# Why Profiler Certification Sites are Necessary for Quality Data

## Site Selection and Setup Matters

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RPUG
Road Profile Users' Group

# Test the System, Not the Driver

- Configuration Files set parameters for collection *and* processing
  - Automatic Lane Detection
  - Batch Data Process
- Eliminates Driver Wander
  - 4,000+ points of data across the full width of lane
  - Extract pavement profiles from anywhere within the lane

# Site Selection

- Coordination between Mandli and TDOT

  - Worked with TDOT on list of potential sites
  - Spent time in field reviewing sites

# Criteria that Matters

- Safe access
- Ability to close test site
- Pavement type
- Minimum length 828 ft
  - 150 ft acceleration
  - 528 ft course
  - 150 ft deceleration
- No curvature
- Grade ≤ 2%
- No longitudinal wheel path cracking

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# Criteria that Matters (cont.)

- Well defined paint lines
- Clear Start/Stop markings
- Ability to place right and left profile references
- Speed limit ≥ 35 mph
- IRI range 30-200 in/mi
  - Smooth 30-70 in/mi
  - Medium-smooth 95-135
  - Medium-rough 150-200

# Site Setup

- Traffic control
- Collect ground truth (SurPRO)
- Photograph site

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Site Setup
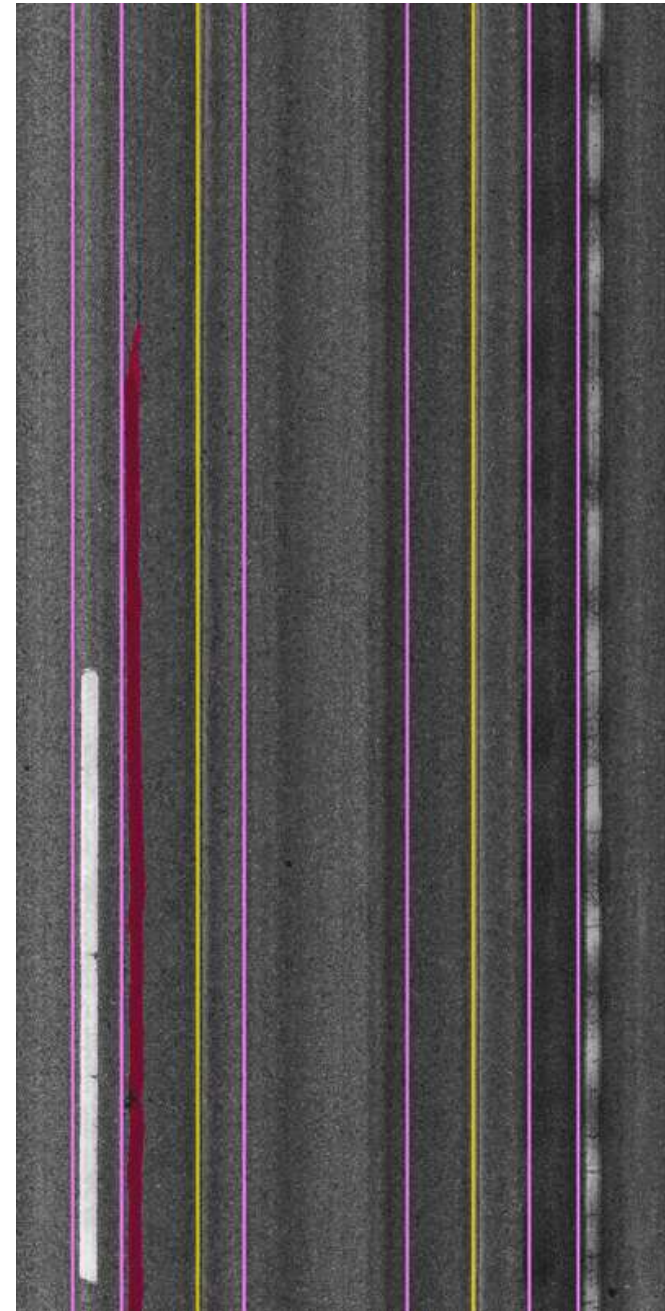(not Mandli)

# SurPRO Data has a Shelf-Life

- Collect SurPRO data and vehicle data either:
  - Same day
  - Or similar weather conditions (temperature)
- Compare SurPRO data to collected data using ProVal

| Repeatability | Accuracy | Statistics | Repeatability - Left | Repeatability - Right | Accuracy - Left | Accuracy - Right |
|---|---|---|---|---|---|---|
| Comparison Count | | | 45 | 45 | 10 | 10 |
| % Passing | | | 96 | 100 | 70 | 100 |
| Mean | | | 96 | 98 | 91 | 94 |
| Minimum | | | 91 | 96 | 88 | 93 |
| Maximum | | | 98 | 99 | 93 | 95 |
| Standard Deviation | | | 1.9 | 0.8 | 1.4 | 0.8 |
| Grade | | | Passed | Passed | Passed | Passed |

# Site Maintenance

- Sites require repainting
- Re-Collect ground truth measurements w/SurPRO

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# TDOT Site Use

- Annual Certification
  - 4 TDOT regional warranty work profiling systems (RSP)
  - TDOT HQ pavement profiling system (LCMS)

- Comparison to Mandli systems (QA)

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# Lessons Learned

- How site selection impacts 3D paving systems
- Carved the way to successfully passing NCAT Certification
  - LCMS 1
  - LCMS 2