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Putting the VALUE in Valuable Pavement Management Data Collection

NWPMA 2017
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Learning Objective(s)

- Pavement management systems require data to develop and refine pavement performance models.
- This presentation will highlight cost-effective data collection strategies that still provide valuable data to support pavement management.

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Outline

- Requirements
- Sub-surface Data Collection
- Surface Data Collection

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Requirements – “Compliance”

- What is required
- GASB 34
- MAP-21

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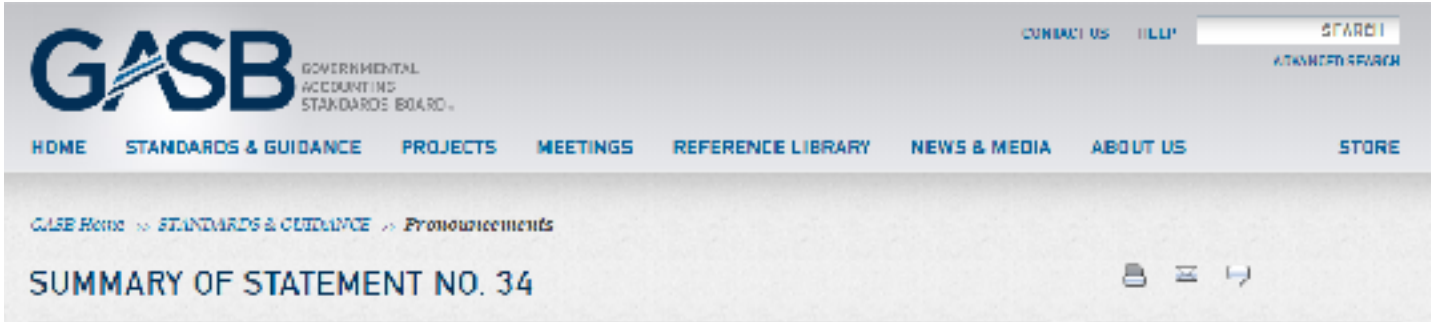
Compliance – GASB 34



- Government Accounting Standards Board Rule 34
  - Straight-line depreciation, or
  - Observed condition and predicted performance

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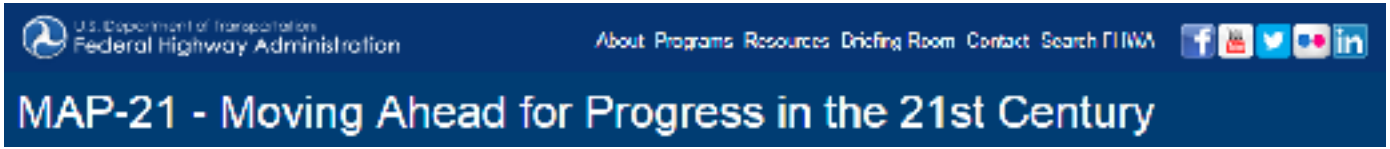
Compliance – MAP-21



- *Moving Ahead for Progress in the 21st Century*
  - Strengthens America's highways
  - Establishes a performance-based program.
  - Creates jobs and supports economic growth
  - Supports the DOT's aggressive safety agenda
  - Streamlines Federal highway transportation programs.
  - Accelerates project delivery and promotes innovation.

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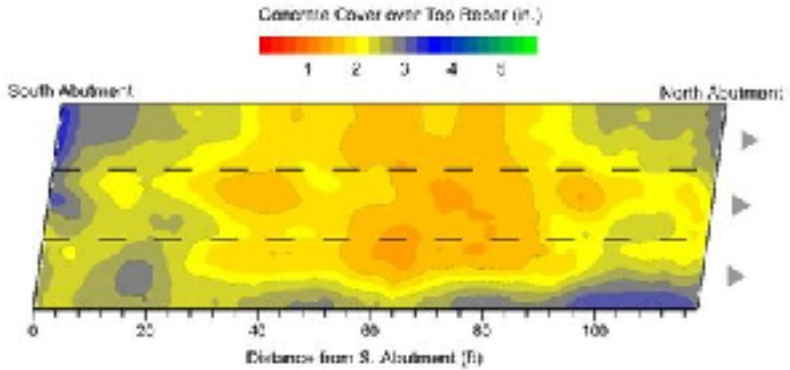
Structural Evaluation – What's Beneath the Surface

Ground Penetrating Radar

Source: Infrasense



Source: Infrasense

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Structural Evaluation – What's Beneath the Surface

Pavement Coring

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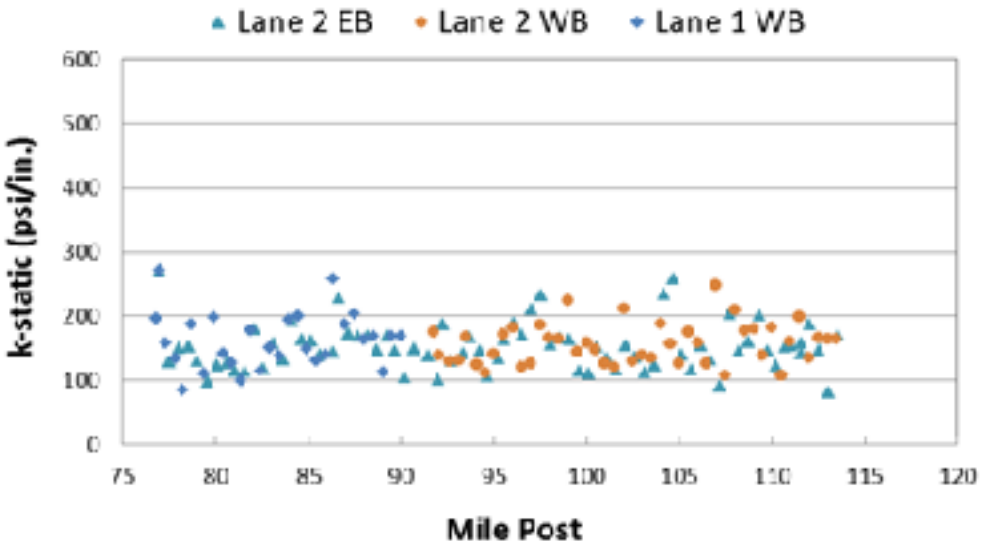
Structural Evaluation – What's Beneath the Surface

Deflection Testing



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Structural Evaluation – What's Beneath the Surface

Deflection Testing

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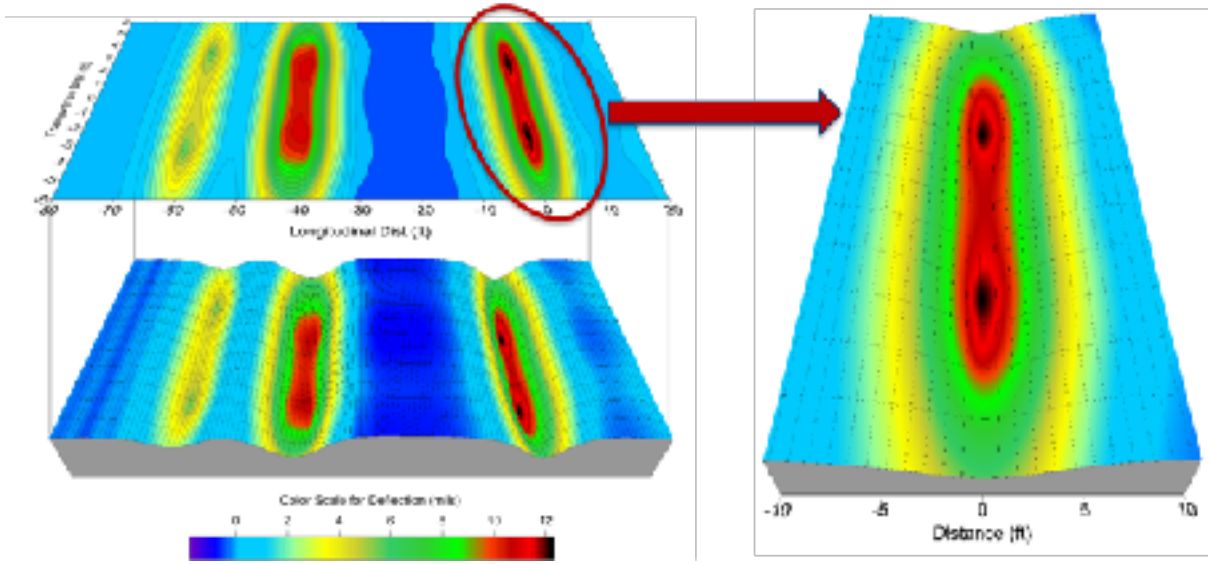
Structural Evaluation – What's Beneath the Surface

Deflection Testing



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Pavement Data – Typical Collection

- Imagery
- Cracking
- Roughness
- Rutting
- Faulting
- Friction

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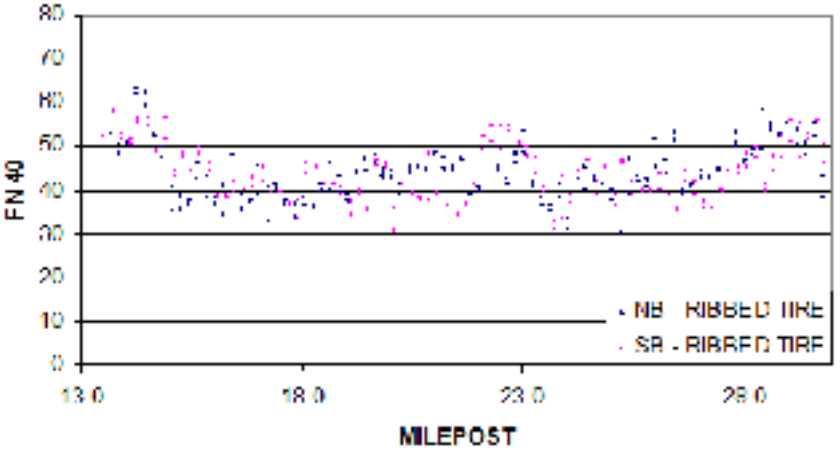
Friction Testing – Surface Quality

Safety

Micro and Macro Texture



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Pavement Data Collection – Typical Methods

- Foot on Ground
- Windshield
- Imagery-to-Desktop: semi-automated
- Sensors (laser profile, LCMS)
- Imagery-to-Answers: fully automated

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Collection and Processing Methods

- Foot-on-ground survey
- Automated data survey vehicle (DSV)
  - **High-resolution images**
  - **Rated manually in the office**
- Automated distress identification and rating

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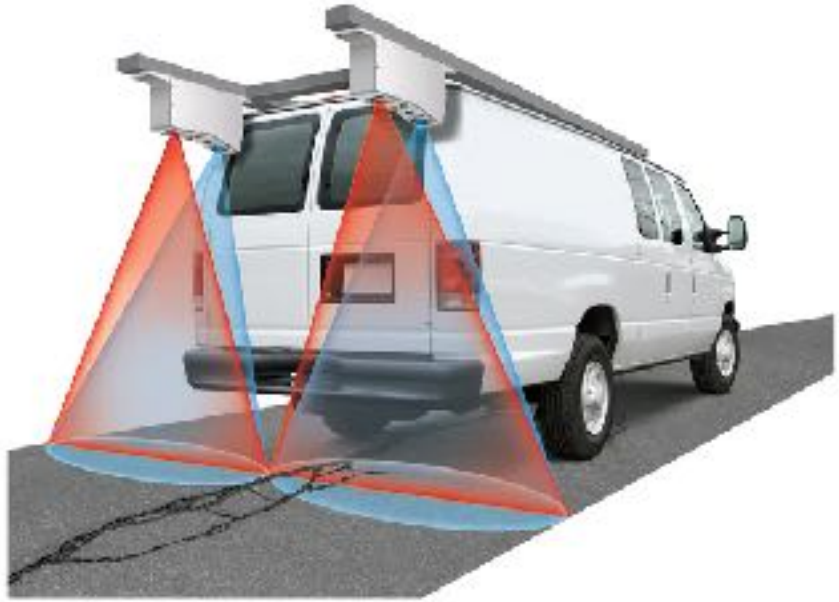
Laser Crack Measurement System (LCMS)



Source: Pavemetrics

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PaVision®

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PaVision® Survey Image - Raw

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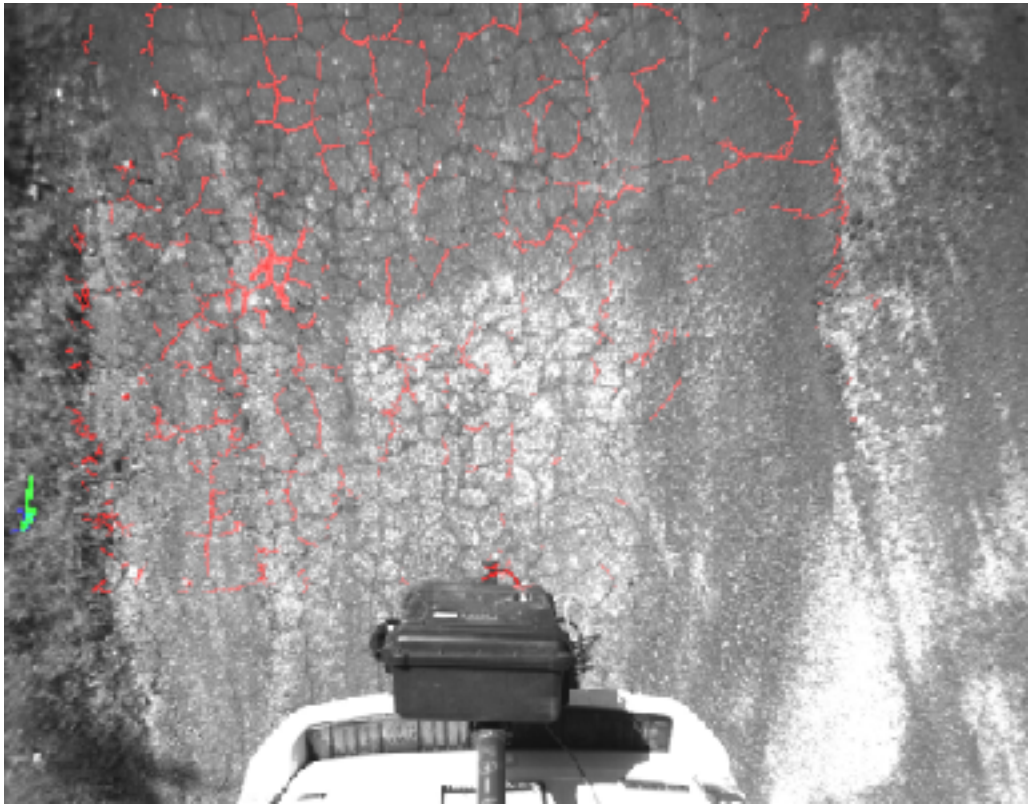
PaVision® Survey Image - Processed



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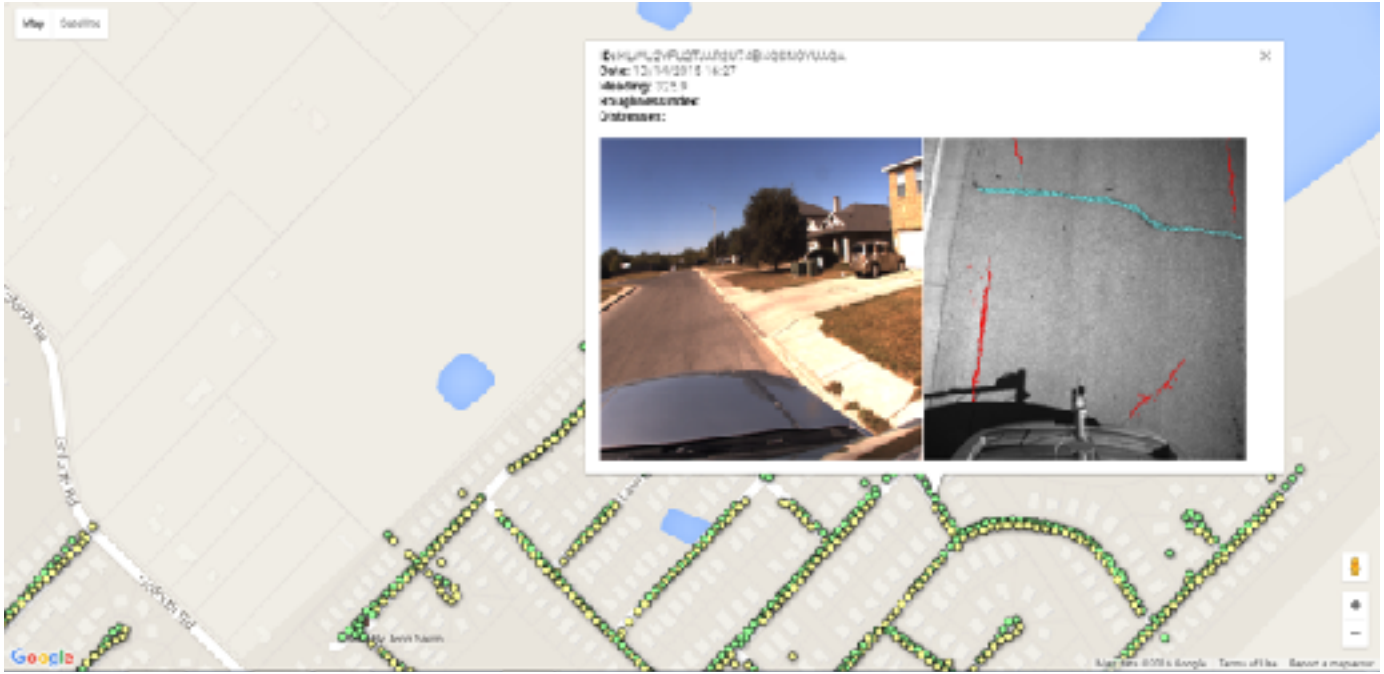
Google Map Overlay/Interface



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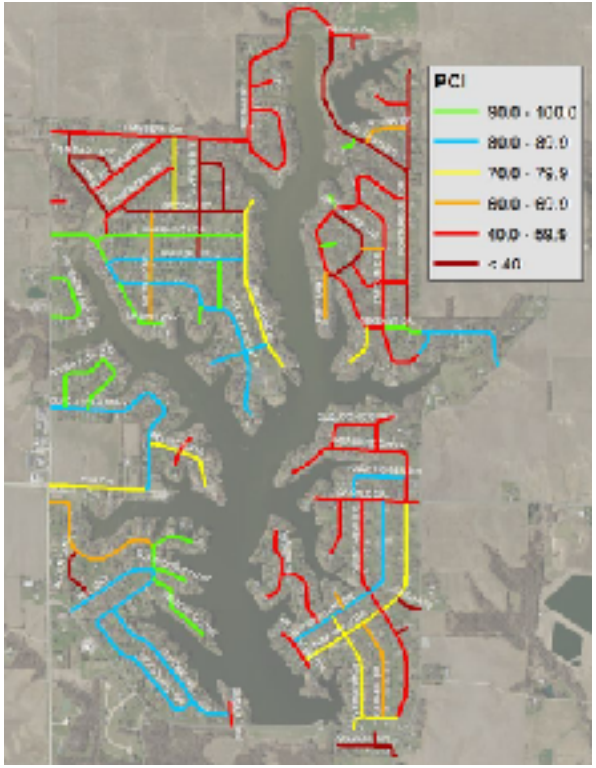
Surface Condition Ratings



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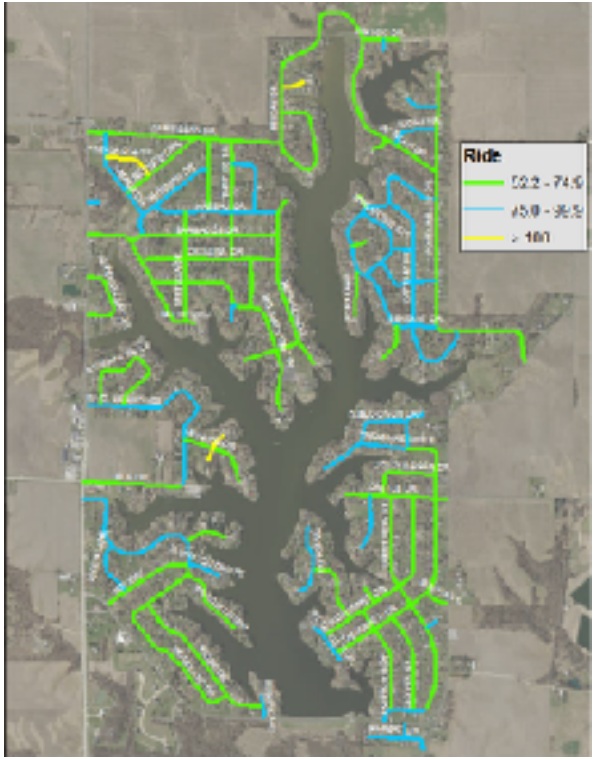
Ride Data



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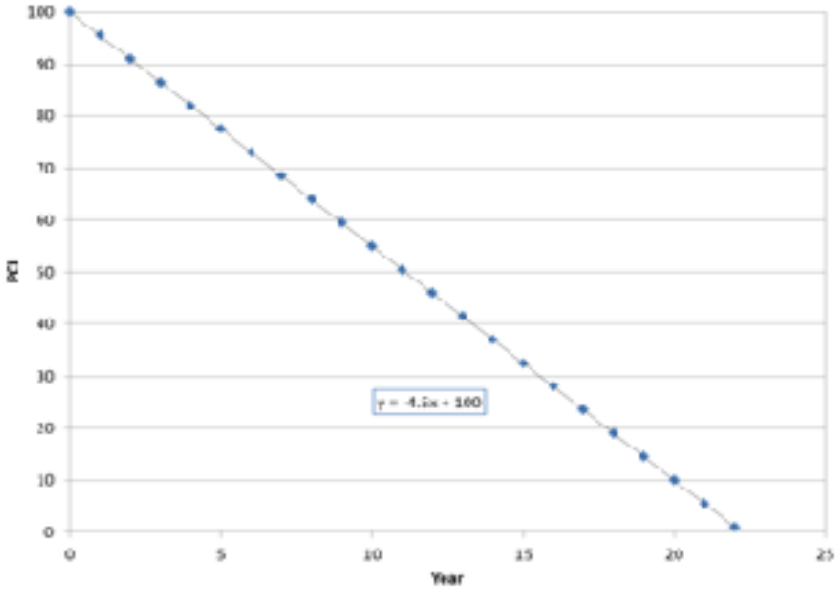
Pavement Management Development - Inputs



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HMA Rounds

PCI Value	PCI Rating	All Traffic Treatment
100	Excellent	Defer Maintenance
90	Very Good	Crack Seal
80	Good	Distress Repair + Crack Seal
60	Fair	2" Mill and OL
40	Poor	2" Mill + Patch + 2" OL
20	Failed	FDR + 2" OL
0		

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- Treatment Unit Costs
- Annual Budget

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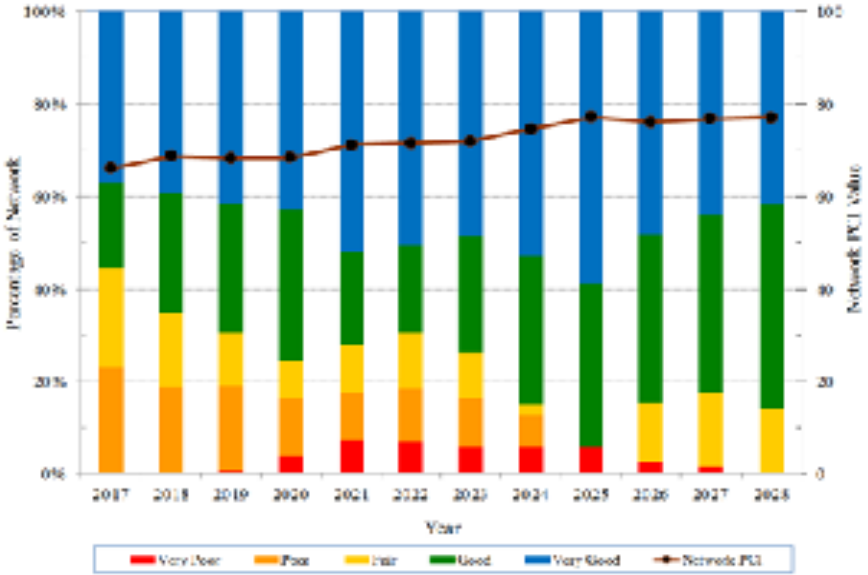
Pavement Management Development - Result

- 10-Year plan of what work to accomplish where
- 10-Year forecast of surface condition based on plan



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Pavement Management Development - Result

INVENTORY	BEG STA	END STA	ROAD NAME	2017	2018	2019	2020	1031	2022	2023	2024	2025	2026
050 71365 000000	0.00	0.64	BLVD. DE CANNES	-	-	-	-	Chip Seal	-	-	-	-	-
050 71366 000000	0.00	0.28	RIVIERA CIRCLE	-	-	-	-	-	-	Chip Seal	-	-	-
050 71367 000000	0.00	0.26	ELMDR.	-	-	Chip Seal	-	-	-	-	-	-	-
050 71368 000000	0.00	0.31	MONACO DR.		Chip Seal								
050 71369 000000	0.00	0.10	MONACO DR.	Chip Seal w Crack Seal	-	-	-	-	-	-	-	-	-
050 71370 000000	0.00	0.21	NEWPORT BAY DR.	-	-	-	-	-	Chip Seal	-	-	-	-
050 71371 000000	0.00	0.01	RENO COURT	-	Chip Seal w Crack Seal	-	-	-	-	-	-	-	-
050 71372 000000	0.00	0.54	CARIBBEAN DR.	-	-	-	2" Mill Patch and OL	-	-	-	-	Crack Seal and Patch Repair	-
050 71373 000000	0.00	0.27	JAMAICA DR.	-	-	-	-	-	Double Chip Seal w PDR	-	-	-	-
050 71374 000000	0.00	0.25	KEYWEST DR.	-	-	-	-	-	-	Double Chip Seal w PDR	-	-	-
050 71375 000000	0.00	0.20	KEY LARGO TERR.	-	Chip Seal	-	-	-	-	-	-	-	-
050 71376 000000	0.00	0.31	TAMPICO DR.	-	Double Chip Seal w PDR	-	-	-	-	-	-	-	-
050 71377 000000	0.00	0.18	TRINIDAD LANE		Double Chip Seal w Crack Seal								
050 71378 000000	0.00	0.28	BAHAMAS DR.	Chip Seal w Crack Seal	-	-	-	-	-	-	-	-	-
050 71379 000000	0.00	0.21	NASSAU DR	Double Chip Seal w Crack Seal	-	-	-	-	-	-	-	-	-
050 71380 000000	0.00	0.19	SAN JUAN DR.	-	Double Chip Seal w Crack Seal	-	-	-	-	-	-	-	-

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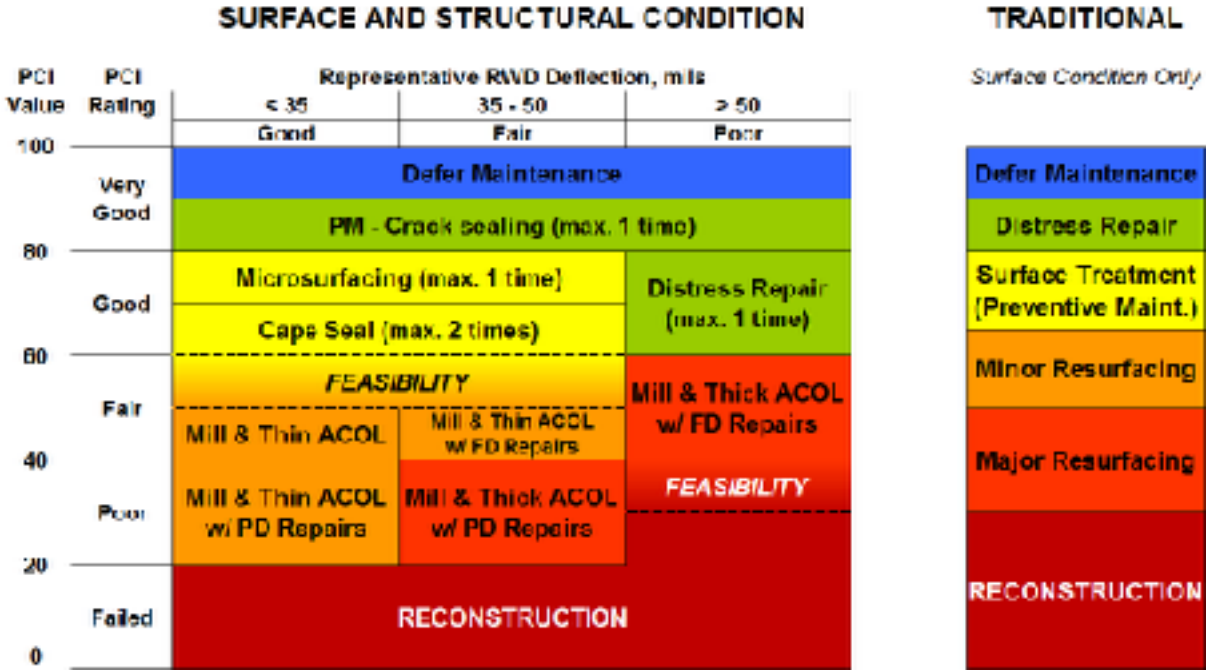
Pavement Management Highlights



Additional Data allows you to choose the *right* project at the *right* time!

* *Source: Champaign County, 2009.*

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Example: Hybrid Approach

Tompkins County, NY

Anticipated Truck Volume (ESALs)	Initial Pavement Condition		
	Good	Fair	Poor
Low	A	A	A
Medium	A & B	A & B	A
High	A & B	A & B	A

A= Visual Assessment Only
B= Pavement Life Consumed

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Pavement Management – Value Proposition

Use the right tool at the right time

Cost/Benefit approach

Data facilitates smart decisions

- But you don't have to pay a lot for data

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Thank You!

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