



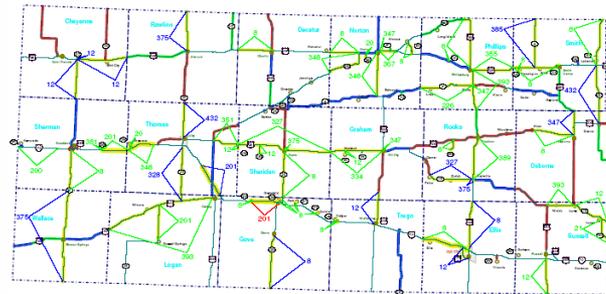
2012

Condition Survey Report



Pavement Management System  
Kansas Department of Transportation

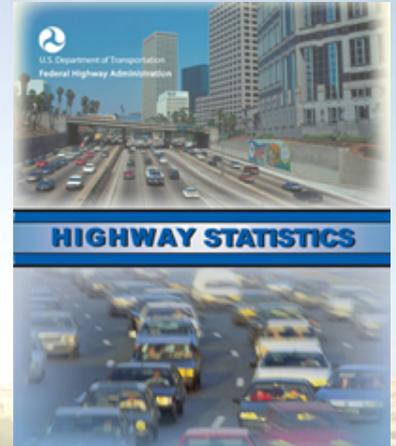
### KANSAS HIGHWAY SYSTEM District 3 2012 Candidate Projects



Year of Projects

- 2012 Locations
- 2013 Locations
- 2014 Locations
- 2015 Manual Projects

Prepared by  
Kansas Department of Transportation  
Bureau of Statistics and Research  
based on database inspection from  
July 31, 2012



# KS automated experience

## Items Suggested to Asses in Existing AASHTO Provisional Standards and KS Verification – Miller, KS

# KANSAS DOT PAVEMENT CONDITION HISTORY

- ✘ Pavement Management System since 1983
- ✘ Manual and Automated Methods
- ✘ Tried to Maintain Data Consistency for Performance Measure (and other) purposes
- ✘ Collect nominally 1 mile segments
- ✘ Collect every year (11,500 miles)
- ✘ Report Pavement Condition Data
- ✘ Use Data to program projects

# “OLD” DATA

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- ✘ Roughness (IRI) (all pavement types)
- ✘ Cracking (Transverse, Fatigue, Block) (Black surface)
- ✘ Rutting (3 point) (Black surface)
- ✘ Joint Distress (“D-Cracking”) (White surface)
- ✘ Faulting (White surface)
- ✘ Location (GPS) Data (all pavement types)

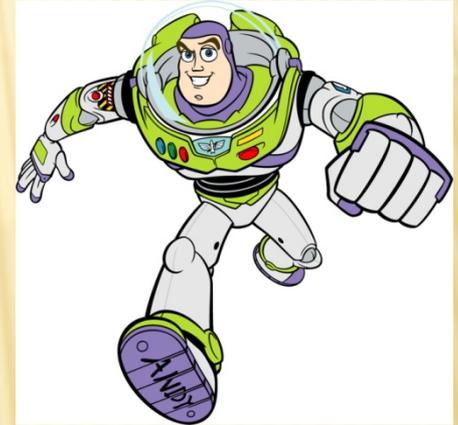
# “OLD” METHODS

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- ✘ Automated (60 or more MPH)
  - + 3 point profiler (roughness, rutting, faulting)
  - + Nearly 100% sample of each segment
  - + DGPS
- ✘ Manual (5-10 MPH in 100 foot sections)
  - + “Windshield” (cracking, joint distress)
  - + Three 100 foot samples per (nominally 1 mile) segment (~5% sample)

# “NEW” REQUIREMENTS TO 2013 AND BEYOND....

- ✘ KDOT – adapt new data to fit old criteria and/or shift to new data
- ✘ AASHTO – Produce data “exactly” following the published standards (full disclosure of ETG)
- ✘ HPMS – Produce data following the standards (if the standards don’t make sense, get them changed!)



# AASHTO STANDARDS

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**Standard Practice for**

## **Collecting Images of Pavement Surfaces for Distress Detection**

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AASHTO Designation: PP 68-10

**Standard Practice for**

## **Quantifying Cracks in Asphalt Pavement Surfaces from Collected Images Utilizing Automated Methods**

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AASHTO Designation: PP 67-10

**Standard Practice for**

## **Collecting the Transverse Pavement Profile**

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AASHTO Designation: PP 70-10

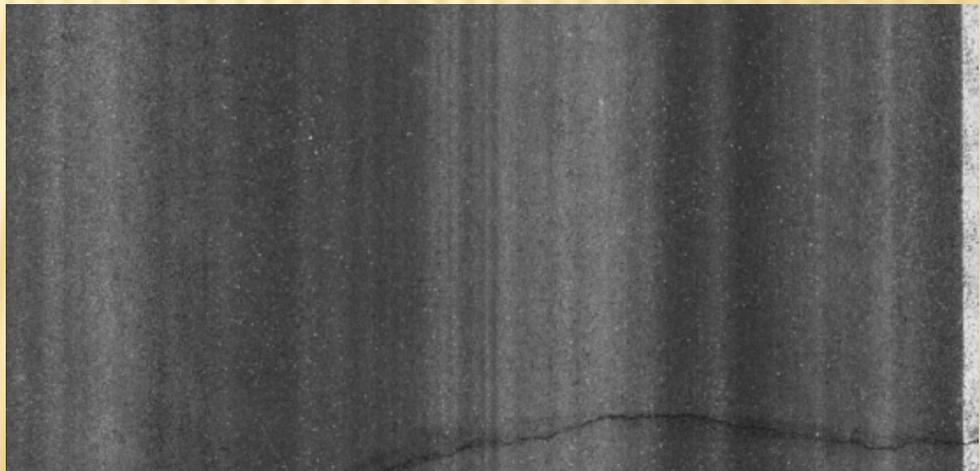
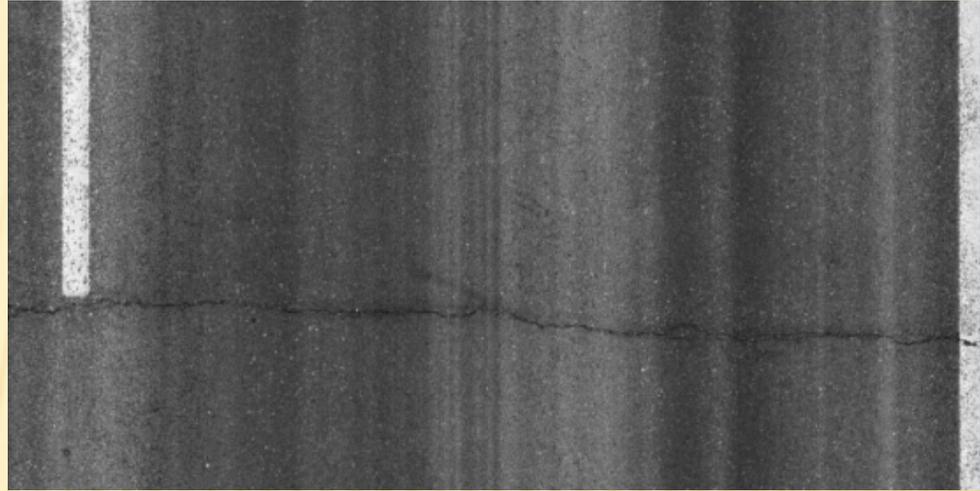
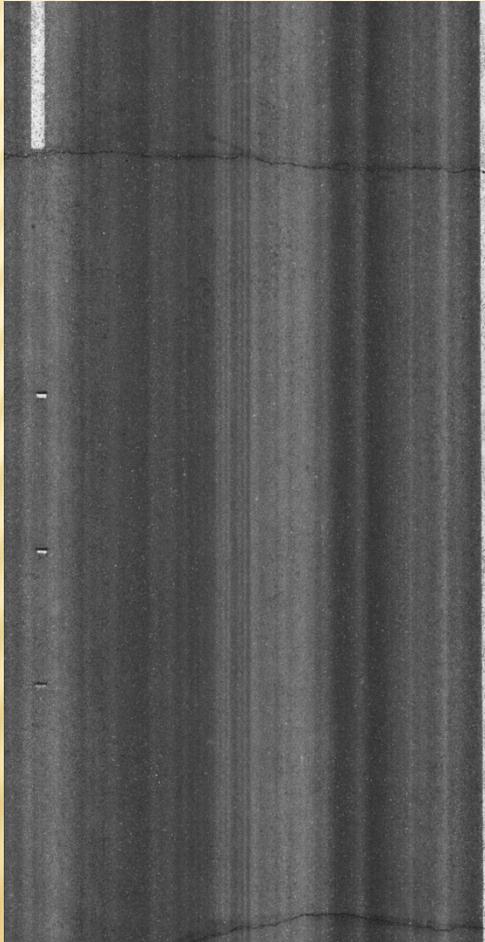
**Standard Practice for**

## **Determining Pavement Deformation Parameters and Cross Slope from Collected Transverse Profiles**

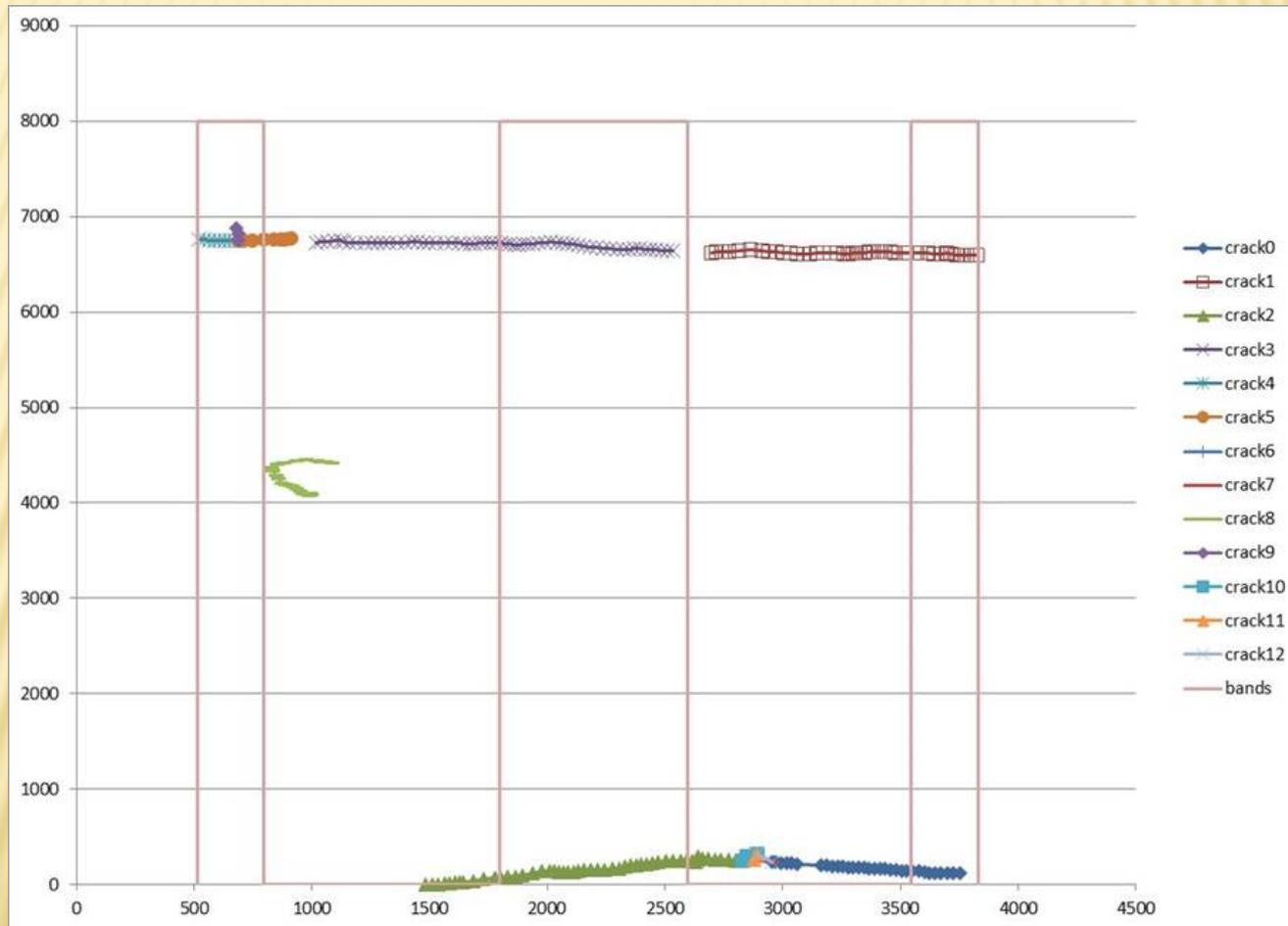
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AASHTO Designation: PP 69-10

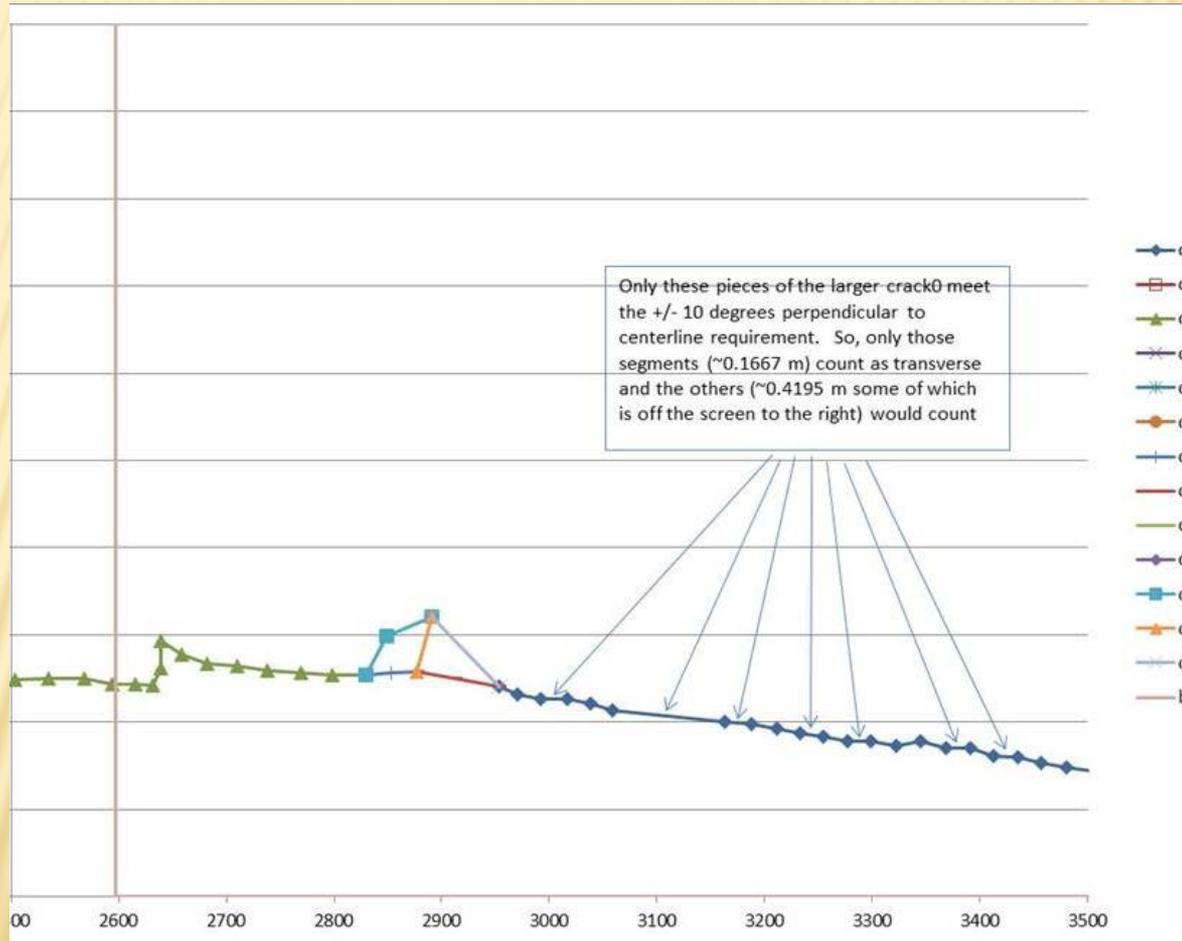
# APPLYING THE CRACKING STANDARD



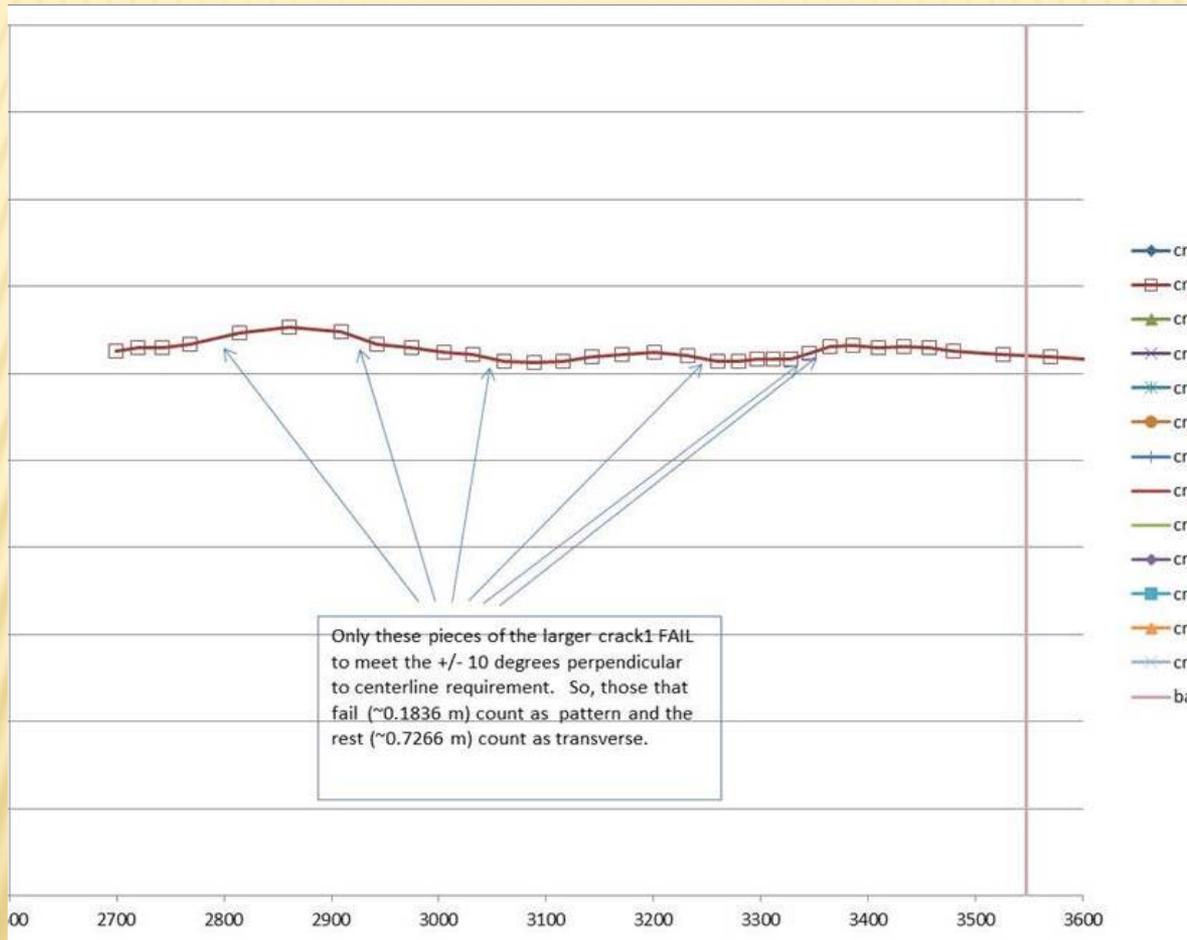
# NOT 2 CRACKS BUT MORE LIKE 13



# NOT JUST TRANSVERSE EITHER

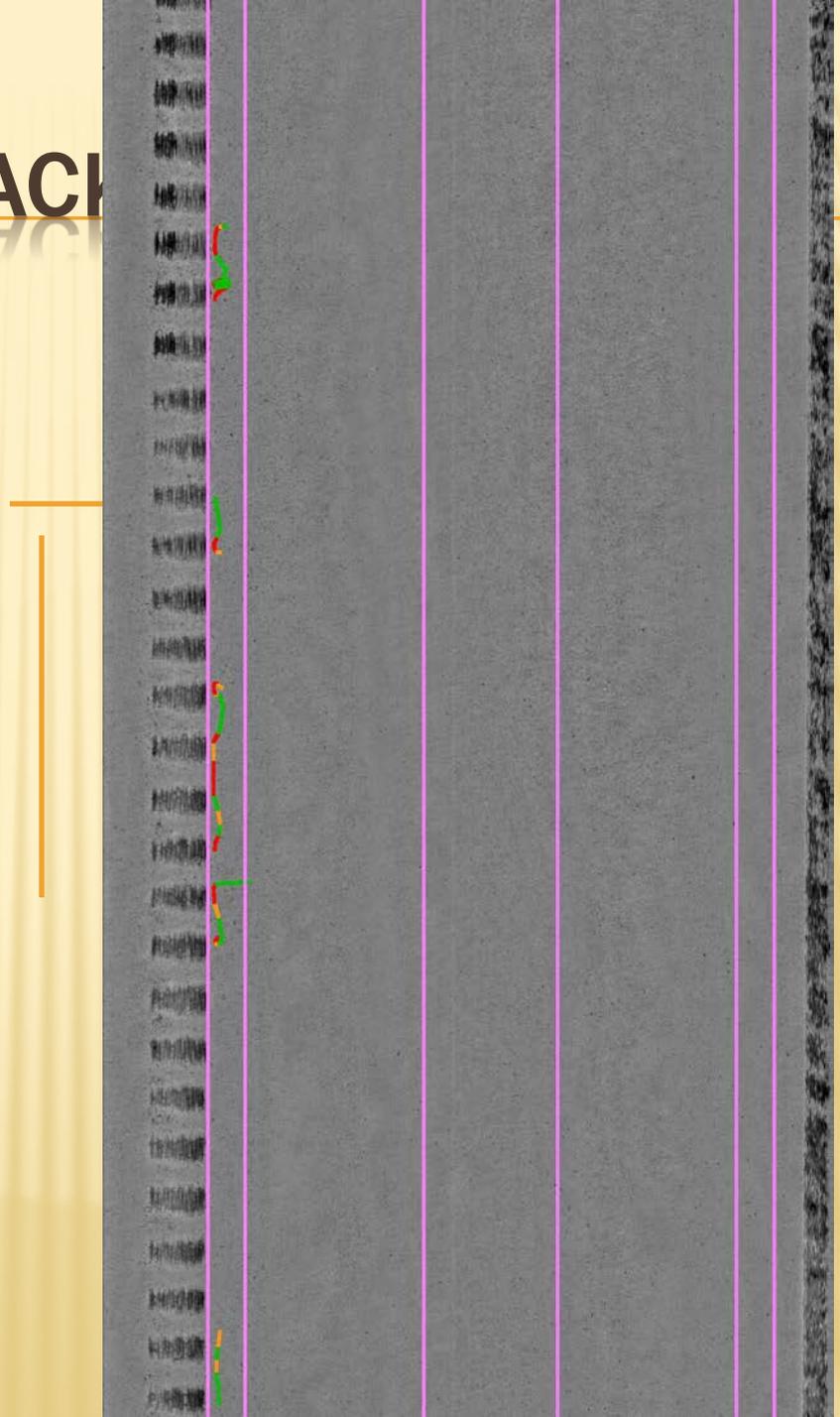


# PATTERN IN THE MIX



# AASHTO STANDARD CRACK

- ✘ Length of Cracks
  - + By Zone
  - + By Type
- ✘ Average Width
  - + By Zone
  - + By Type



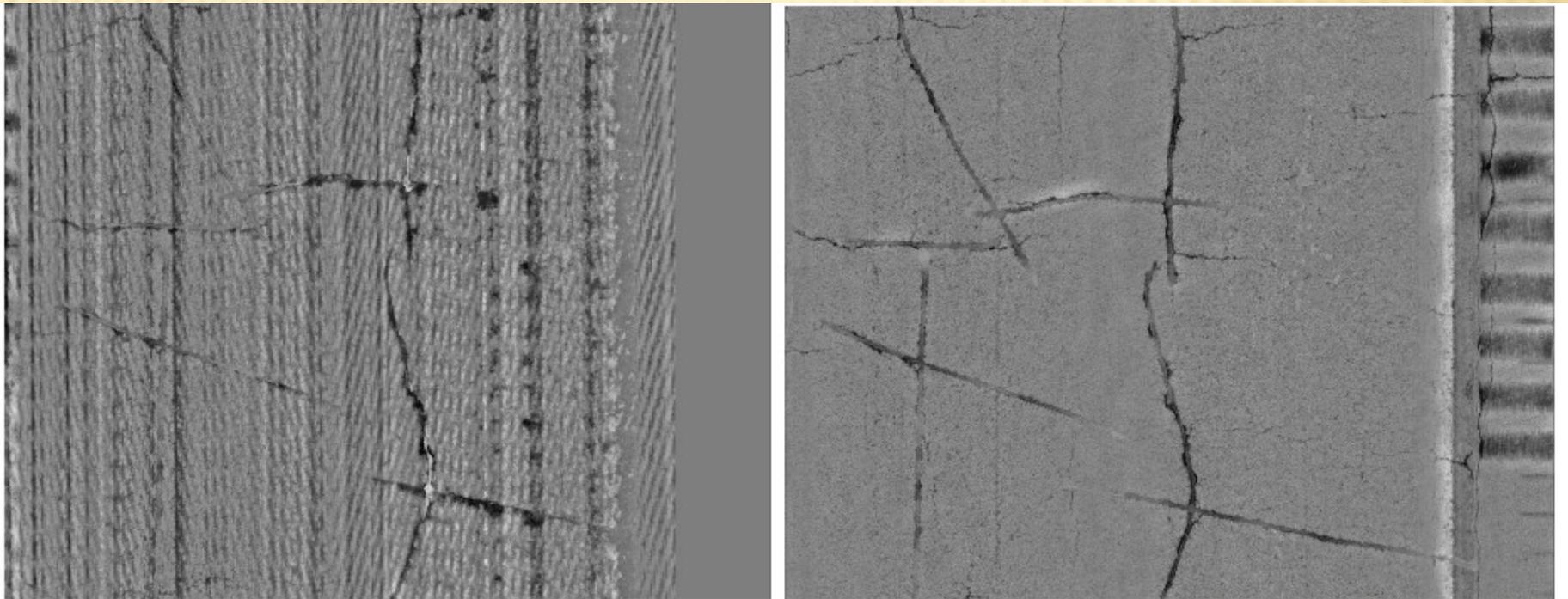
# IS THAT ENOUGH INFORMATION

- ✘ Kansas says okay for Transverse  
Longitudinal
  - + (would like more info like depth)
- ✘ May need more for Pattern

# IS THAT ENOUGH INFORMATION

- ✘ Kansas says okay for Transverse  
Longitudinal
  - + (would like more info like depth)
- ✘ May need more for Pattern
  - + (area may be needed to make meaningful)
- ✘ Need to do Some Math for Block
- ✘ May Need to Repeat for Seal

# EXAMPLE SEALED AND PROFILE MILL

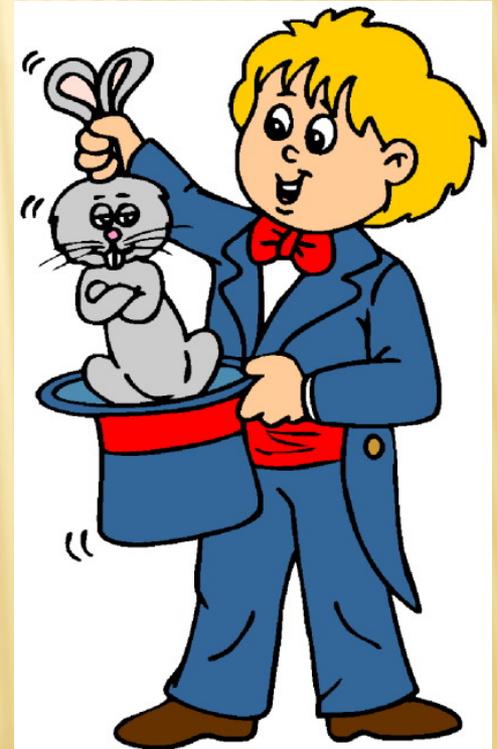
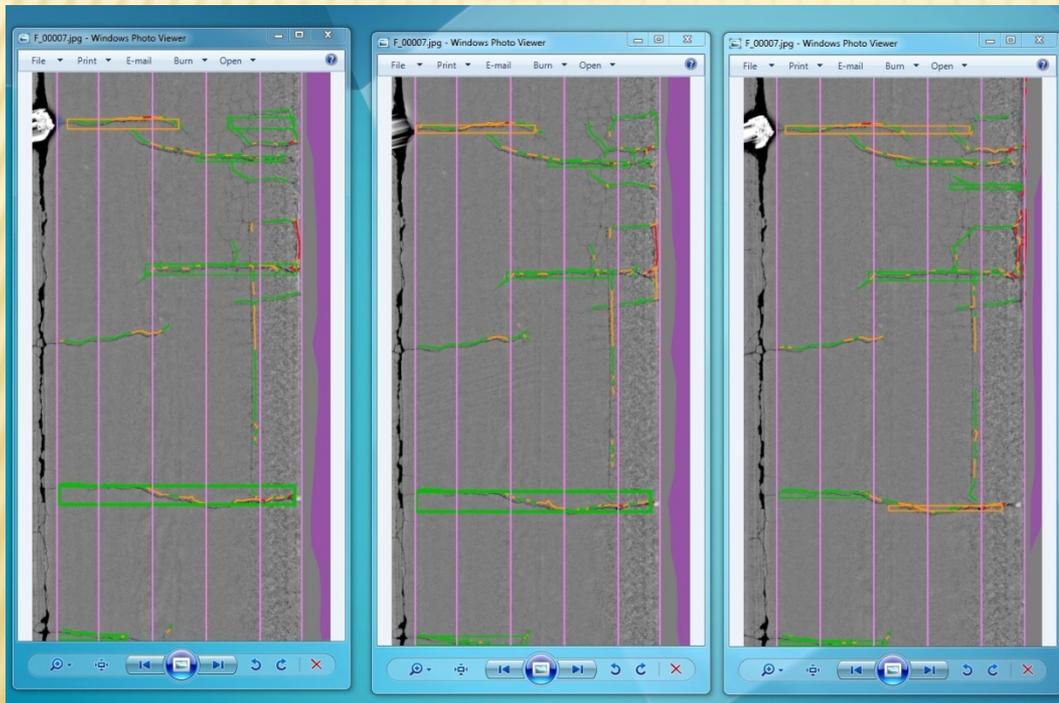


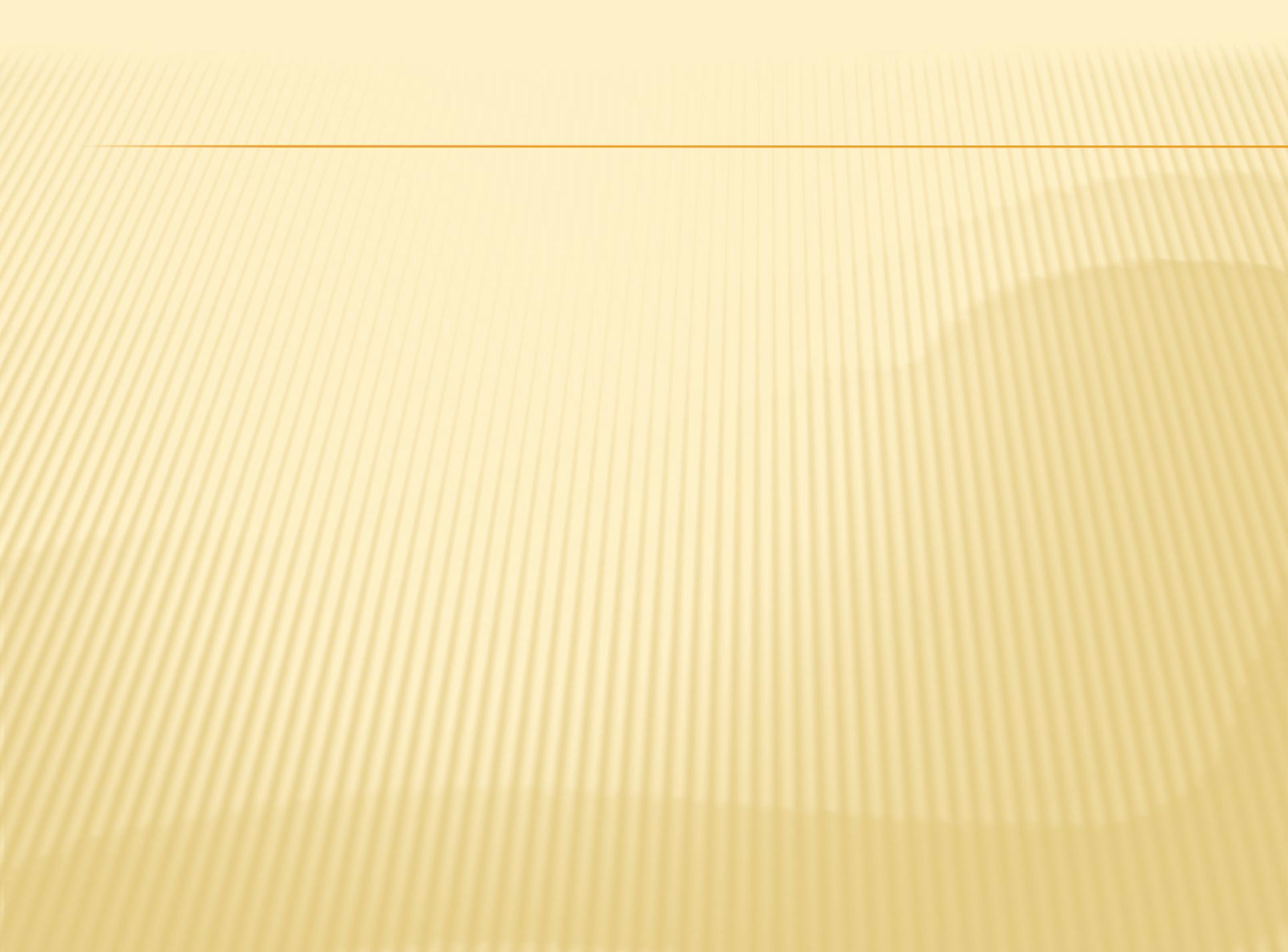
# RICK'S SUGGESTIONS

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- ✘ Standards are a Good Start
- ✘ Twist Our Brains Around Definition of Crack
- ✘ Apply Output from Standards
- ✘ Better Define Zones
- ✘ Address Area for Pattern Cracks (maybe transverse too)
- ✘ Incorporate Sealed Cracks Better

# QUESTIONS?



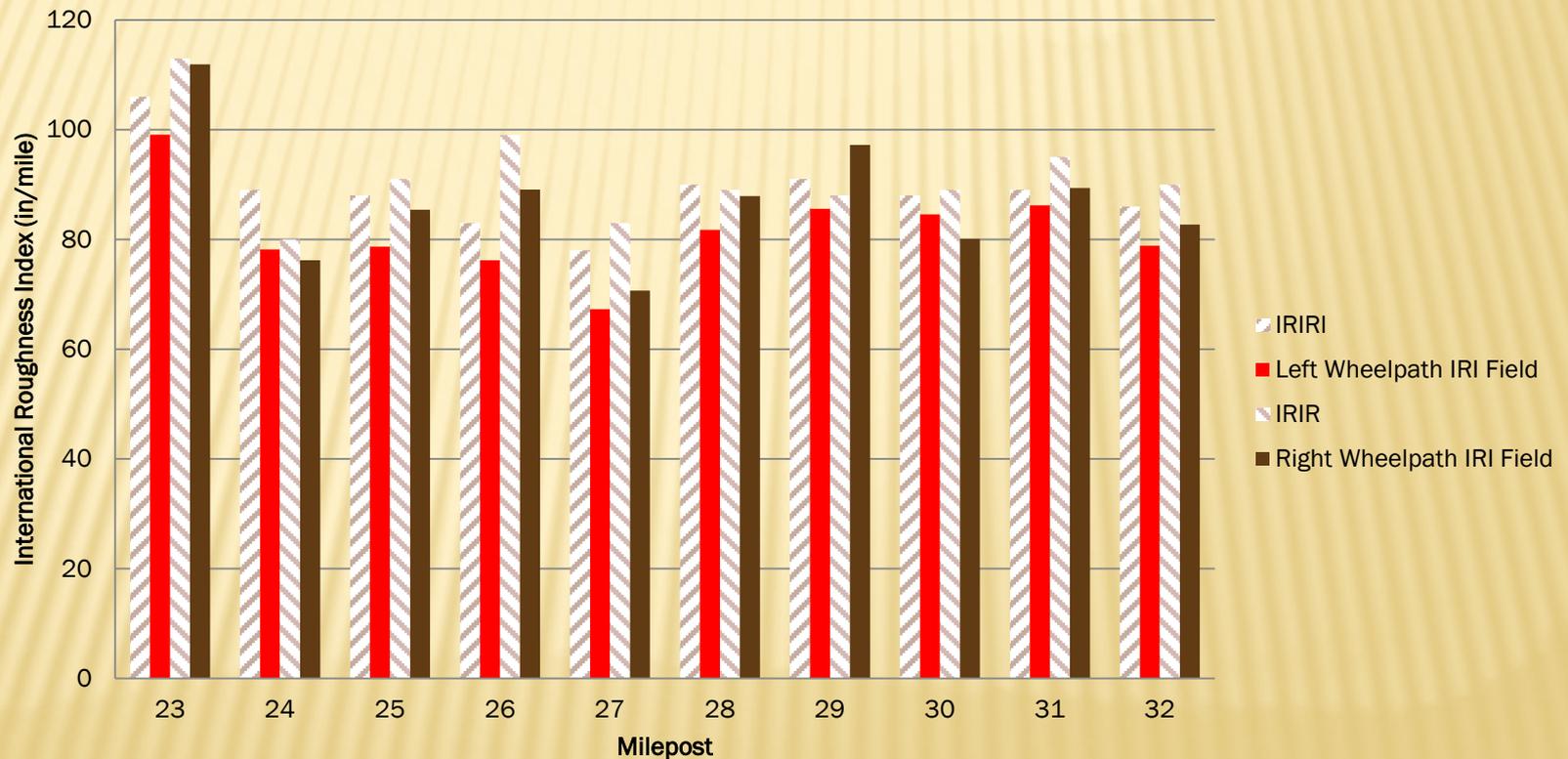


Items Suggested to Asses in Existing AASHTO Provisional Standards and KS Verification – Miller, KS

## **KS AUTOMATED EXPERIENCE**

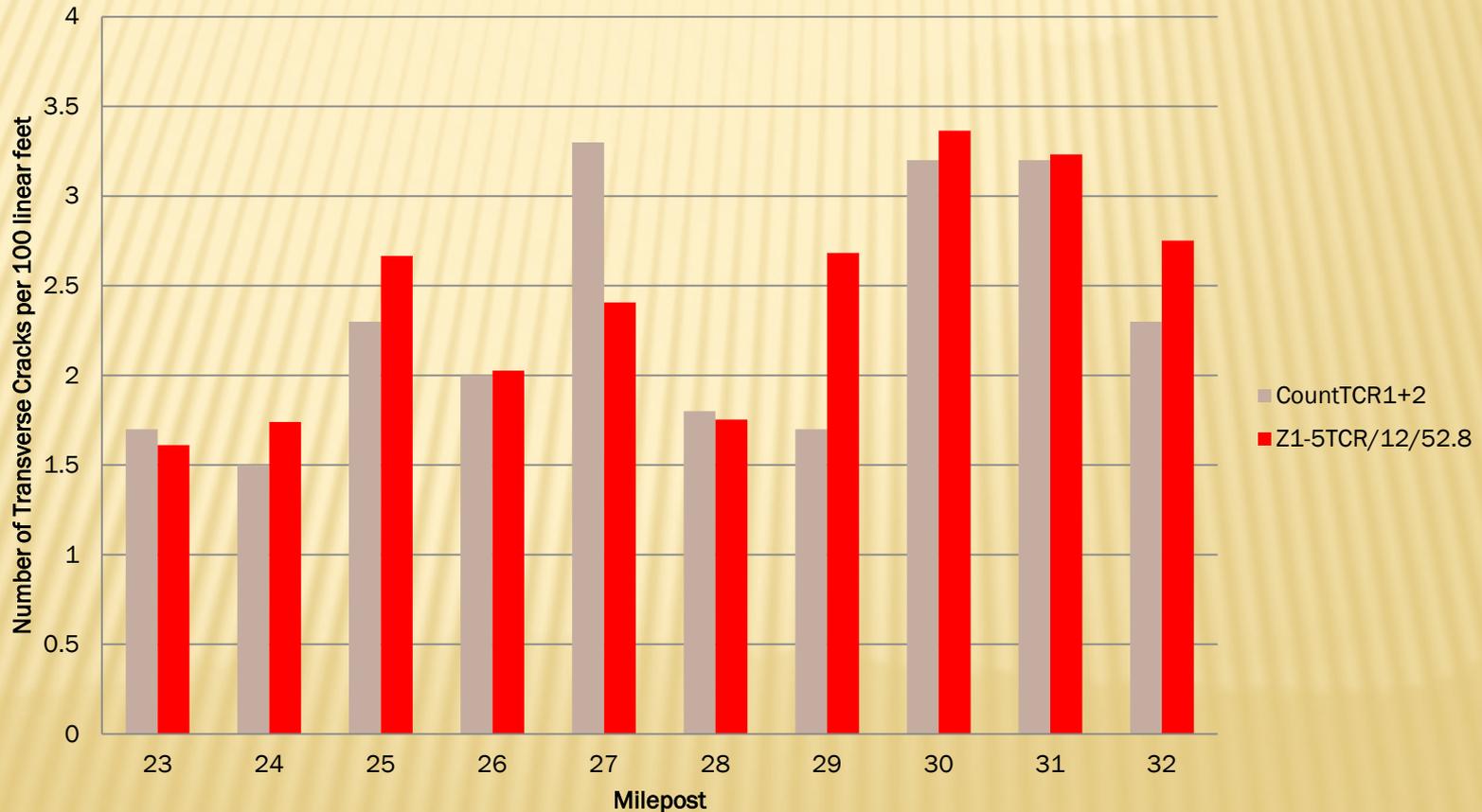
# 2012 NOS VS 2013 RSP IRI

2012 NOS IRI vs 2013 RSP IRI Values  
070U0005600S0EB



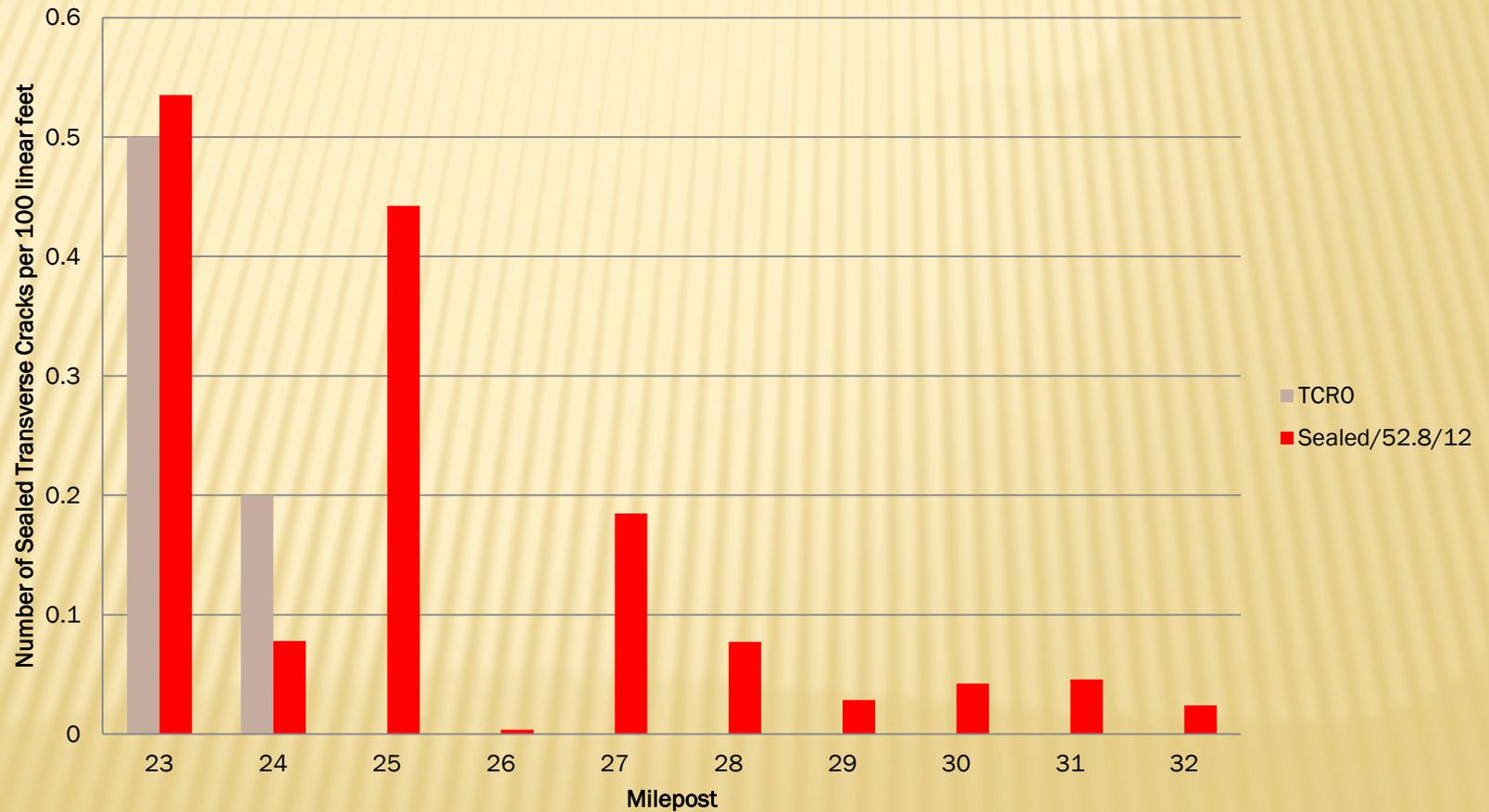
# COMPARING TRANSVERSE CRACKS

2012 NOS TCR1+2+3 vs 2013 LCMS Transverse Crack Values  
070U0005600S0EB



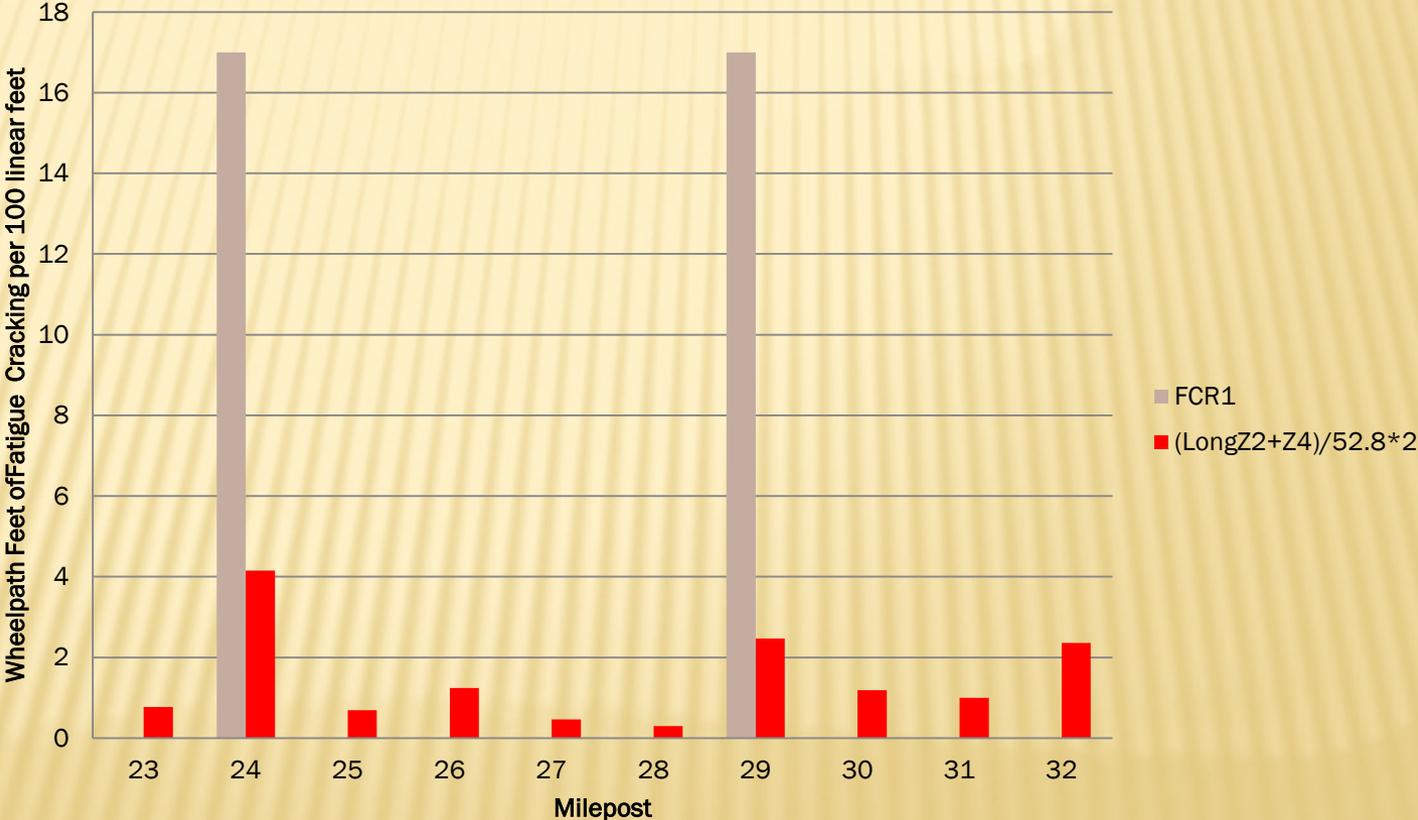
# 2012 NOS SEALED TRANSVERSE VS LCMS SEALED CRACKS

2012 NOS TCRO vs 2013 LCMS Sealed Crack Values  
070U0005600S0EB



# FATIGUE CRACKING COMPARISON

2012 NOS Fatigue vs 2013 LCMS Zone2+4 Crack Values  
070U0005600S0EB



# LESSONS LEARNED?

