



# Pavement Preservation Overview

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# Why Pavement Preservation?



Cost-effectiveness



Sustainability



Condition  
improvement

# What is Missing?

- Better benefit quantification



Traffic



Climate



Existing condition

# Timeline



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# Phase II – TPF-5(375)



## TRANSPORTATION POOLED FUND PROGRAM

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### Study Detail View

National Partnership to Determine the Life Extending Benefit Curves of Pavement Preservation Techniques (MnROAD/NCAT Joint Study – Phase II)

#### General Information

**Study Number:** TPF-5(375) [View Commitment Details](#)

**Status:** Cleared by FHWA

**Contract/Other Number:**

**Lead Agency:** Minnesota Department of Transportation

**Last Updated:** Jan 31, 2019

**Contract Start Date:** Jan 1, 2019

**Est. Completion Date:** Dec 30, 2023

**Contract End Date:**

**Solicitation Number:** 1461

**Partners:** AL , AR , CO , FHWA , FP2 , GDOT , IL , KS , KY , MDOT SHA , MI , MN , MO , MS , NC , NY , OK , PA , SC , TN , TX , WI , WV

**Related Study Number(s):** 1459 - ACCELERATED PERFORMANCE TESTING ON THE 2018

#### Contact Information:

##### Lead Agency Contact(s):

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##### FHWA Technical Liaison(s):

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# Sponsors



# PG Study Test Sites

Roadway	LR-159	US-280	CSAH-8	US-169	70 <sup>th</sup> St
Traffic volume	Low	High	Low	High	High
Avg. thickness, in	5.5	9.9	7.0	6.5	4.0
Section length, ft	100	528	528	528	500
No. Treated sections	23	34	22	21	16
Years in service	9	6	5	5	2

→ 145 Test sections (including controls)

# Treatments

- Control Sections
- Surface Treatments
  - Crack Sealing
  - Fog Seal
  - Chip Seals
  - Scrub Seals
  - Micro surfacing
- Cape Seals
- Cold Recycling + 1" overlay
  - CIR
  - CCPR
  - FDR
- Thin Overlays (3/4")
  - Dense Graded
  - OGFC
  - UTBWC
- Combinations



# Data Collection and Monitoring

- Cracking
- Rutting
- Roughness (IRI)
- Macrotexture
- Surface friction
- Noise
- FWD
- Permeability
- Moisture\*

Category	% Cracking	Rutting, mm	IRI, in/mi
Good	< 5	< 5	< 95
Fair	5 – 20	5 – 10	95 – 170
Poor	> 20	> 10	> 170

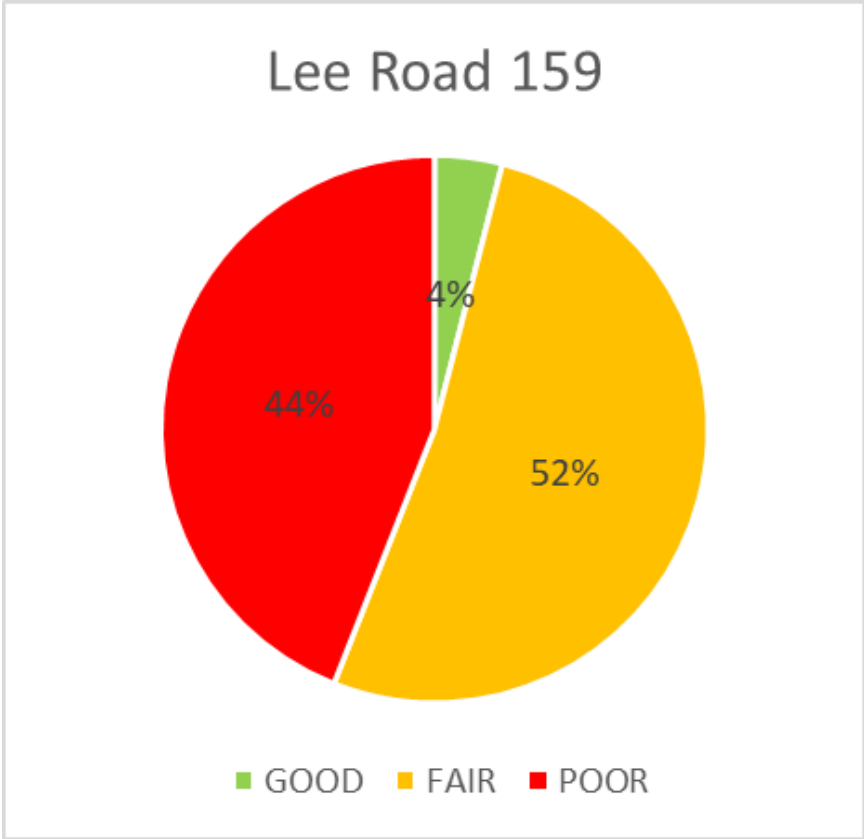
# Traffic

Site	Accumulated ESALs
Lee Road 159 (inbound)	100,000
Lee Road 159 (outbound)	1.4 million
US 280	3.6 million



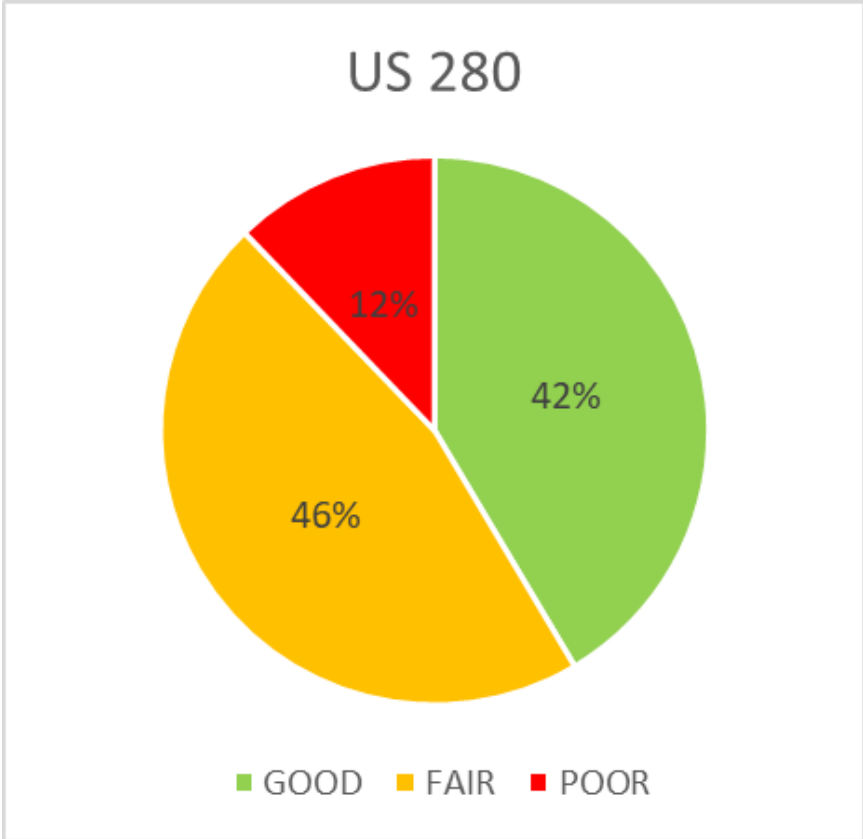
# Current Cracking

LOW TRAFFIC



9 YEARS

HIGH TRAFFIC



6 YEARS

# Current Cracking


- Cracking is predominant distress in Southern sections
- Mostly wheelpath cracking
  - ▣ Lee Road 159 has more alligator cracking pattern
  - ▣ US 280 is longitudinal
- Low severity

Untreated



Untreated surface  
Rough texture, aged  
Hard to see cracks





Treated surface  
Cracks are easier to spot  
Still low severity

**Cracks routed &  
sealed in 2012**

**No sealant  
damage observed**



**New cracks**



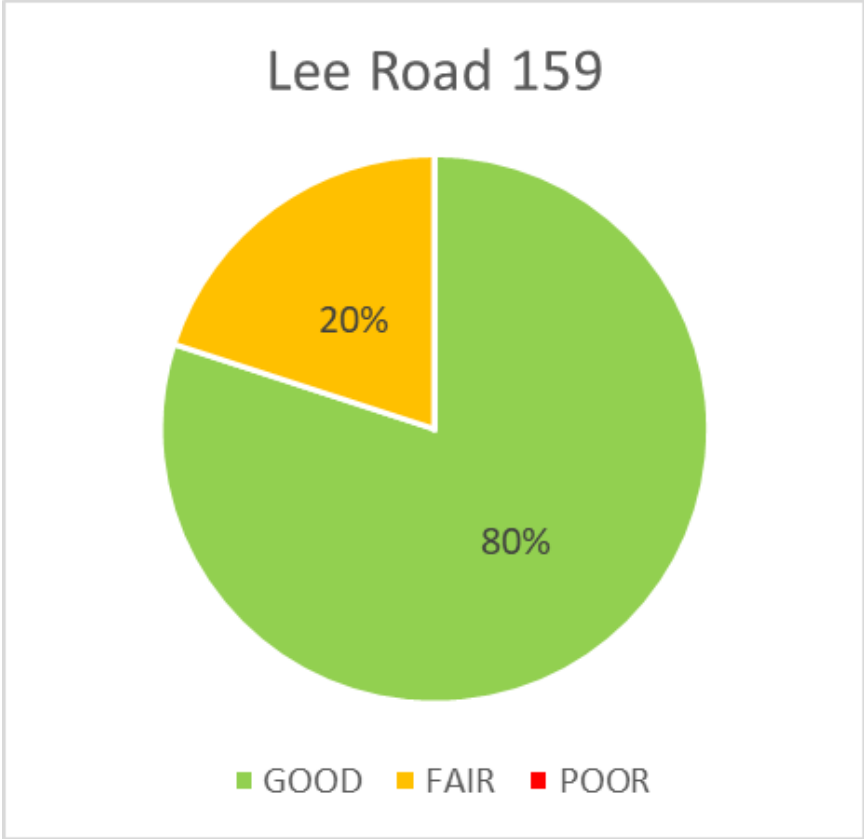
**Overband filled  
Cracks are visible again,  
but still tight**





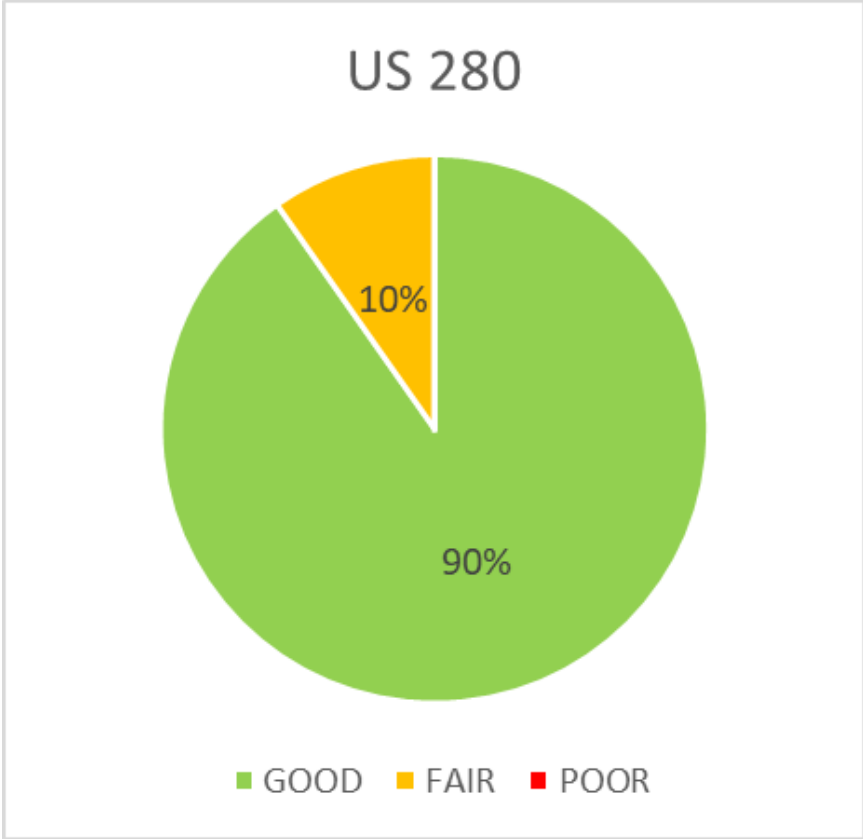
# Current Rutting

LOW TRAFFIC



9 YEARS

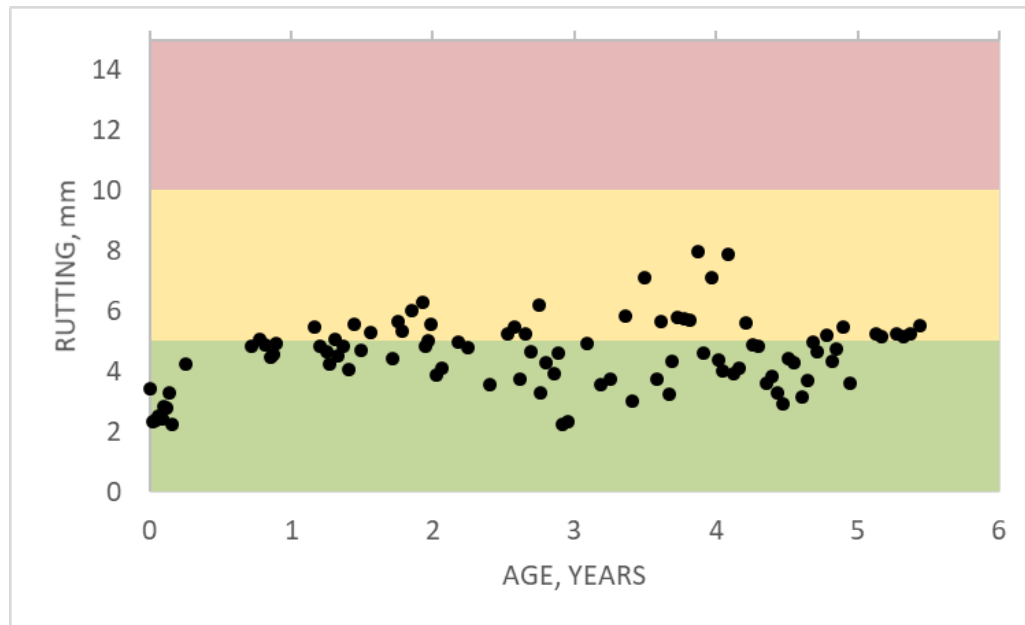
HIGH TRAFFIC



6 YEARS

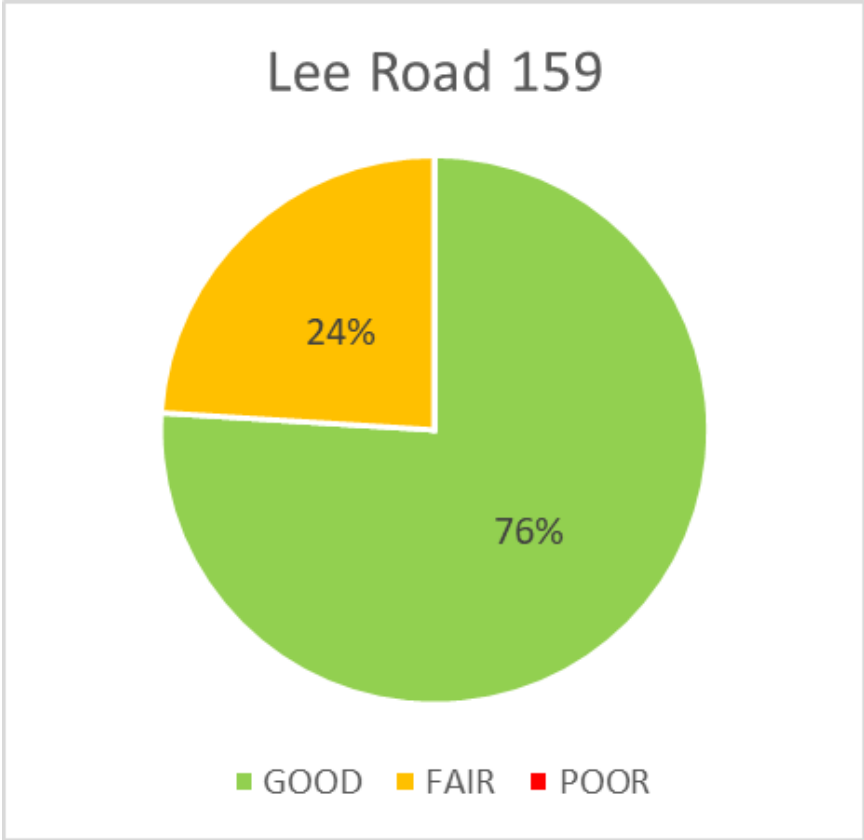
# Current Rutting

- Sections had low rutting pre-treatment
- Several sections are “borderline” fair (~ 5 mm)



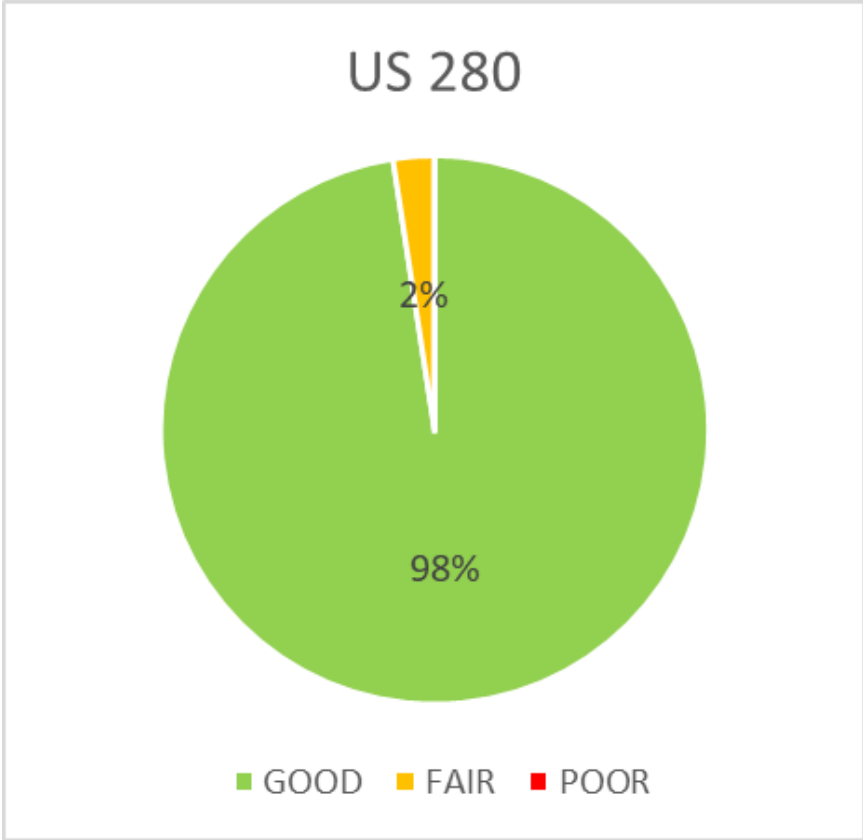
# Current IRI

LOW TRAFFIC



9 YEARS

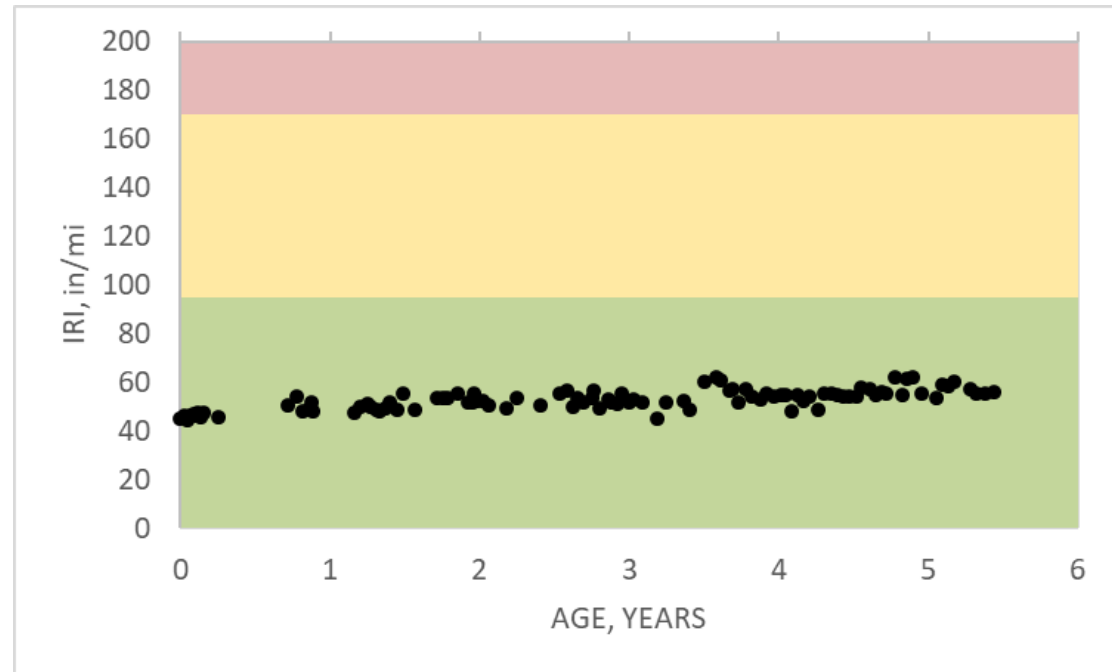
HIGH TRAFFIC



6 YEARS

# Current IRI

- Overall, good ride quality
- Higher IRI related to shorter sections
  - ▣ Affects mostly Lee Road 159
- In general, constant values over time

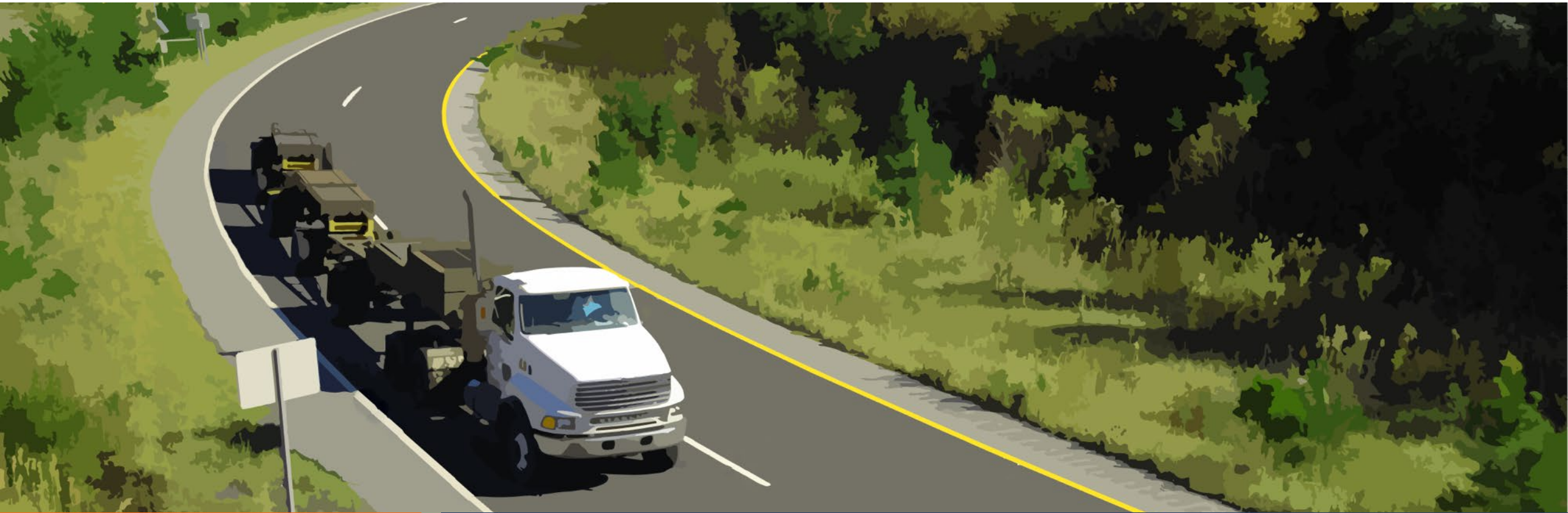


# Summary

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- Unique opportunity to track long-term performance
- Cracking is predominant in hot climate
- Even those sections that have more distress outperform control
- Most sections remain untouched since treatment application

# Questions and Answers



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