   - **R 38 and R 55 today**
2. **Development of newer technology**
3. **Opportunity to improve accuracy**
4. **National infrastructure funding support**

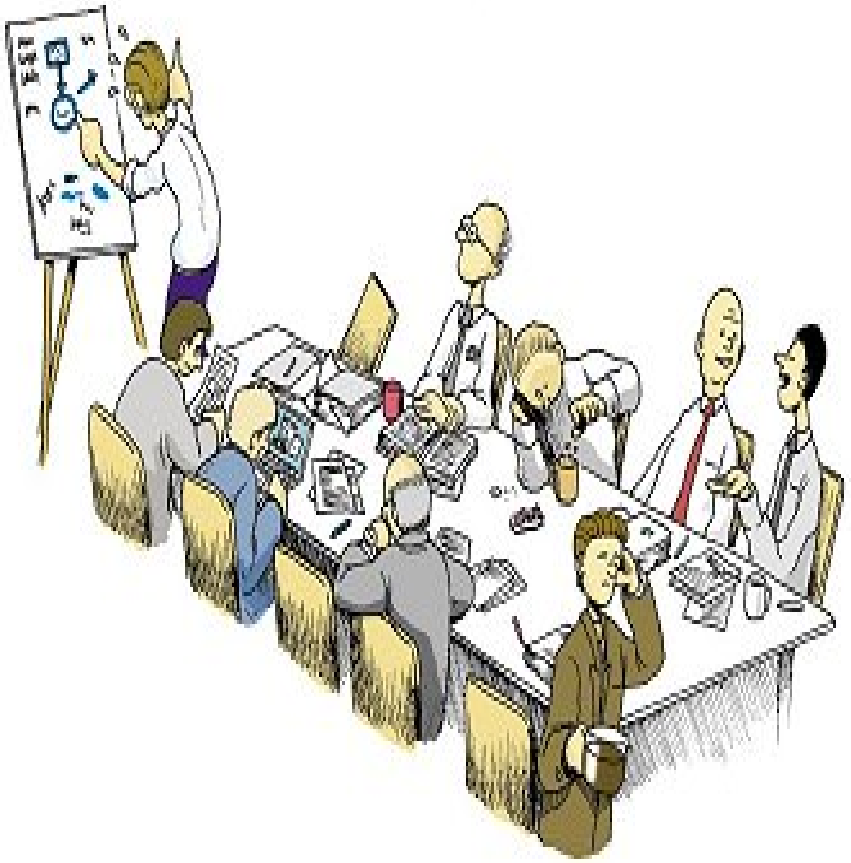
Evolution

Methodology	Fast	Safe	Repeatable
Walking			
Windshield	✓		
Semi-Automated	✓	✓	
Automated	✓	✓	✓



How

- Task group
  - States
  - Industry
  - FHWA
- Drafted Protocols
  - Transverse profile
  - ACP cracking

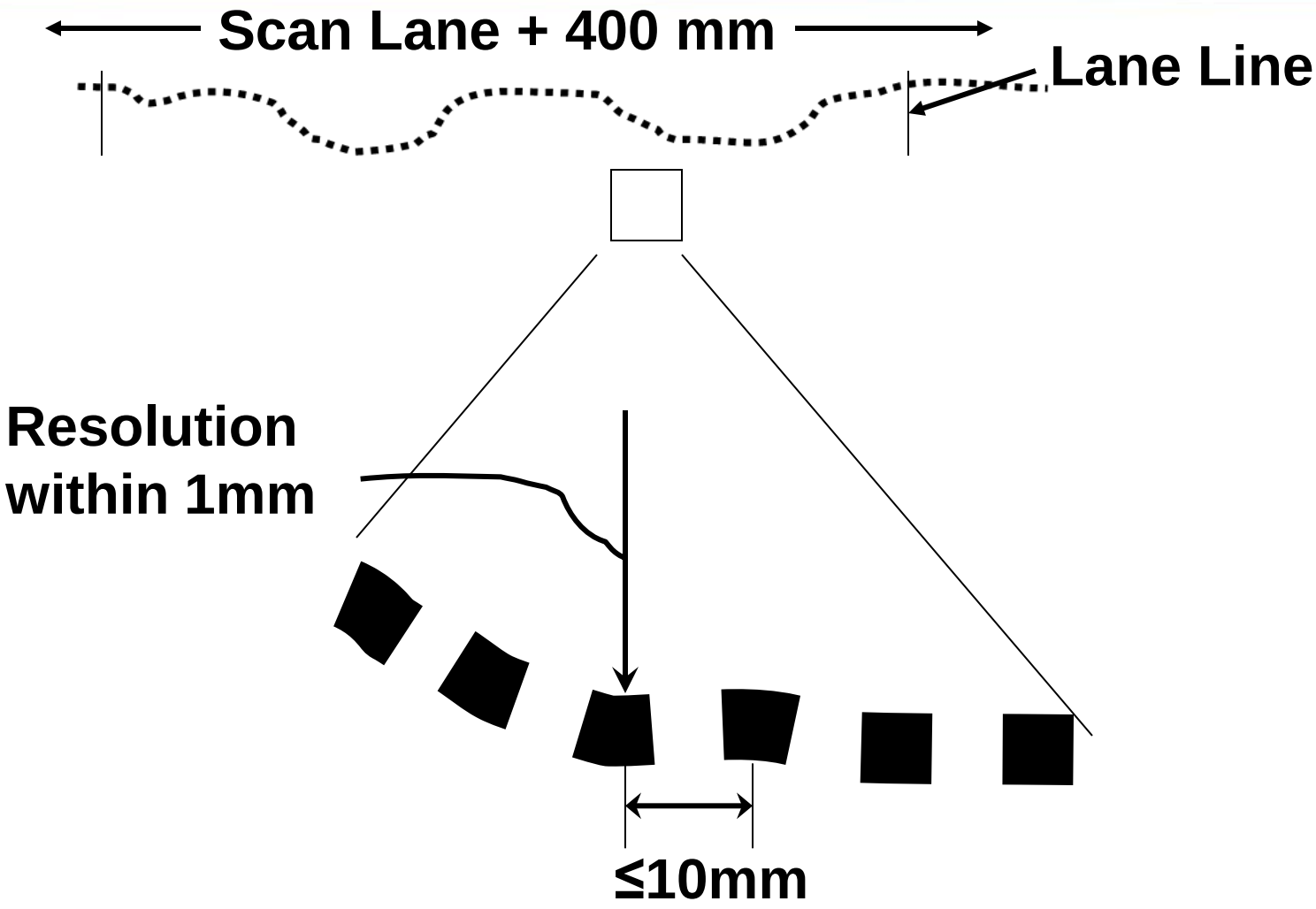


Standards for Transverse Profile

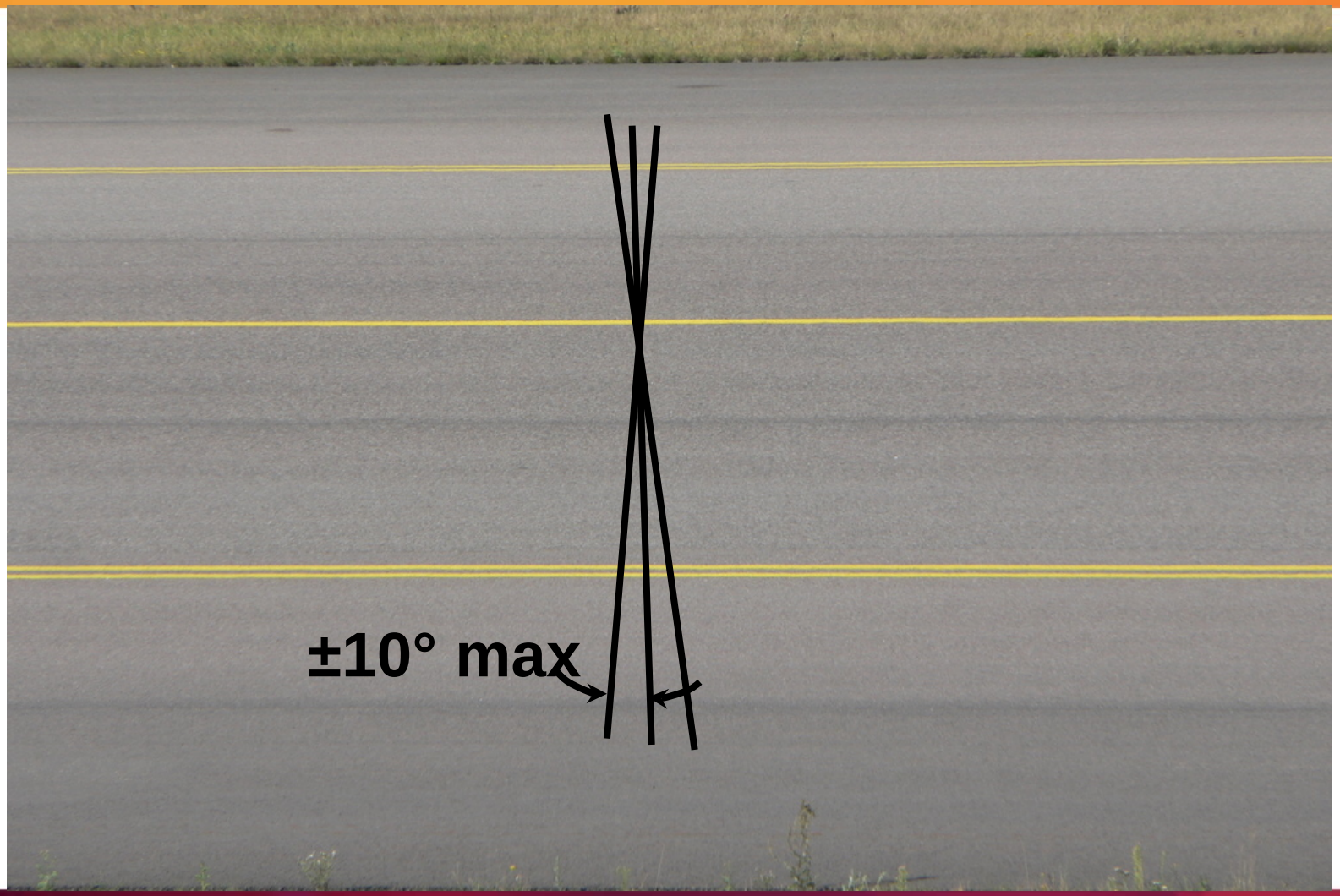
PP 70 - **Collecting Transverse Pavement Profile**

PP 69 - **Determining Pavement Deformation Parameters and Cross-Slope from Collected Transverse Profiles**

Transverse Profile Collection

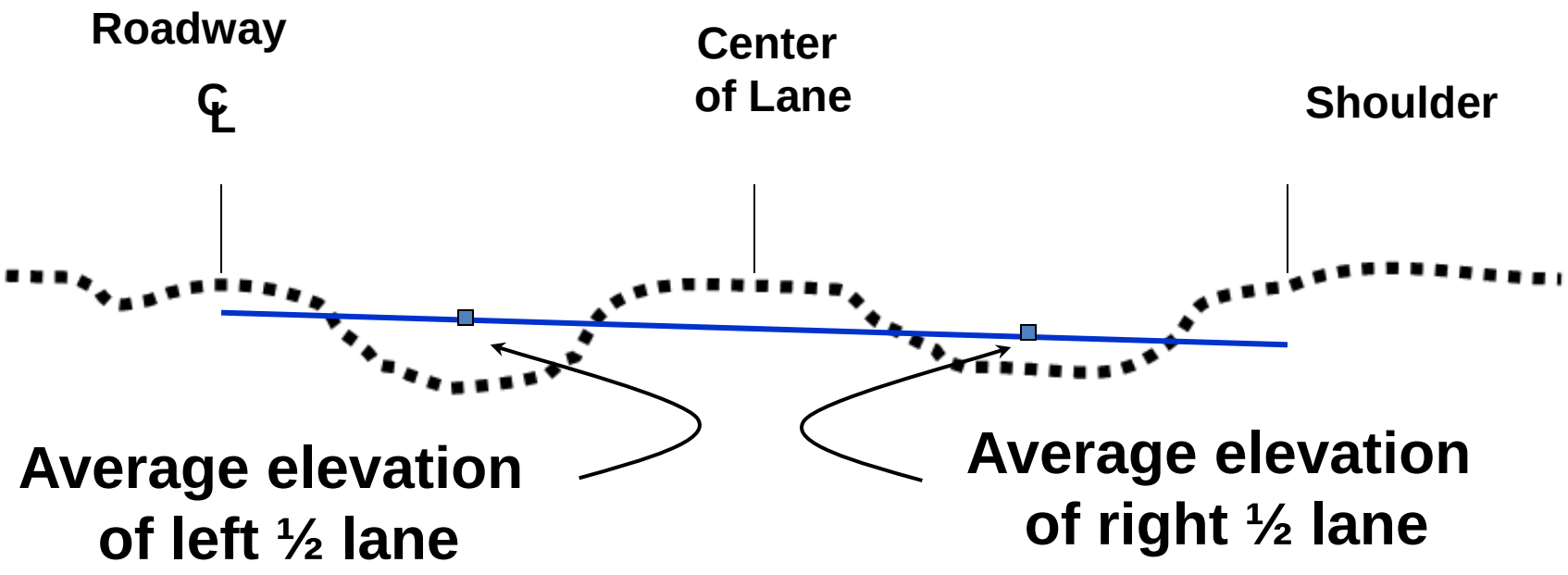


Transverse Profile Collection



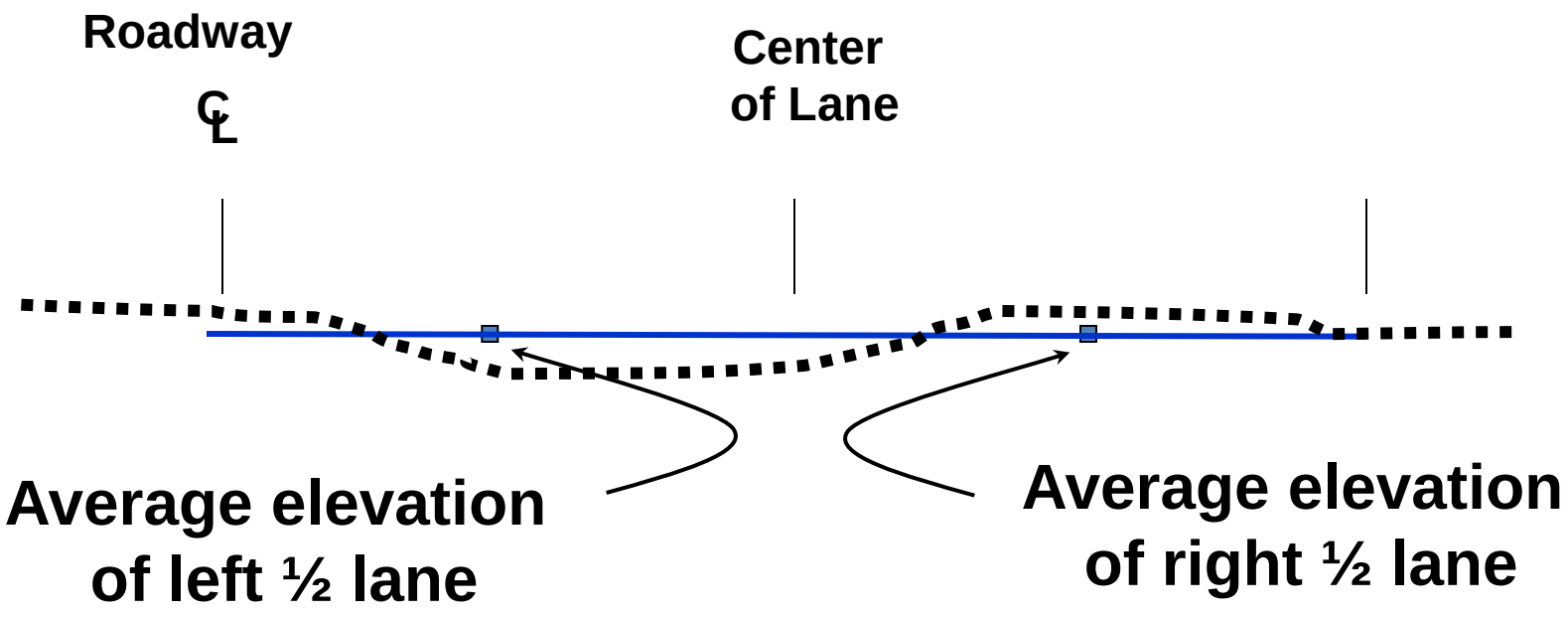
Transverse Profile Analysis

1. Calculate Cross-slope



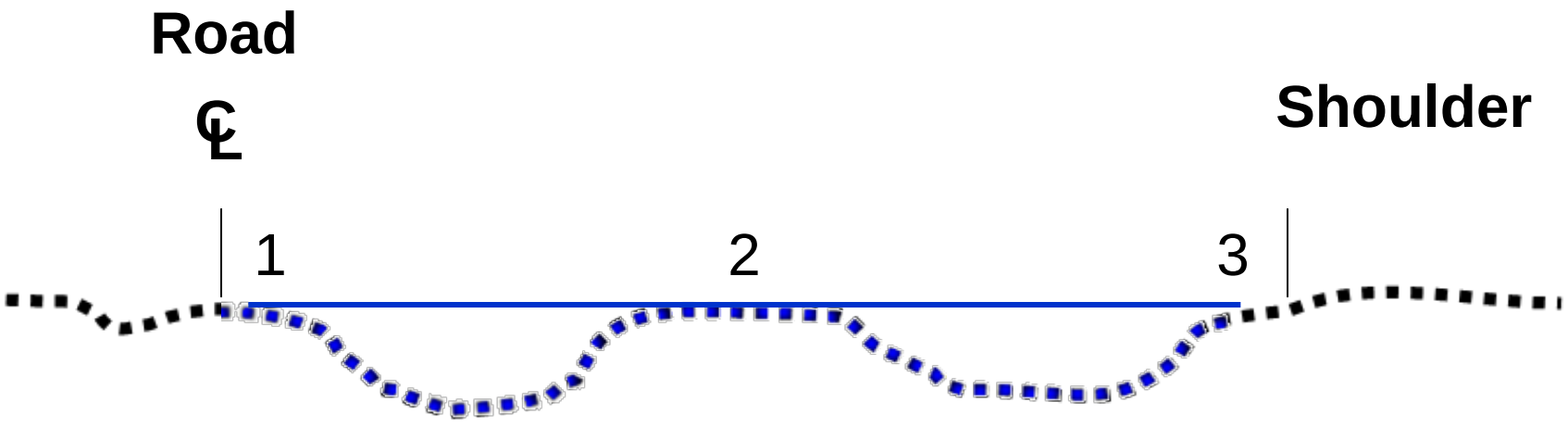
Transverse Profile Analysis

1. Calculate Cross-slope



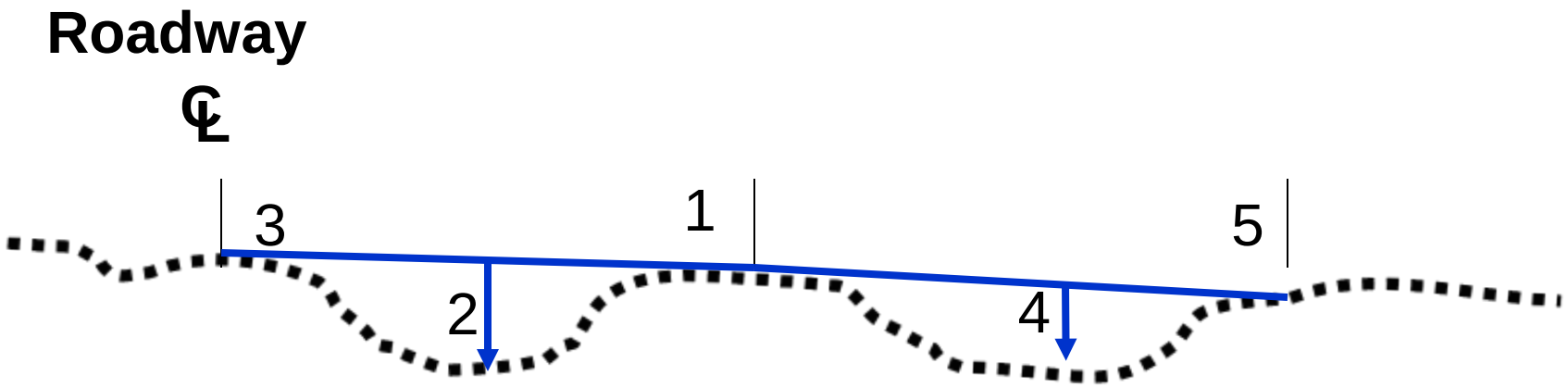
Transverse Profile Analysis

2. Calculate Percent Deformation:



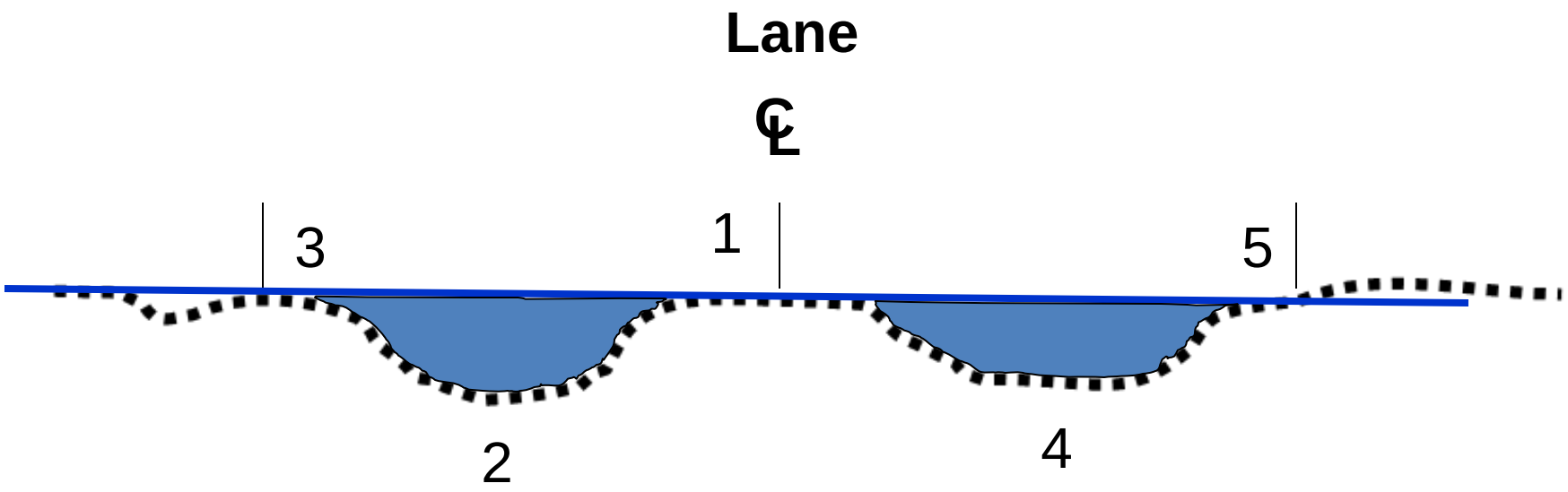
Transverse Profile Analysis

3. Calculate Rut Depths



Transverse Profile Analysis

4. Calculate Rut Area



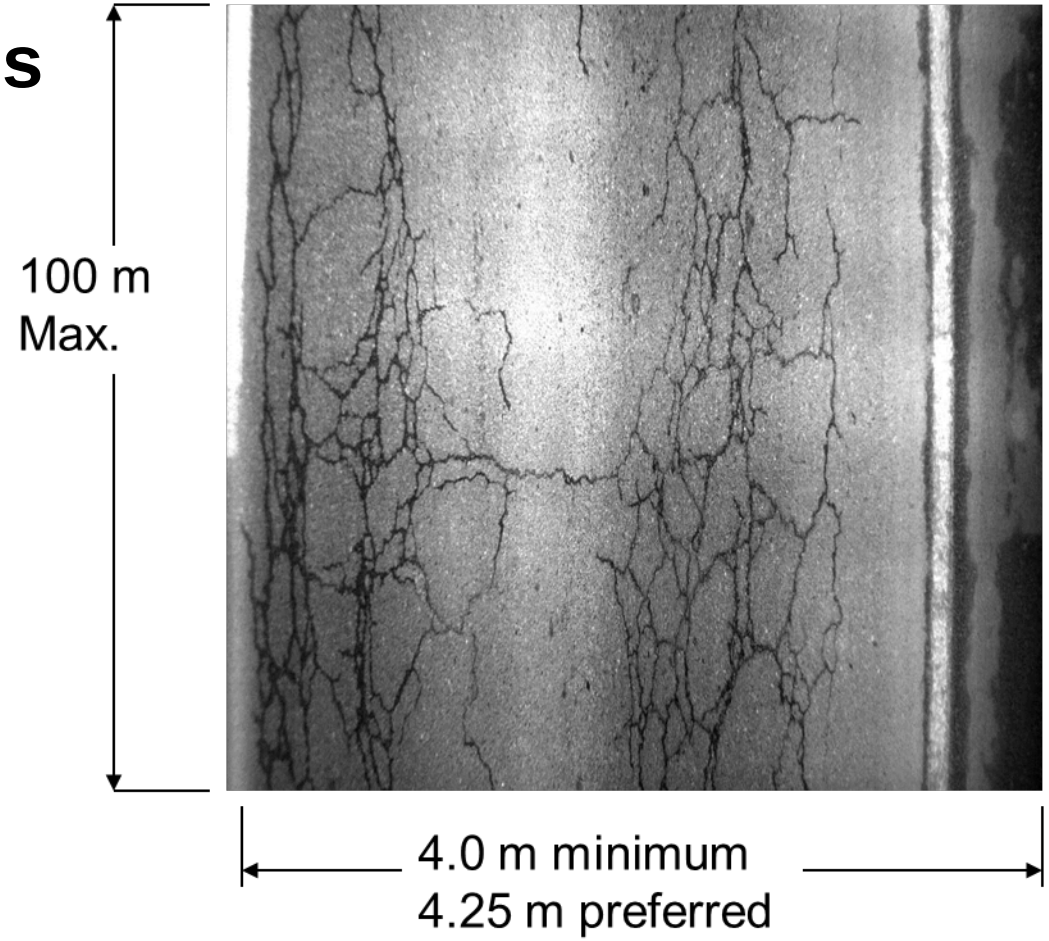
Standards for Cracking

PP 68 - **Collecting Images of Pavement Surfaces for Distress Detection**

PP 67 - **Quantifying Cracks in Asphalt Pavement Surfaces from Collected Images Utilizing Automated Methods**

Standard for Collecting Images

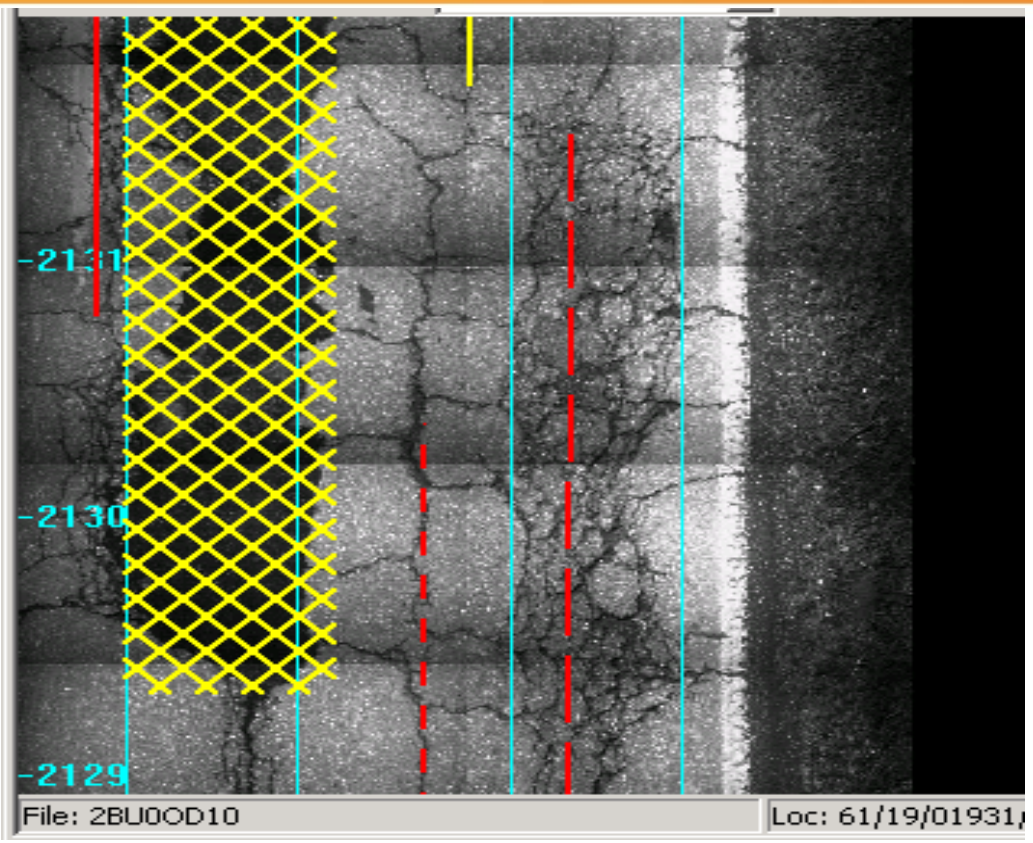
- **Image Characteristics**
  - **Lighting**
  - **Image Width**
  - **Image Length**
  - **Image Resolution**
- **Detection Minimums**
  - **False Positives**
- **Reporting**
  - **Image format**
  - **Positioning**

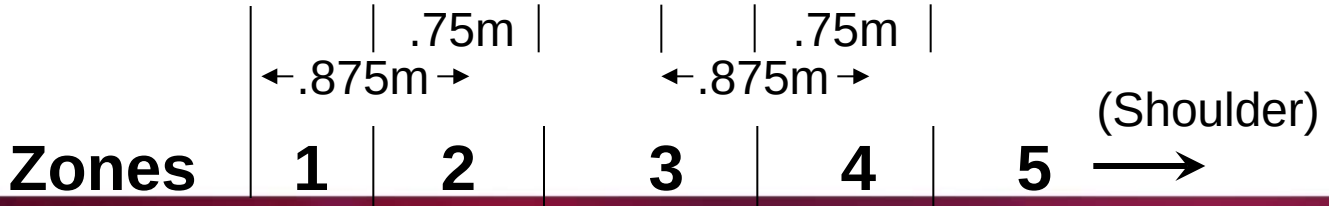


Standard for Quantifying Cracks

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

Standard for Quantifying Cracks





Pooled Fund Study TPF-5(299)

Improving the Quality of Pavement Surface Distress and Transverse Profile Data Collection and Analysis

1. Preparation
2. Verification
3. Precision and Bias Studies
4. Implementation

Pooled Fund Study TPF-5(299)

- First Meeting was May 2014
  - Various subcommittees formed and contributing
- Transverse Profile
  - Initiatives to date
    - Focused on verification of collection technology
    - Study of Technology Overview on Validating 3D Transverse Profile & Pavement Surface Distress
- Cracking
  - Initiatives to date
    - Focused on analysis of images

Anticipated Projects

- NCHRP 1-57 Standard Definitions for Comparable Pavement Cracking Data
- Standard Data Format RFP for 2D/3D Pavement Image Data
- Transverse Profile Calibration

Summary

1. AASHTO Standards have been created
   a.) ACP Cracking
   b.) Transverse Profile
2. Pooled Fund Study TPF-5(299)
   a.) Formed as focal group
   b.) Facilitate advancement
3. Encourage participation from all
   a.) Questions
   b.) Comments
   c.) Help with revisions