

DEVELOPMENT OF A PAVEMENT CONDITION ASSESSMENT METHOD FOR THE INTERSTATE HIGHWAY SYSTEM

Presented By

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Project Objectives

- **Define consistent and reliable method of assessing infrastructure health on the IHS**
- **Develop tools to provide FHWA and State DOTs ready access to key information**
- **Focus on pavements and bridges**

Goal of Paper

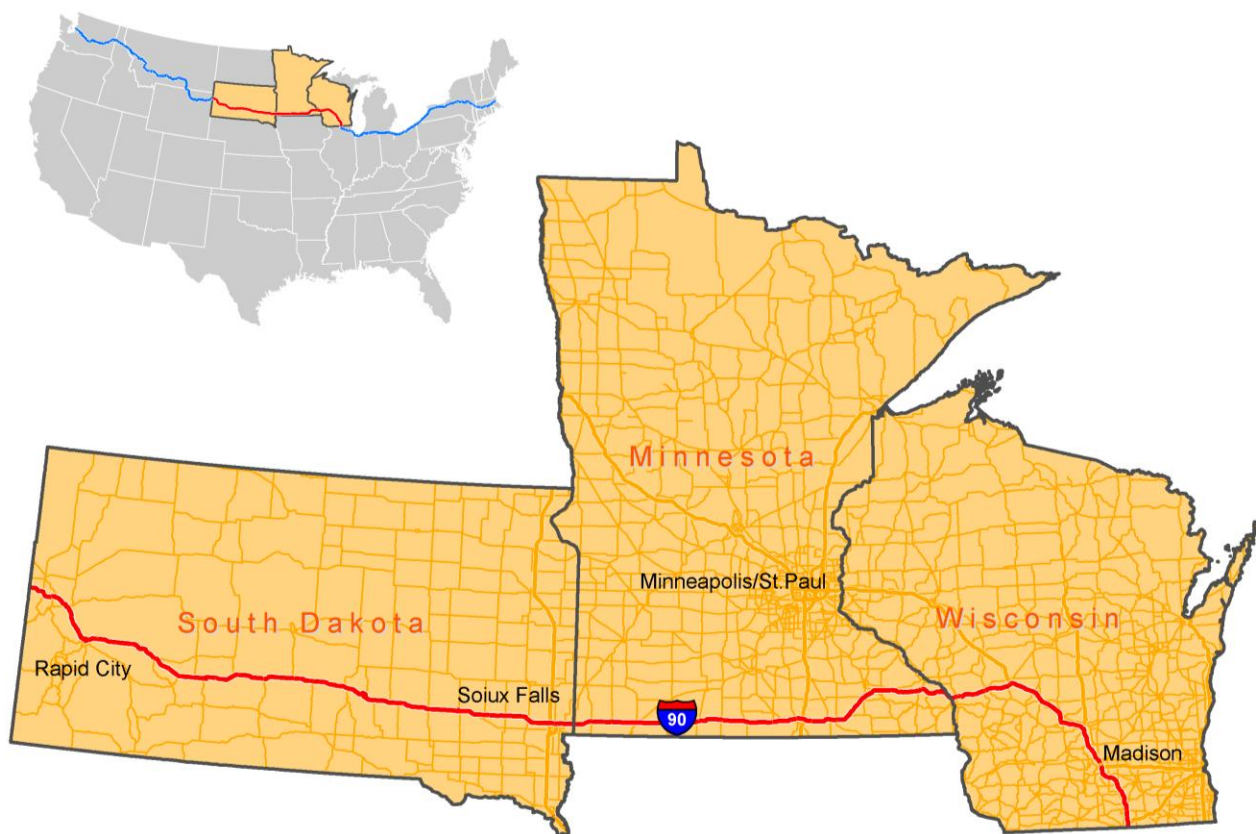
- **Process and findings related to establishing condition through pavement surface characteristics**
- **Pilot study performed to test options for categorizing pavement condition**

Goals of the Pilot Study

- **How difficult is it to obtain the data?**
- **Is there temporal consistency between data sets?**
- **How do data sets compare?**
- **Which data set has potential use for National condition metric?**
- **What are the needed improvements?**

Pilot Study Corridor

- 874 miles
- AADT from 5,000 to 90,000
- Urban and Rural
- Variety of surface types



National Data

- **HPMS in 2010+ format**
- **Intervals range from 0.002 km to over 15 km**
- **Rutting**
- **Roughness**
- **Faulting**
- **Percent and length of cracking**
- **2009 data from MN and WI, 2010 data from SD**

State Data

- **Documentation**
- **Inventory**
 - Roadway geometry
 - Maintenance / Rehabilitation
 - Traffic
- **Pavement management data**
 - Structure
 - Performance
 - FWD



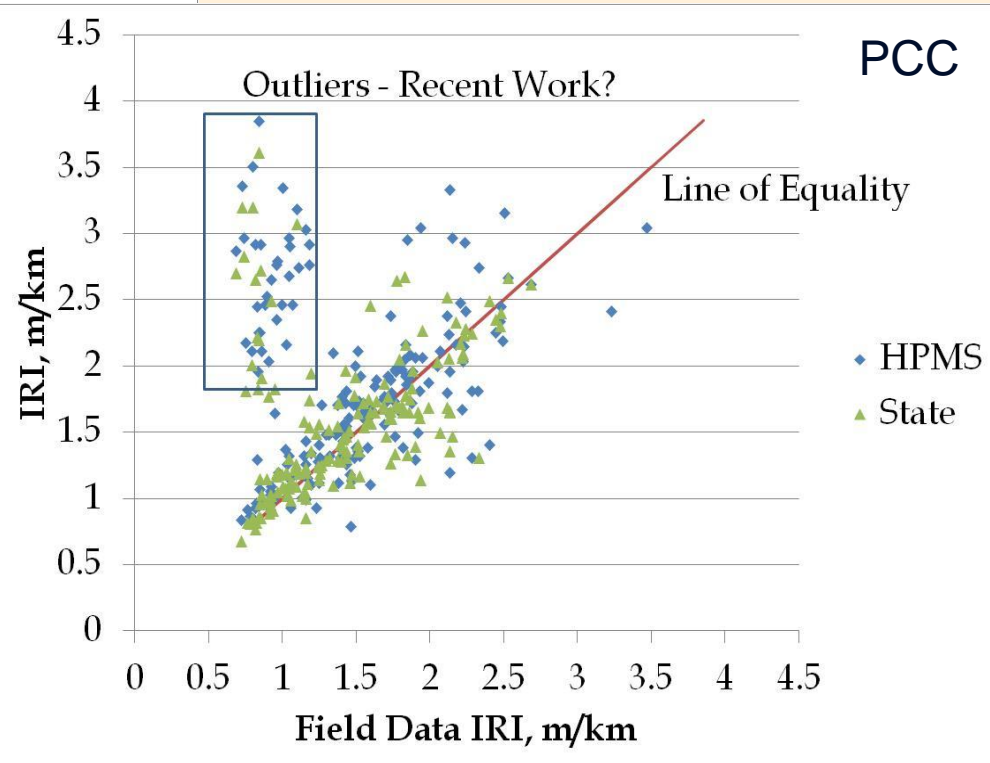
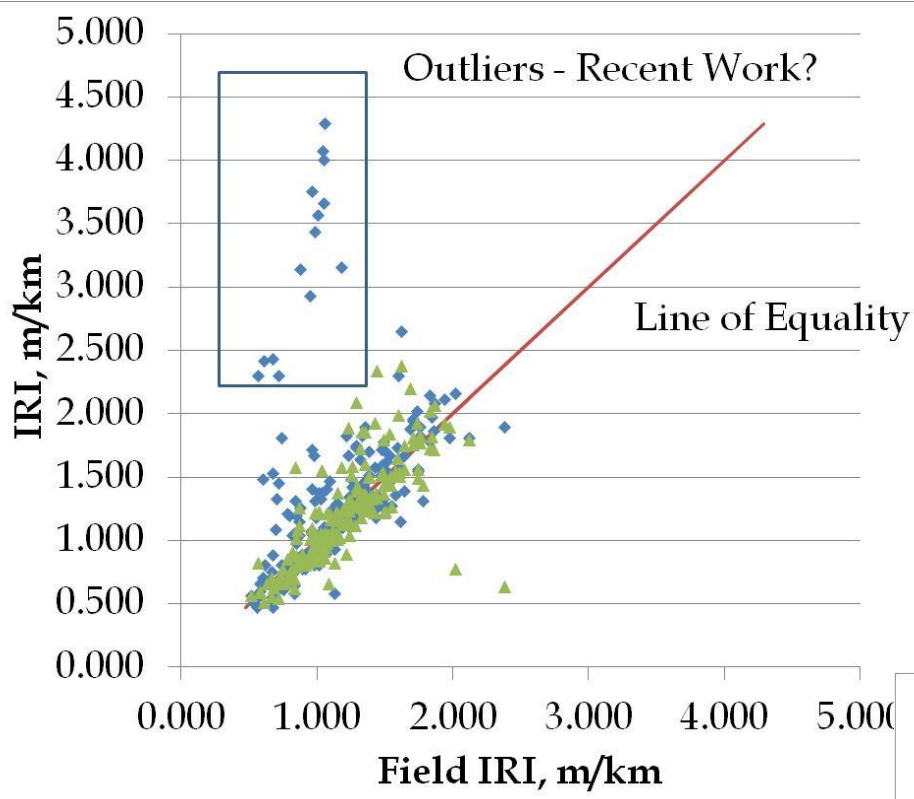
Field Data Collection

- **Summer of 2011**
- **Collected in eastbound direction**
- **Summarized to 0.2-km intervals**
 - **Roughness**
 - **Rutting**
 - **Faulting**
 - **Percent and length of cracking**
- **Estimated PCI for 240 km**



Data Collection Summary

	National	State	Field	
	HPMS	PMS	Condition	RWD
MN	2009	2010	2011 (No RWD for WI)	
SD	2010	2010		
WI	2009	2010		



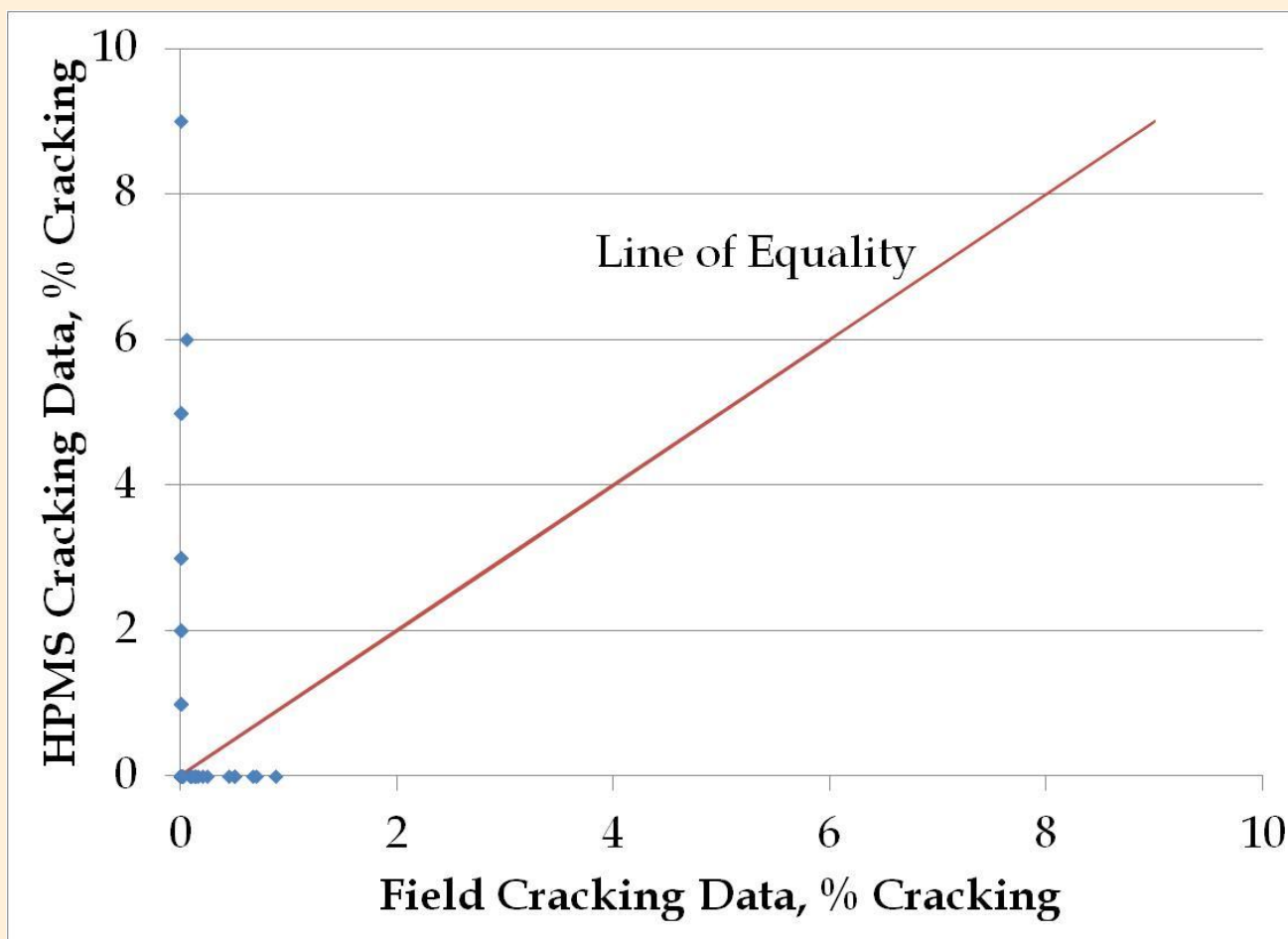
Correlation of IRI

	HPMS		State	
	Outliers	No Outliers	Outliers	No Outliers
Field AC	34%	79%	77%	75%
HPMS AC			29%	84%
Field PCC	22%	63%	36%	84%
HPMS PCC			54%	60%

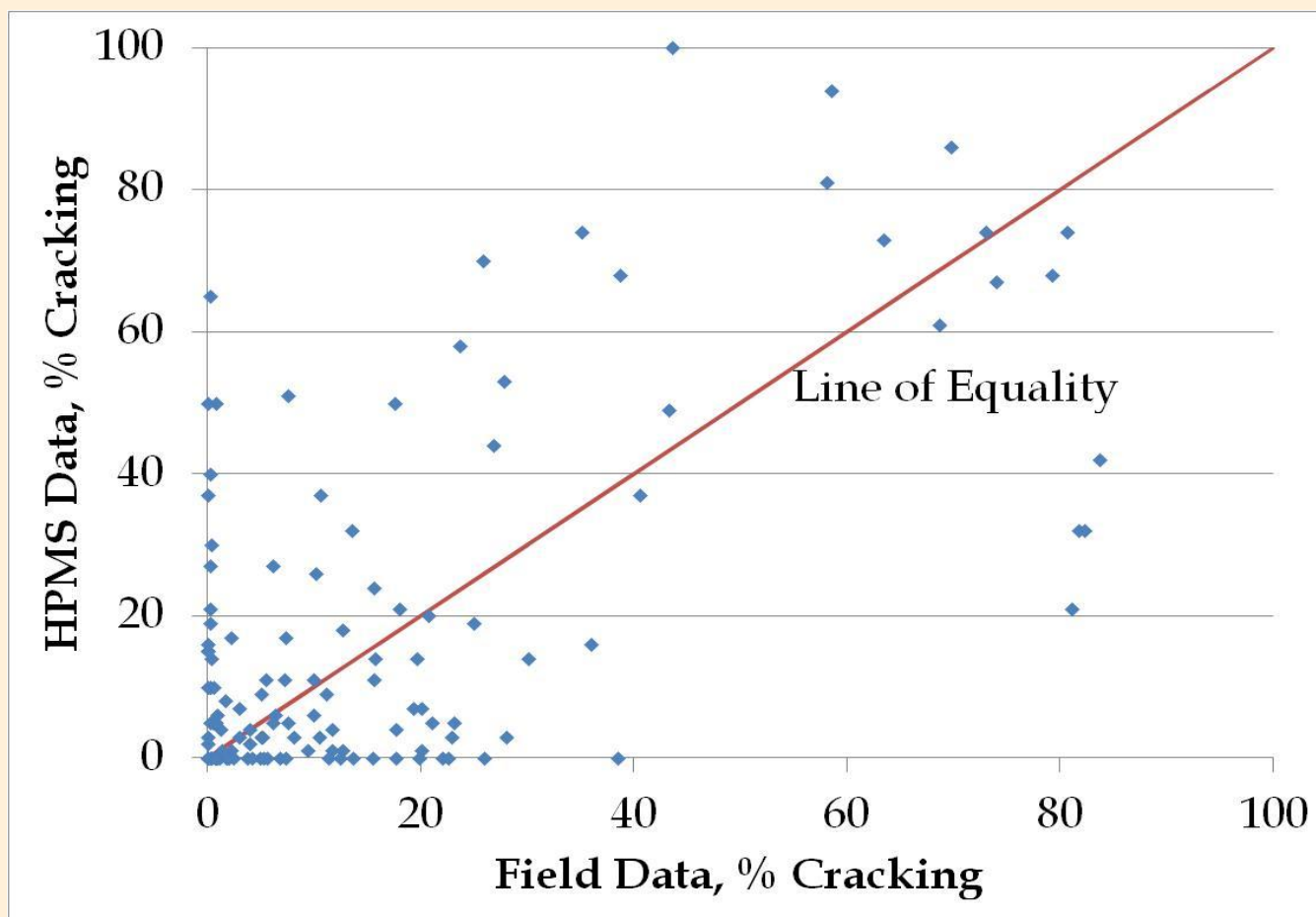
Cracking

- **Percent cracking**
 - AC, percentage of area of wheelpaths
 - JCP, percentage of cracked slabs
 - CRC, percentage of punchouts
- **Length of cracking**
 - Length of transverse or reflective cracking on AC pavements, only

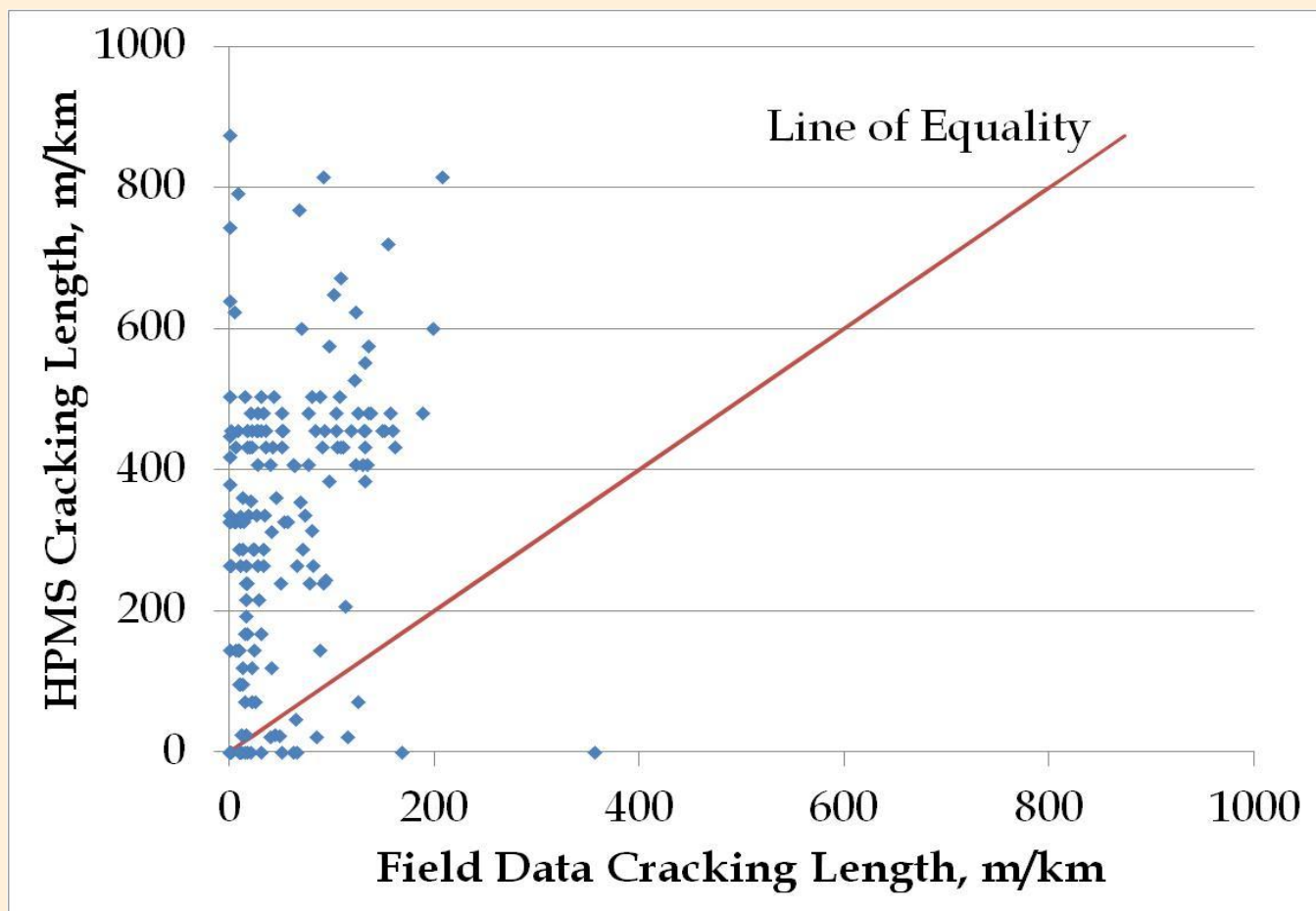
Percent Cracking on AC



Percent Cracking on PCC



Cracking Length

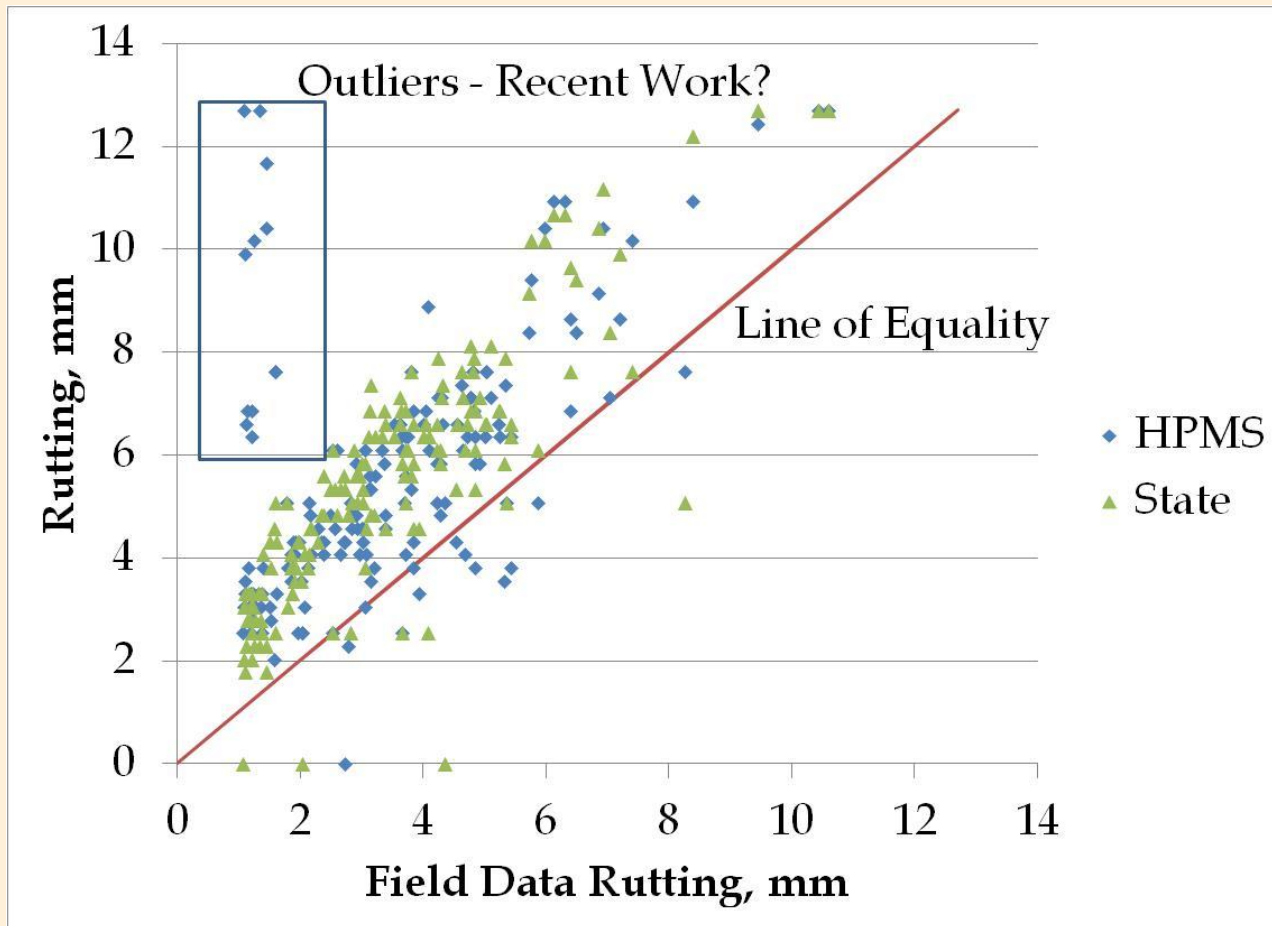


Correlation

Data Set	Correlation between Field and HPMS
Asphalt surface, % cracking	6%
Asphalt surface, crack length	27%
PCC surface, % cracking	64%

- **Temporal differences in data**
- **Different vendors**
- **HPMS are sampled, field are continuous**
- **Studies show high variability in crack detection**

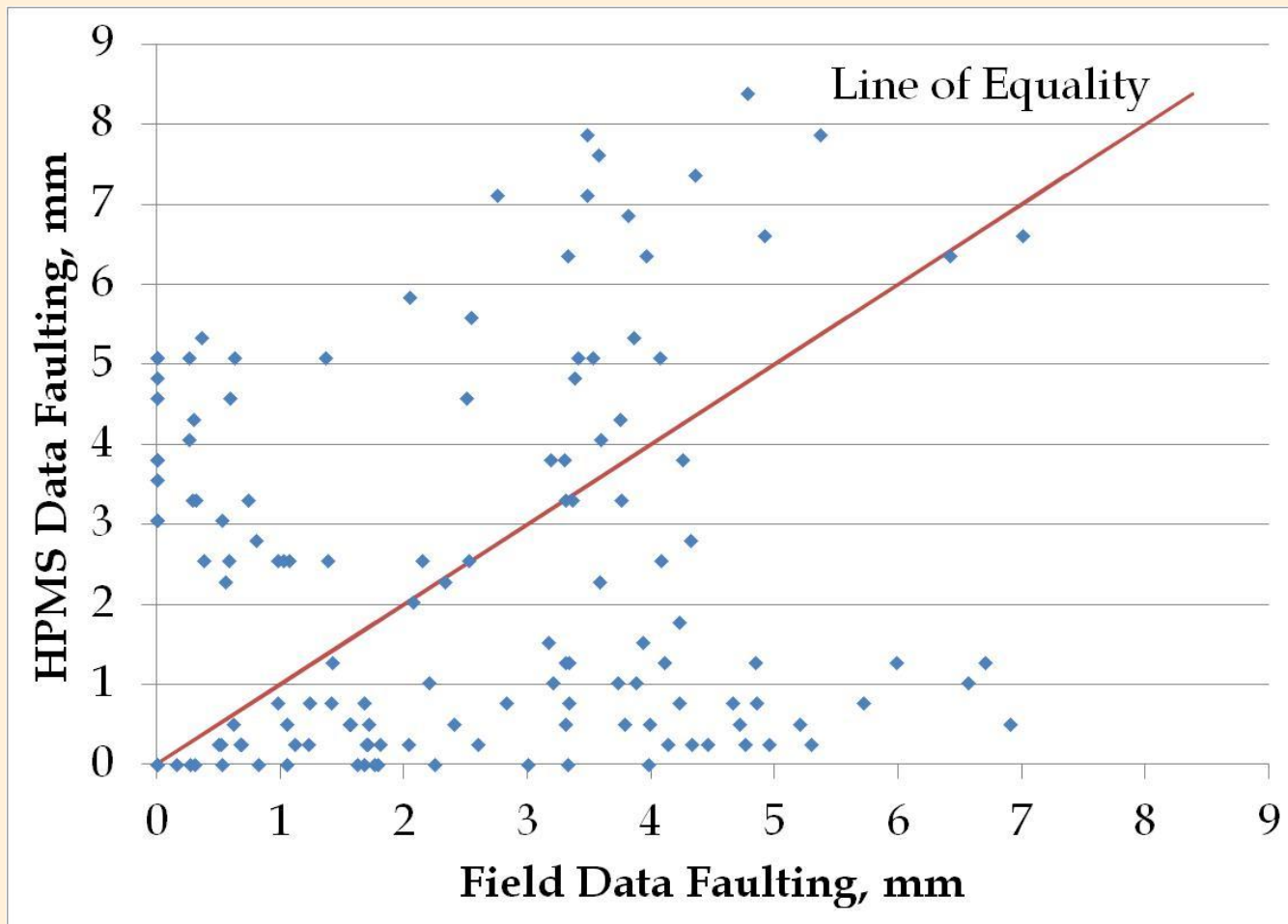
Rutting Data



Rutting Correlations

	HPMS Rut		State Rut	
	Outliers	No Outliers	Outliers	No Outliers
Field Rut	58%	86%	87%	87%
HPMS Rut			57%	92%

Faulting Data



Conclusions

- **HPMS summary lengths set to fixed length**
- **Processing time results in data that are 1.5 years old used to evaluate condition**
- **Cracking / faulting not feasible for use**
- **States would need to collect similar data**
- **Need good information about maintenance and rehabilitation activities**

Conclusions, cont.

- IRI is currently most feasible for use
- Rut algorithm should be codified to promote consistency
- Cracking data collection needs further definition and QA/QC procedures
- Rutting could be used as a flag
- Significant work required for cracking and faulting