

So Many Choices; So Much Data

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The Years of Worst First



The Easy Age to Better Data

- “Measuring” Pavement Condition
 - Panel Ratings
 - Small Samples
- Fairly easy to summarize and use

Learning from data

- Could not build our way out
- Started to see ranges for mix of fixes strategies
- Mix of fixes toolbox was growing
 - Overlays, seals, recycling, grinding, etc.
- Bigger push for data driven decisions

Data improved with needs and use

- Profilers
 - ~100% sample (at least longitudinally)
 - Objective
 - Repeatable
 - Uses: roughness, rutting, faulting

More data, more effort to use it

- Profile → IRI (calibrated to old ride index)
- Profile → Automated Faulting (calibrated to old manual measurements)
- Profile → Automated Rutting (calibrated to old manual measurements)
- (Cracking was still a visual assessment)

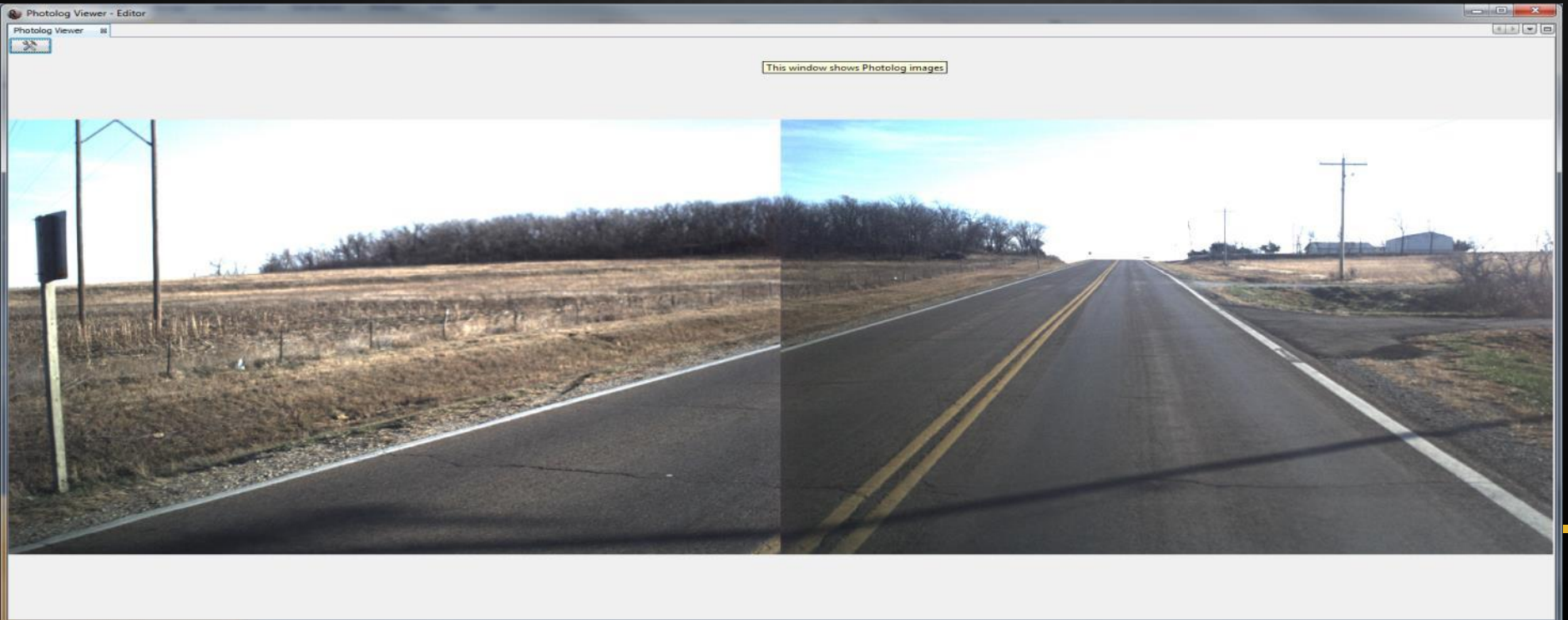
Fat and Happy all going well

- And then...
- Maybe we can/should get more/better data
 - ~100% sample
 - Objective/repeatable
 - Surface 3-D
 - Roughness(es), rutting(s), faulting(s), cracking(s)

Data, data, everywhere; like a fire hose

- At this point mimicking our previous data
 - Roughness from profile in wheelpath (simulated point or 4-inch spread)
 - Rutting from 5-point
 - Faulting from ????
 - Cracking well, this is hard to compare back...but that did not stop us.

Comparisons(not Calibration)



Range and Intensity on U-56

Roadview Workstation 2.2.16

File Edit View Navigate Tools Window Help

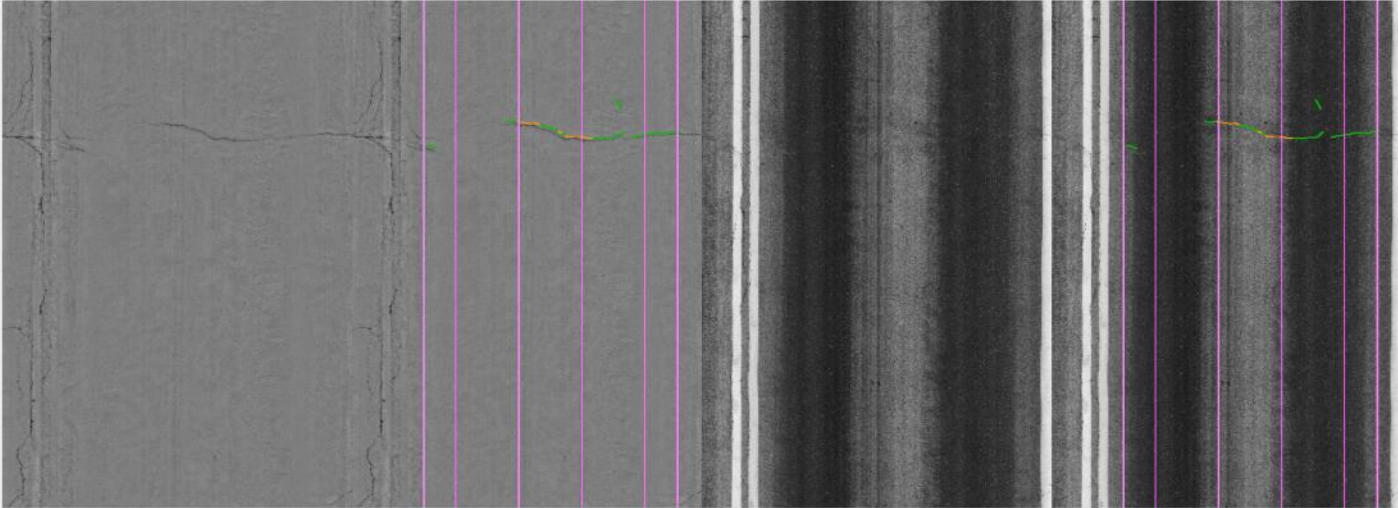
2013 Kansas

Route Selection

Name:

- 003L000590500NB
- 007U00036050
- 007U000360500WB
- 007U00075050
- 022K00070500NB
- 022L000360500WB
- 023L00024050
- 023L00056050
- 023L00059050
- 043L00075050
- 044K00040500EB
- 044L00024050
- 070U00056050**
- 070U00075050
- 070U000750500NB
- 089I000700500WB
- 089K00028xxxx_1_N_0~1
- 089K00077xxxx_1_F_0~4
- 089U00024050
- 089U000750050_1_N_2~1
- 089U000750500NB
- 089U000750500SB
- 089U000750500SB~1
- 089U00075050~2
- 099I000700500EB
- 099I000700500WB
- KDOTPAVEMENT_SILVERLAKE_1
- KDOTPAVEMENT_SILVERLAKE_2
- KDOTPAVEMENT_SILVERLAKE_3
- KDOTPAVEMENT_SILVERLAKE_4
- KDOTPAVEMENT_SILVERLAKE_5

Photolog Viewer

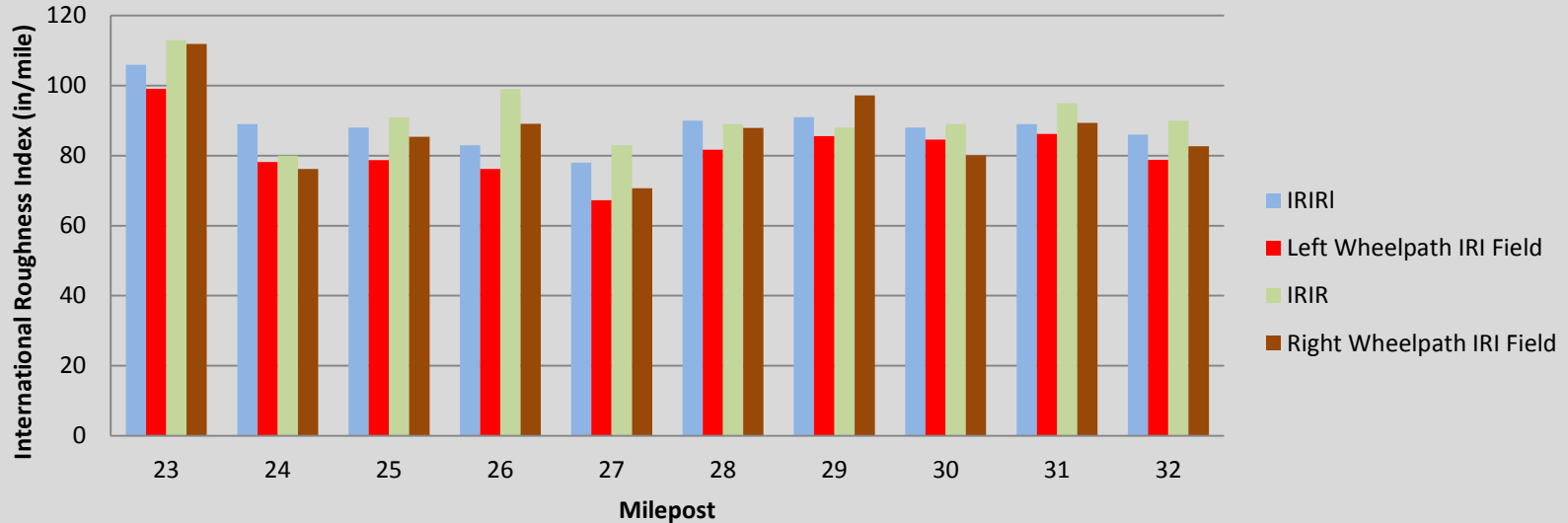


Route Location Window

Route	Output	Profile Viewer
Route		070U00056050
Route Mileage		23.1990
Route Mileage Range		22.9790 - 32.8274
Frame		45
Heading		90.47824
Latitude		38.78263041
Longitude		-95.67899260
Altitude		314.23305422

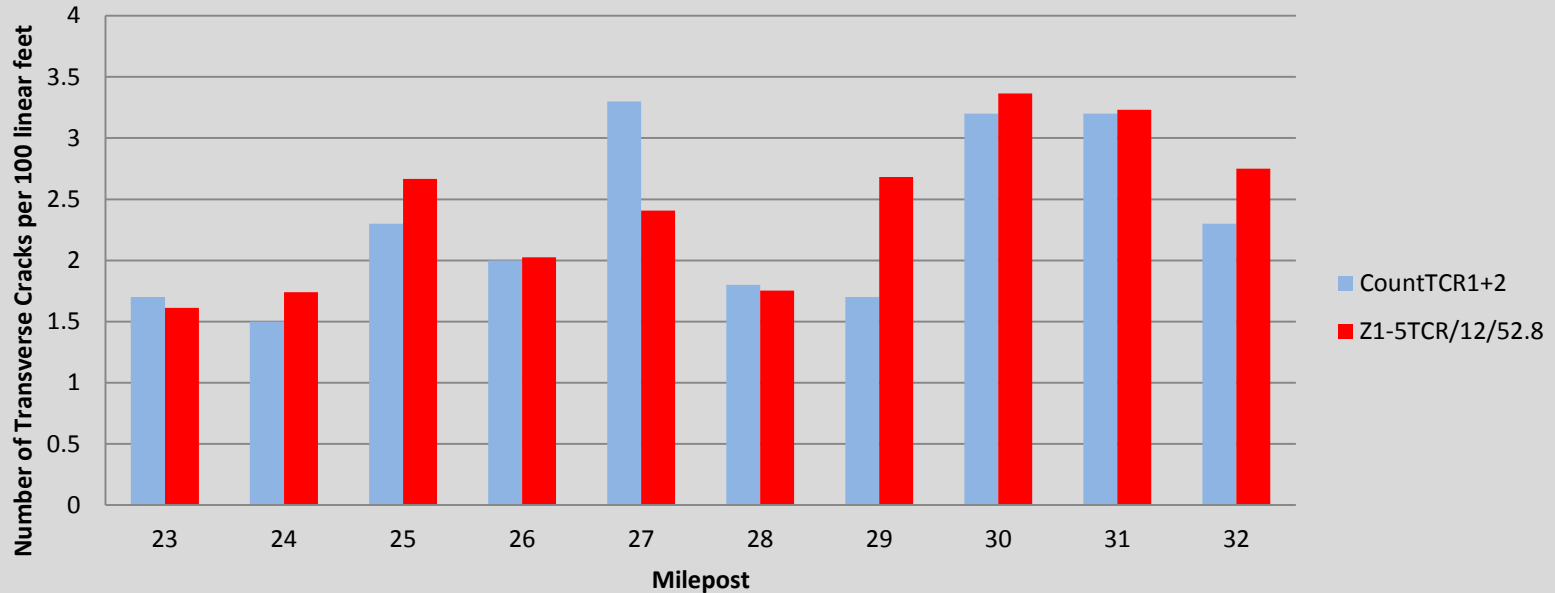
2012 NOS vs 2013 RSP IRI

2012 NOS IRI vs 2013 RSP IRI Values
070U0005600S0EB



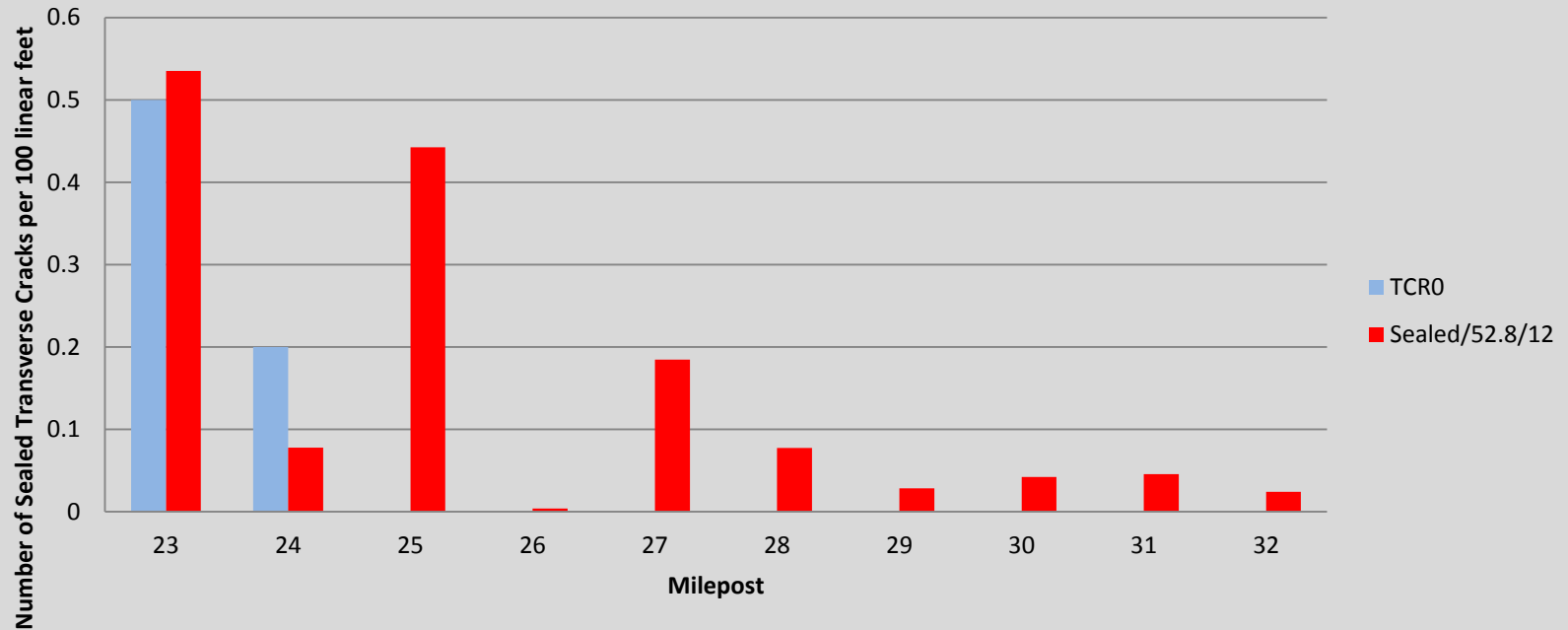
Comparing Transverse Cracks

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



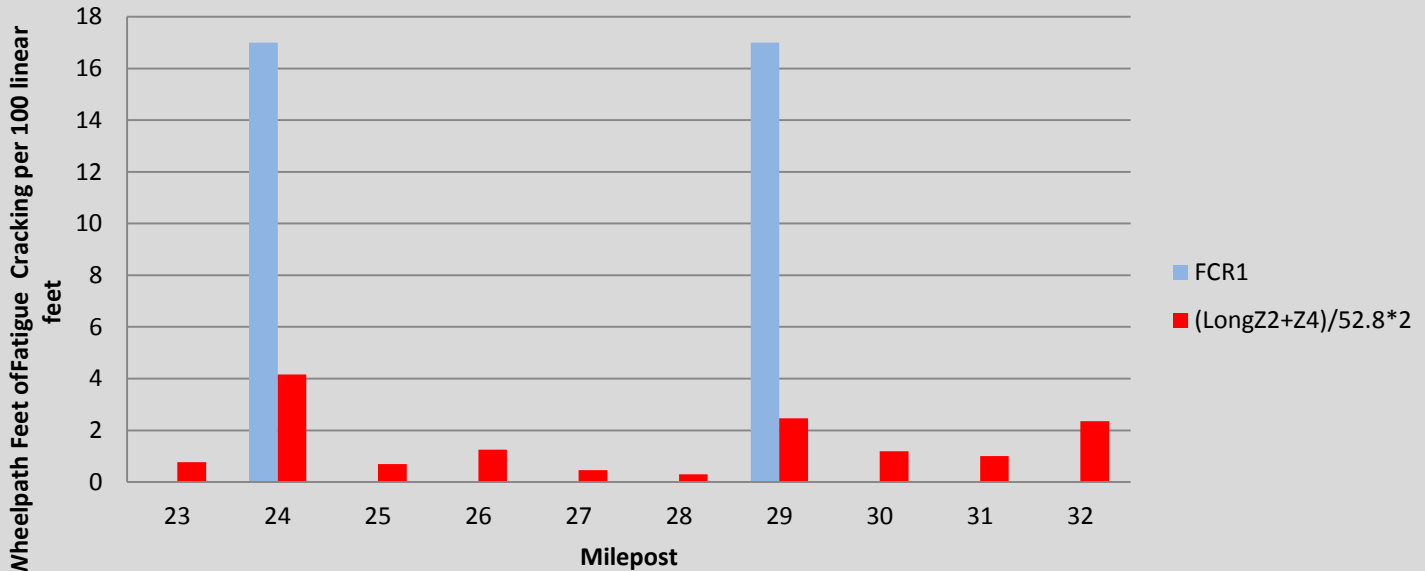
2012 NOS Sealed Transverse vs LCMS Sealed Cracks

2012 NOS TCRO vs 2013 LCMS Sealed Crack Values
070U0005600S0EB

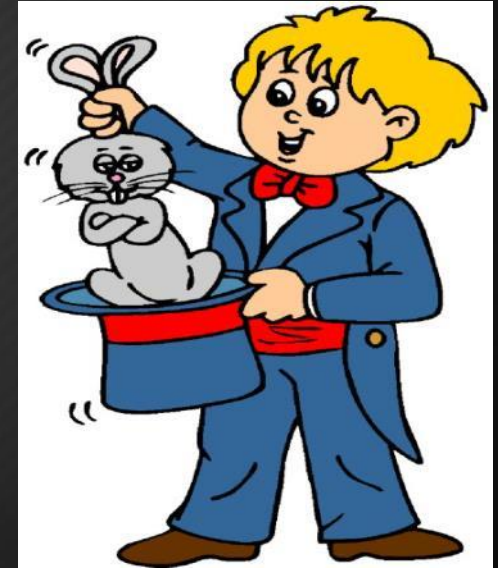
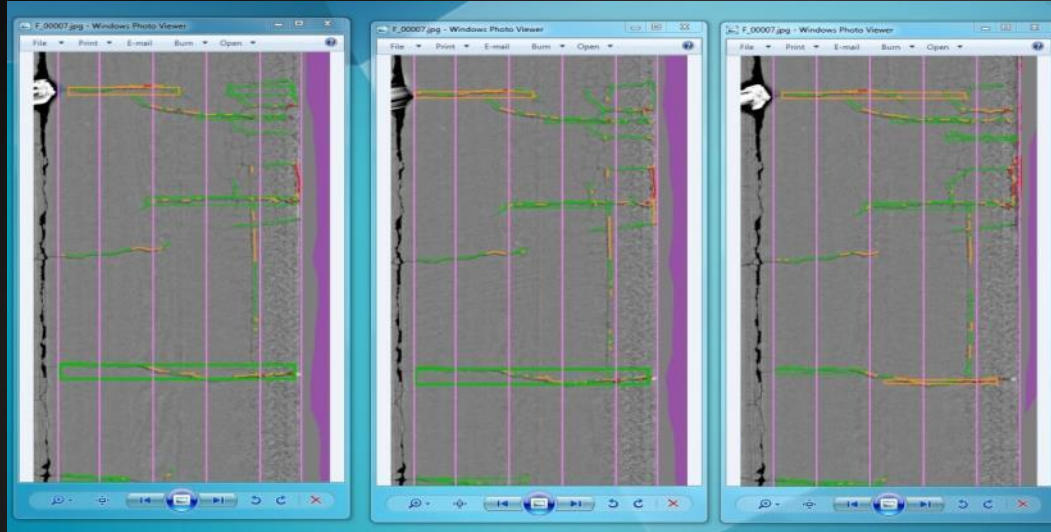


Fatigue Cracking Comparison

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



Lessons Learned? From 2013



Lessons Learned Since 2013

- Finally got over comparing new to old data
 - Profiler – gave us a continuous linear set of elevations. From those we could easily compute the IRI statistic and faulting. With 3 of these we could even compute rutting.
- Finally started thinking about opportunities to use the new data
 - Today we can get a 3-D surface elevation (and intensity map).
 - What do we do with all this data?
 - Why collect a surface of data and then throw most of it away to get back to where we were?

How do we use all this data?

- Evaluate different parts of the data to use to generate the input profiles to compute IRIs.
 - Maybe the roughness in the wheelpath relative to the roughness not in the wheel paths becomes meaningful
- Evaluate rutting using different methods of determining the 5 points; generate different statistics for pavement deformation
 - Maybe rutting needs to be tied to cross slope and vertical curvature to be meaningful
- Evaluate faulting at various locations relative to the joints (which were also found automatically)

So Much Data; So Many Choices

- Kansas has learned a lot through pavement condition data
- We are proud that we use the data to make decisions
- We continue to evaluate how to better use the data.