

# *MnROAD/NCAT Partnership*

**Safer, Smarter, Sustainable Pavements through Innovative Research**



**Northern Pavement Preservation  
MnROAD/NCAT Sponsor Meeting  
June 23, 2021**



**Jerry Geib**





# *Purpose*

- *MnDOT site*
- *Wet Freeze Region*
- *Performance data*



# *Observations*

- *Control sections are failing*
- *Generally, IRI roughness increases from fall to spring*
- *CSAH 8 - thermal cracking*
- *US 169 – surface cracking*

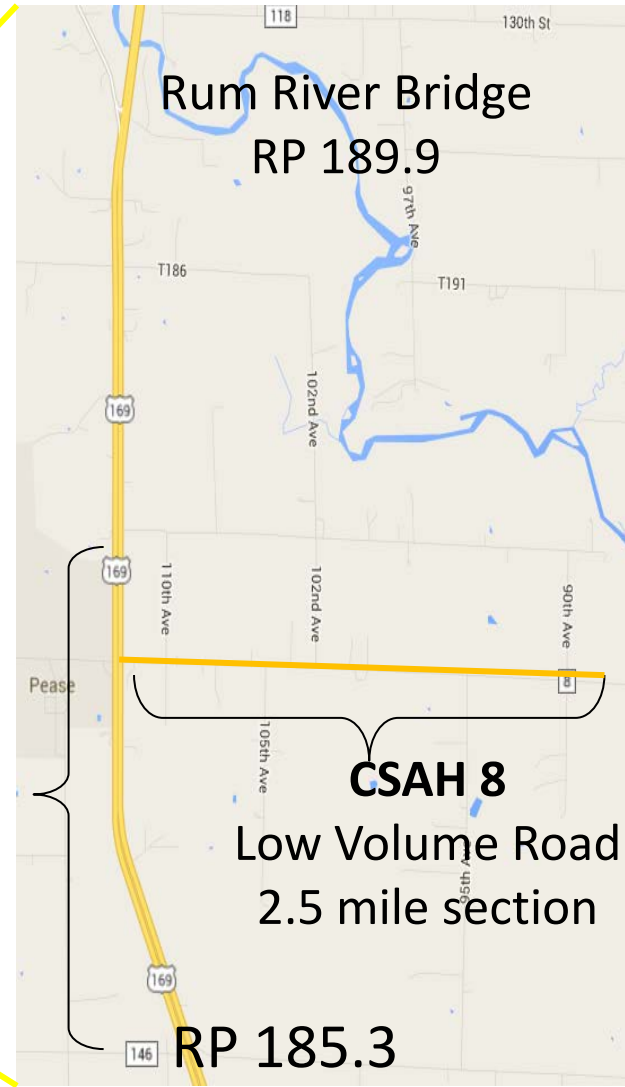
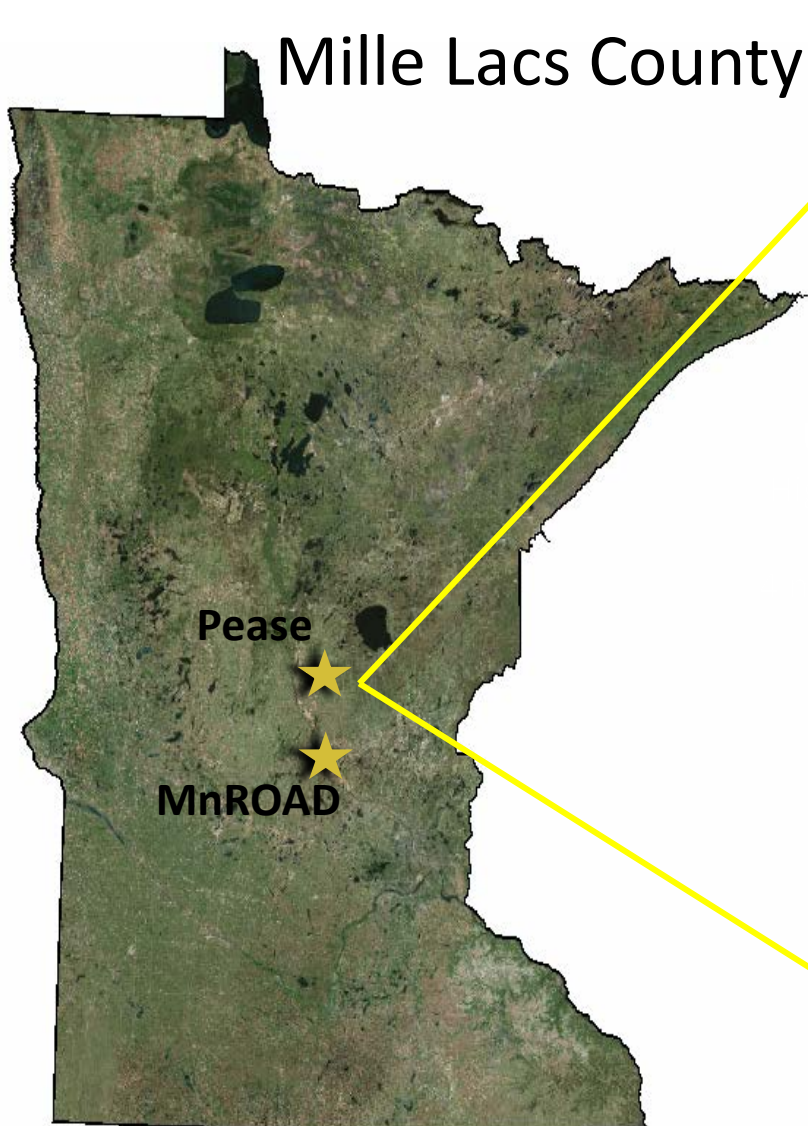


**TPF-5(375)**

***National Pavement Preservation Study***

***\$50k/year thru 2023***

# National Pavement Preservation Study





# Northern High Traffic Preservation on US-169

# Northern Low Traffic Preservation CSAH-8

## National Pavement Preservation Study (Northern Test Sections)

Minnesota DOT Road Research Project (MnROAD)

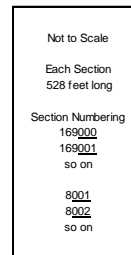
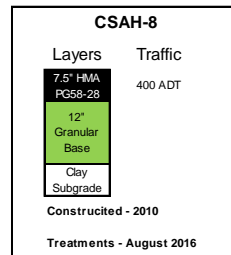
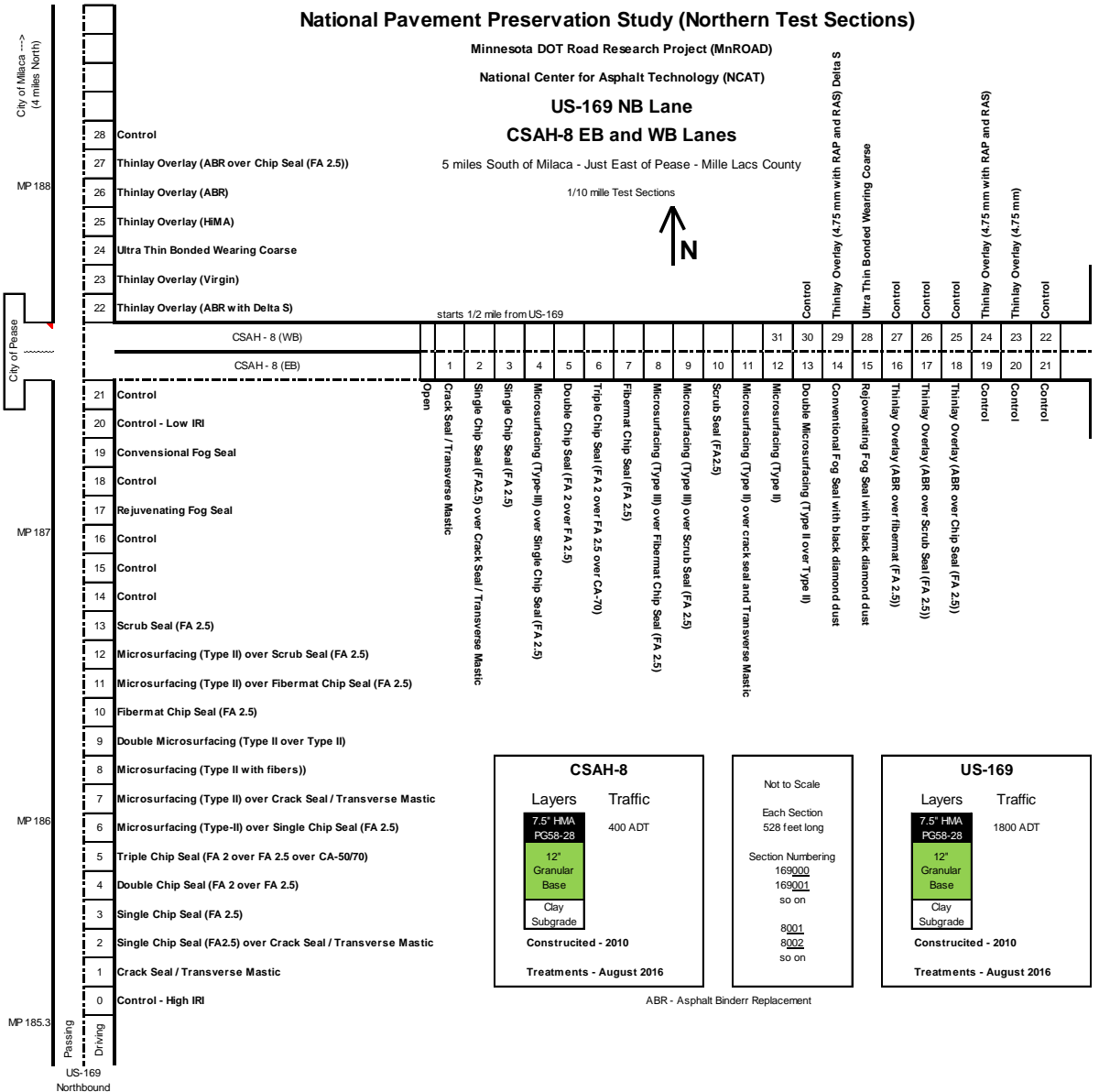
National Center for Asphalt Technology (NCAT)

US-169 NB Lane

CSAH-8 EB and WB Lanes

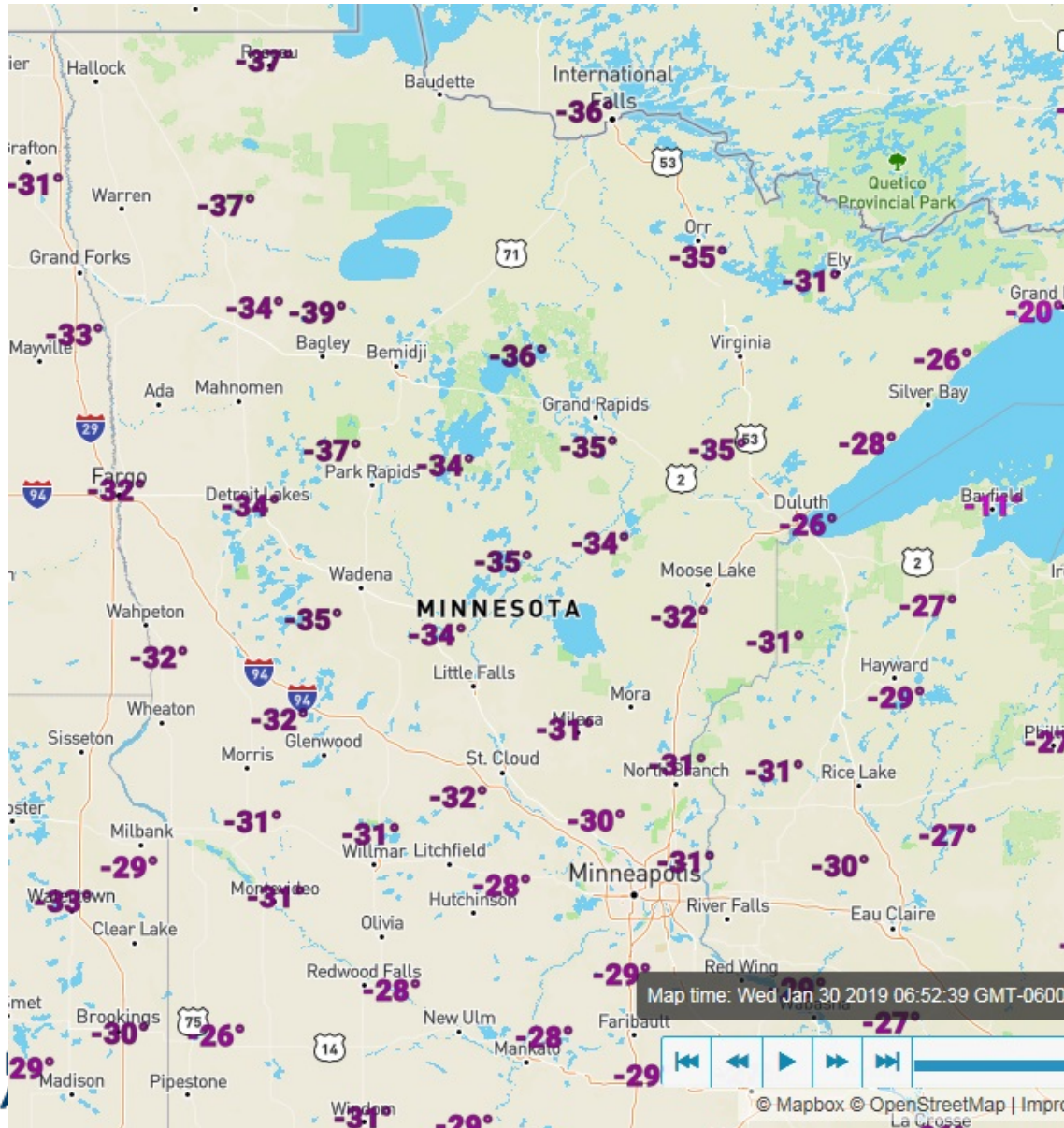
5 miles South of Milaca - Just East of Pease - Mille Lacs County

1/10 mile Test Sections



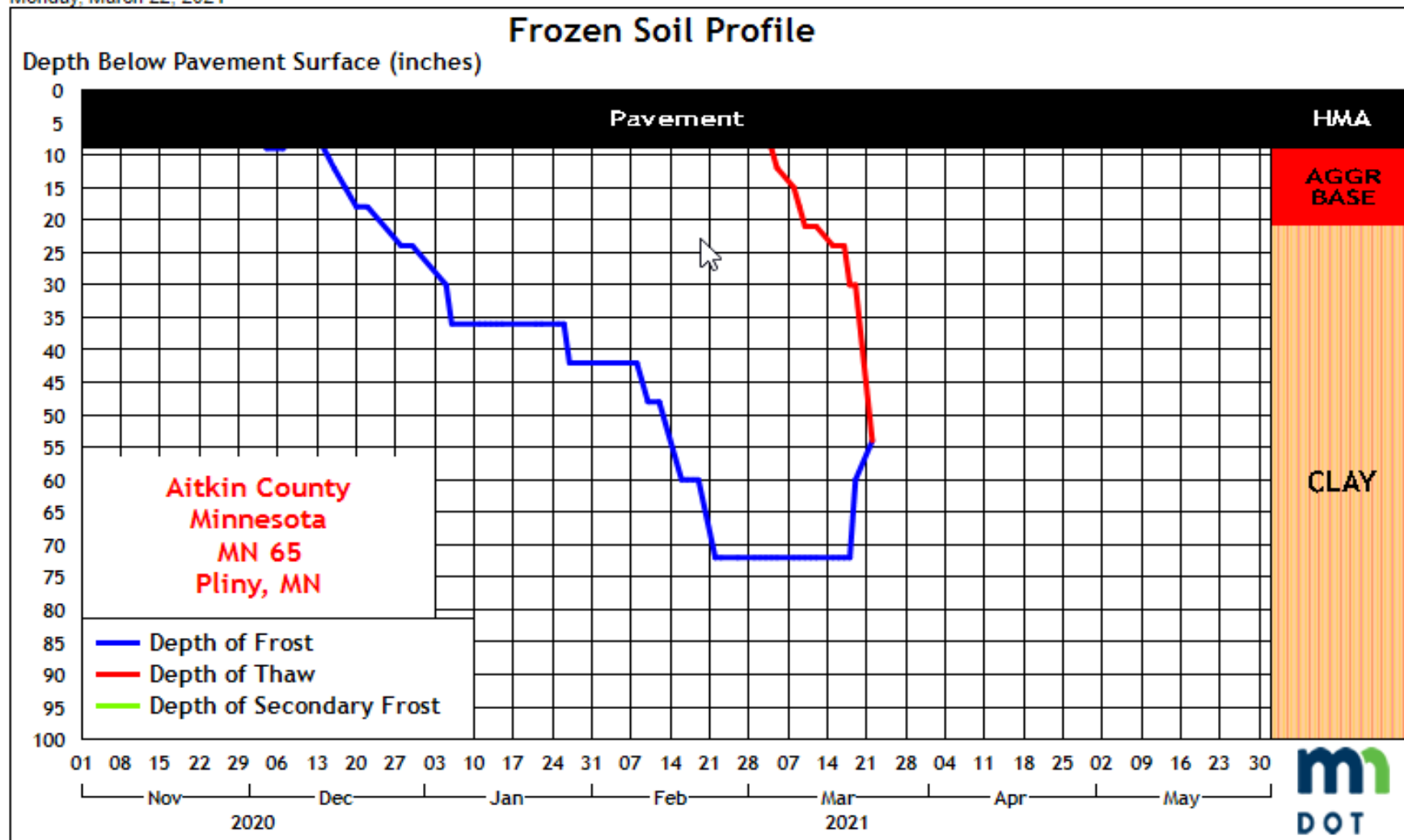
ABR - Asphalt Binderr Replacement

# Jan. 28, 2019 -56.4F in Cotton, MN



# Aitkin County Frozen Soil Profile (operating sensors to a maximum depth of 96 inches)

Monday, March 22, 2021

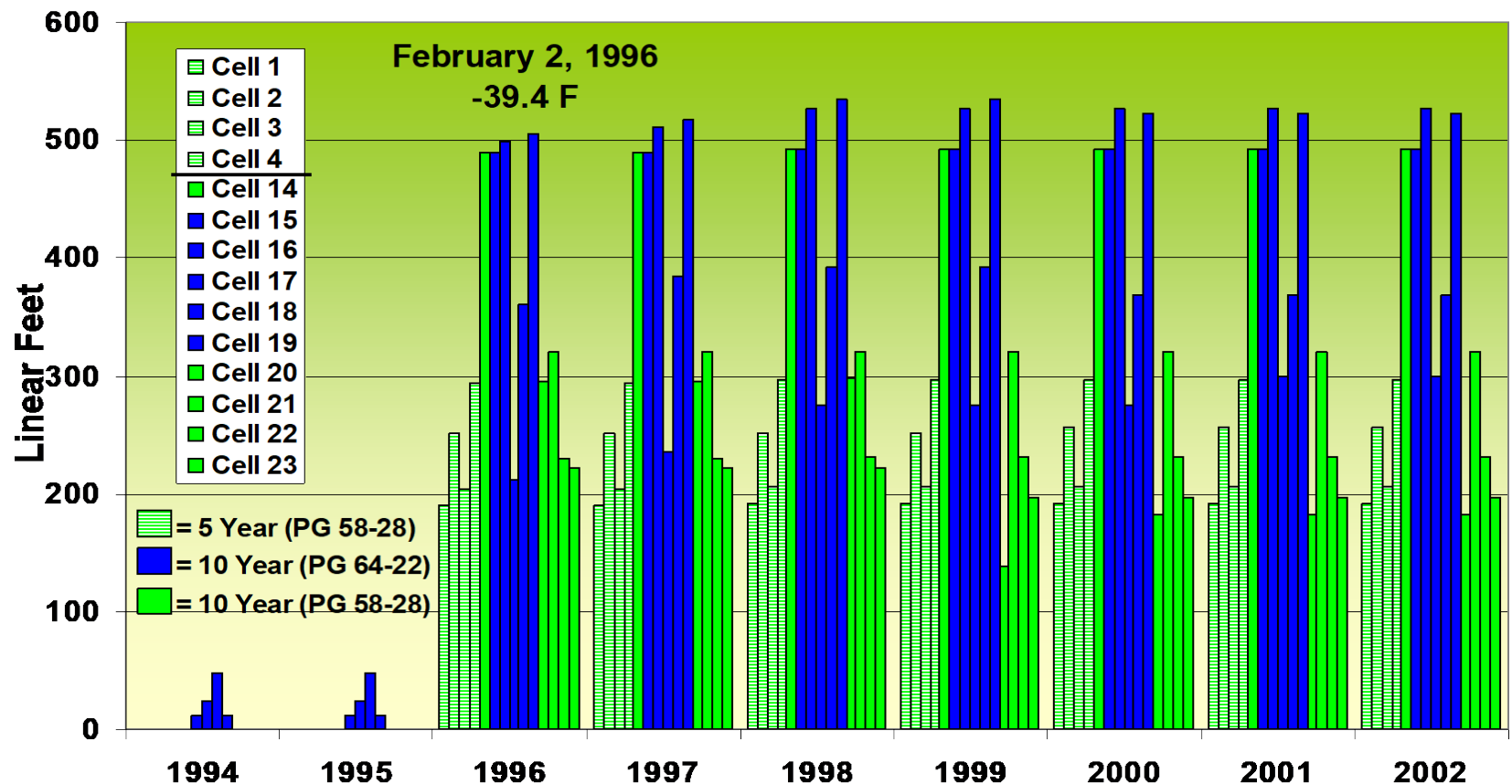




# Low Temperature Cracking

- **Development of SuperPave**

- Original MnROAD Test Sections (PG 64-22, PG 58-28)
- 1999 MnROAD Test Cells (PG 58-28, PG 58-34 , PG 58-40)





# National *Pavement Preservation* Study

- **Goals**
  - National Study (Climatic zones)
  - Provide consistently collected data / analysis
  - *Quantify the life extending benefits*
    - Improve and/or extend the pavement life
    - Cost effectiveness



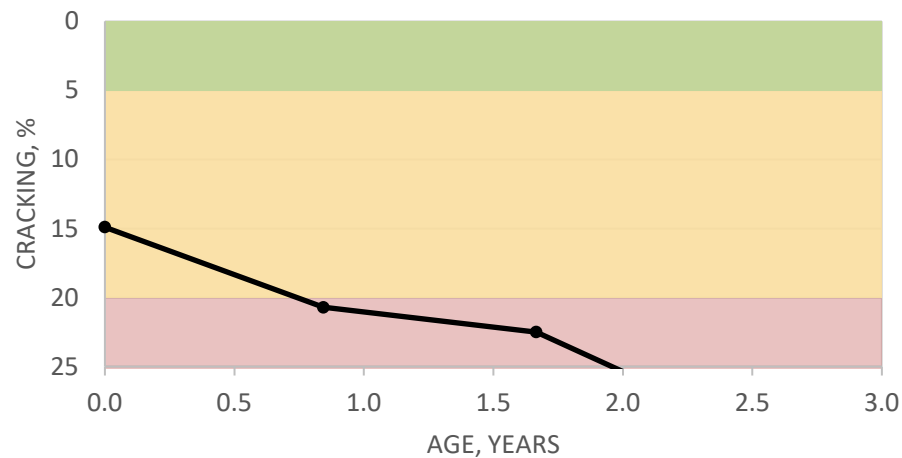
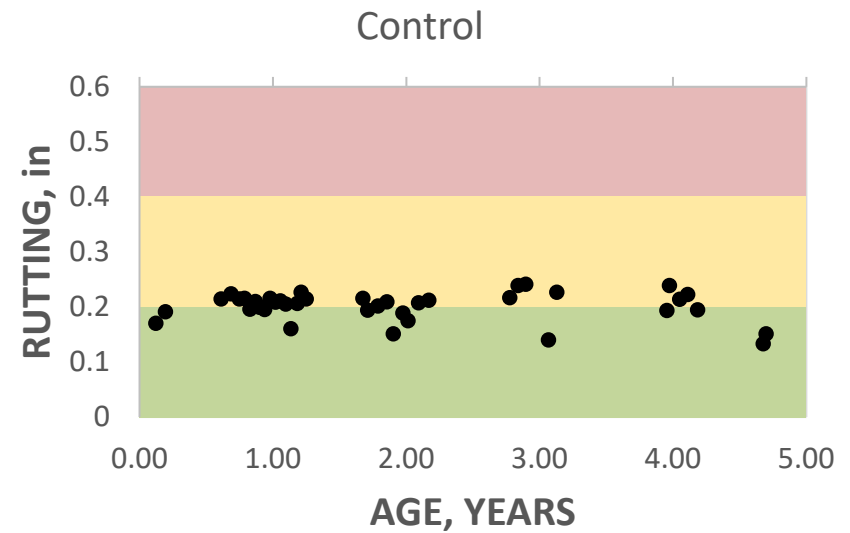
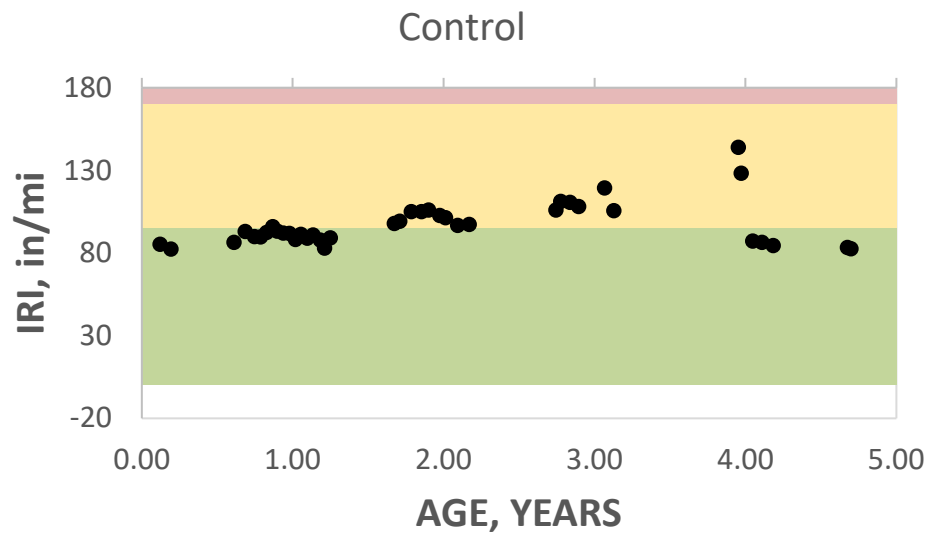
# PreTreatment Condition

US-169

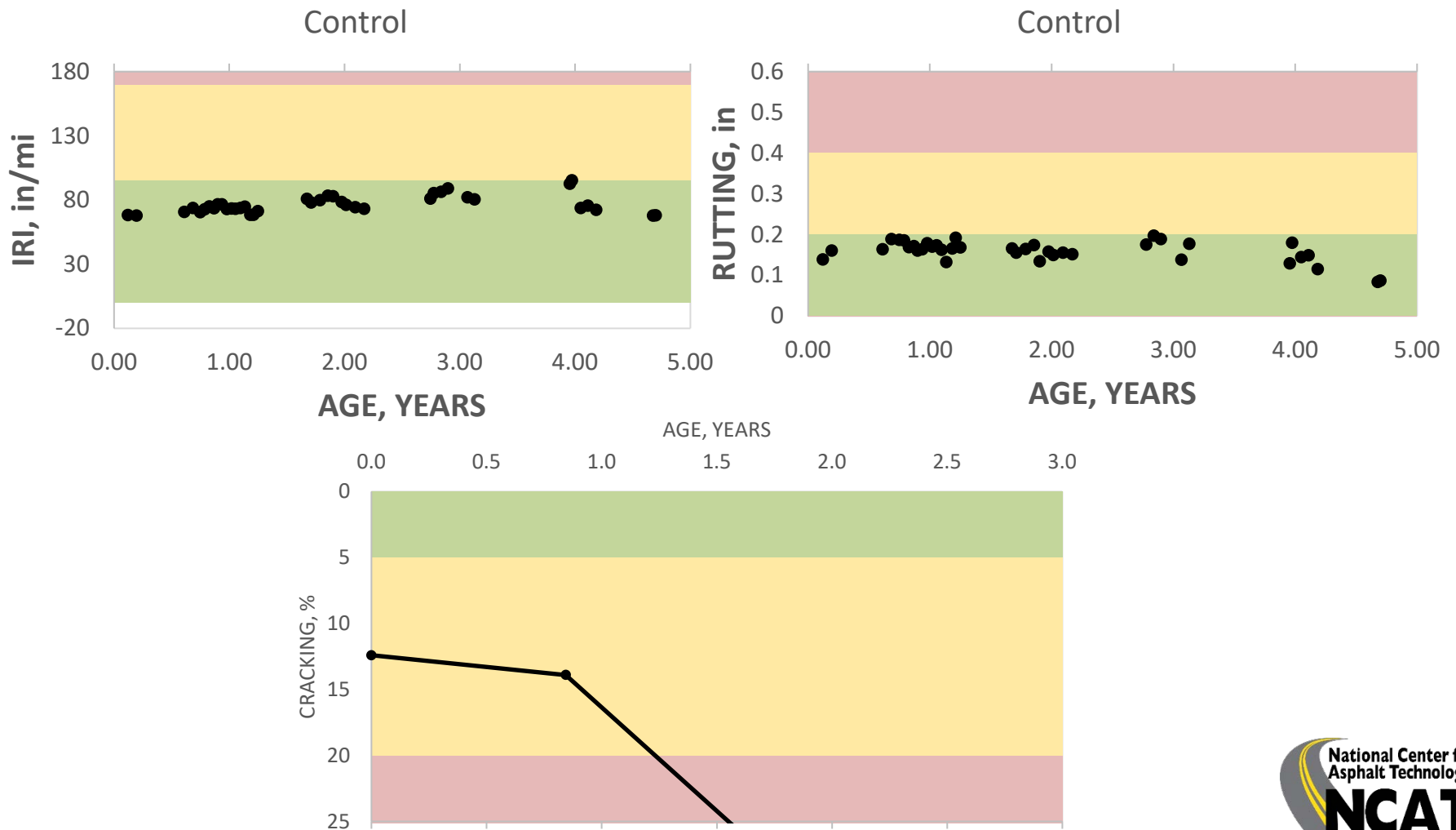
Northbound Lanes



# Performance US 169 control 15



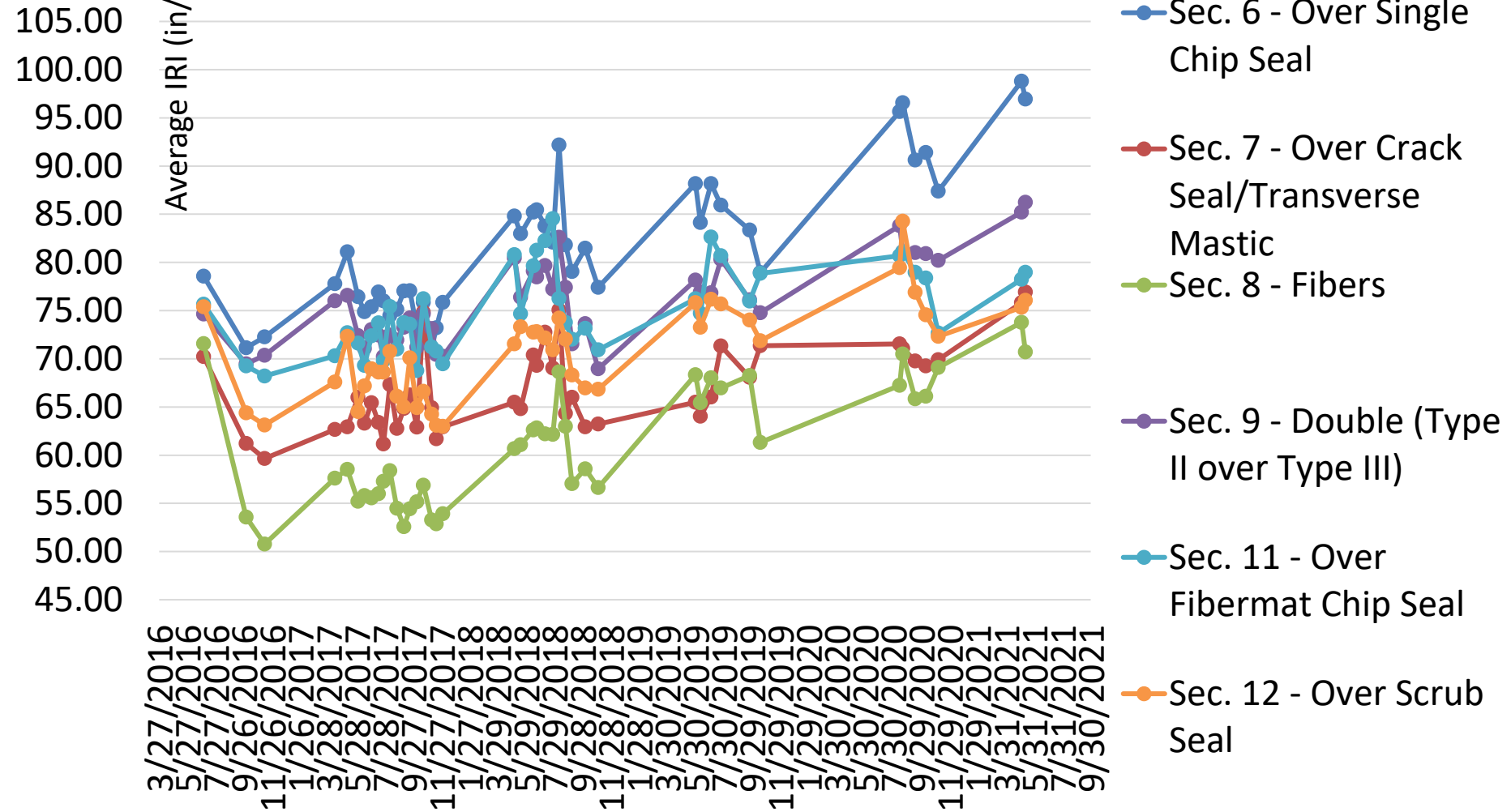
# Performance US 169 control 16



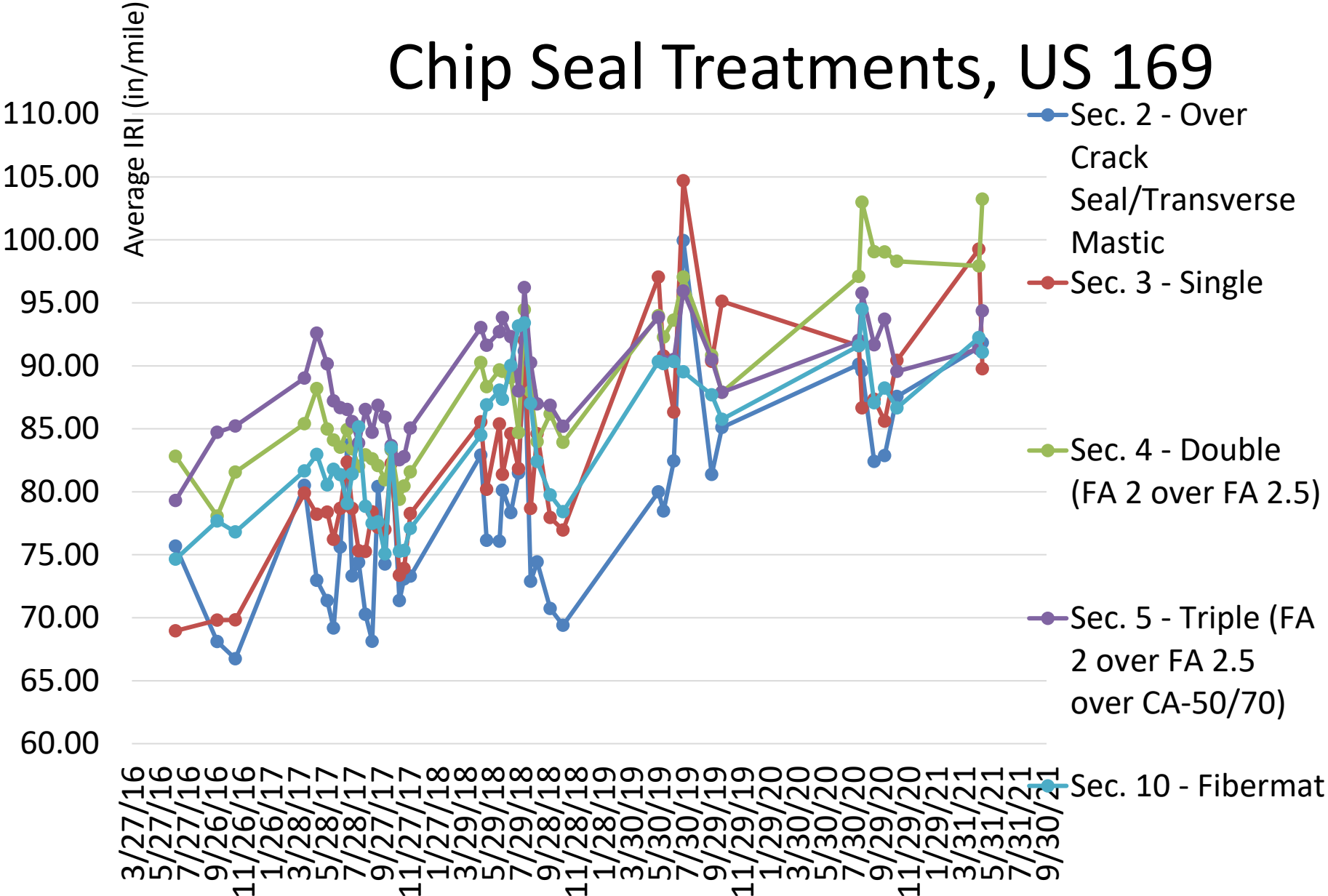




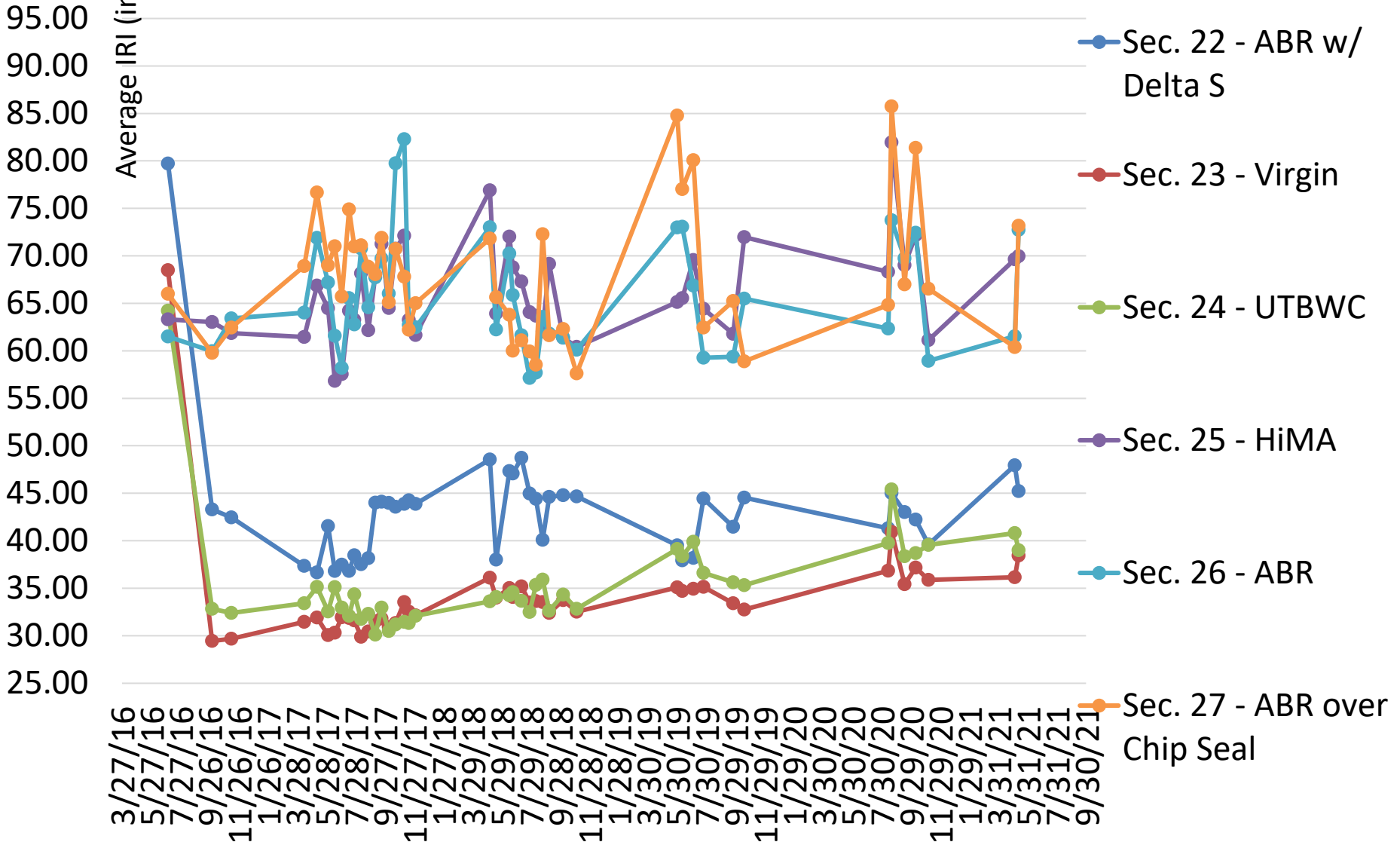
# Microsurfacing Treatments, US 169



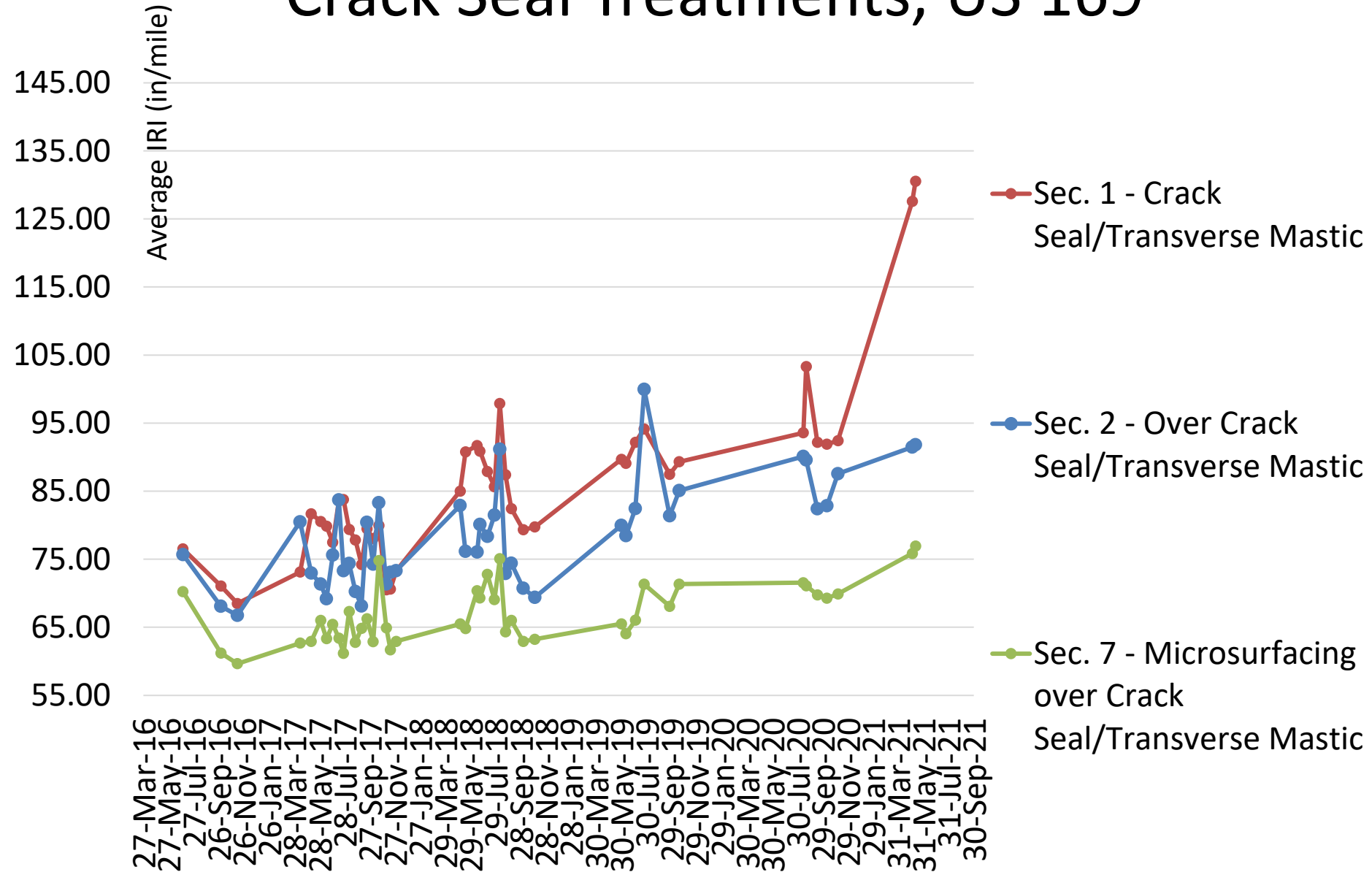
# Chip Seal Treatments, US 169



# Thinlay Treatments, US 169



# Crack Seal Treatments, US 169





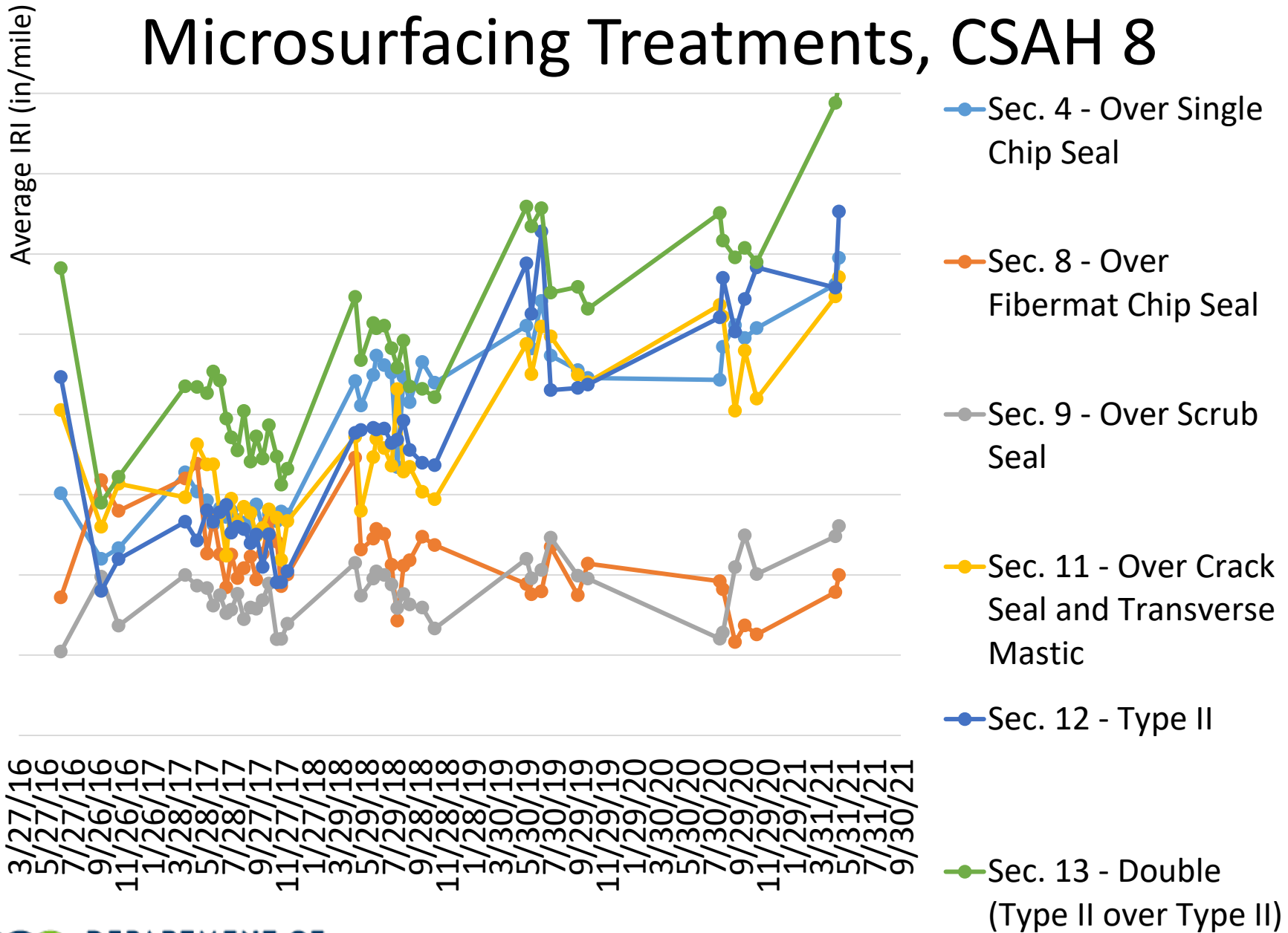
# PreTreatment Condition

## CSAH-8 East and Westbound Lanes

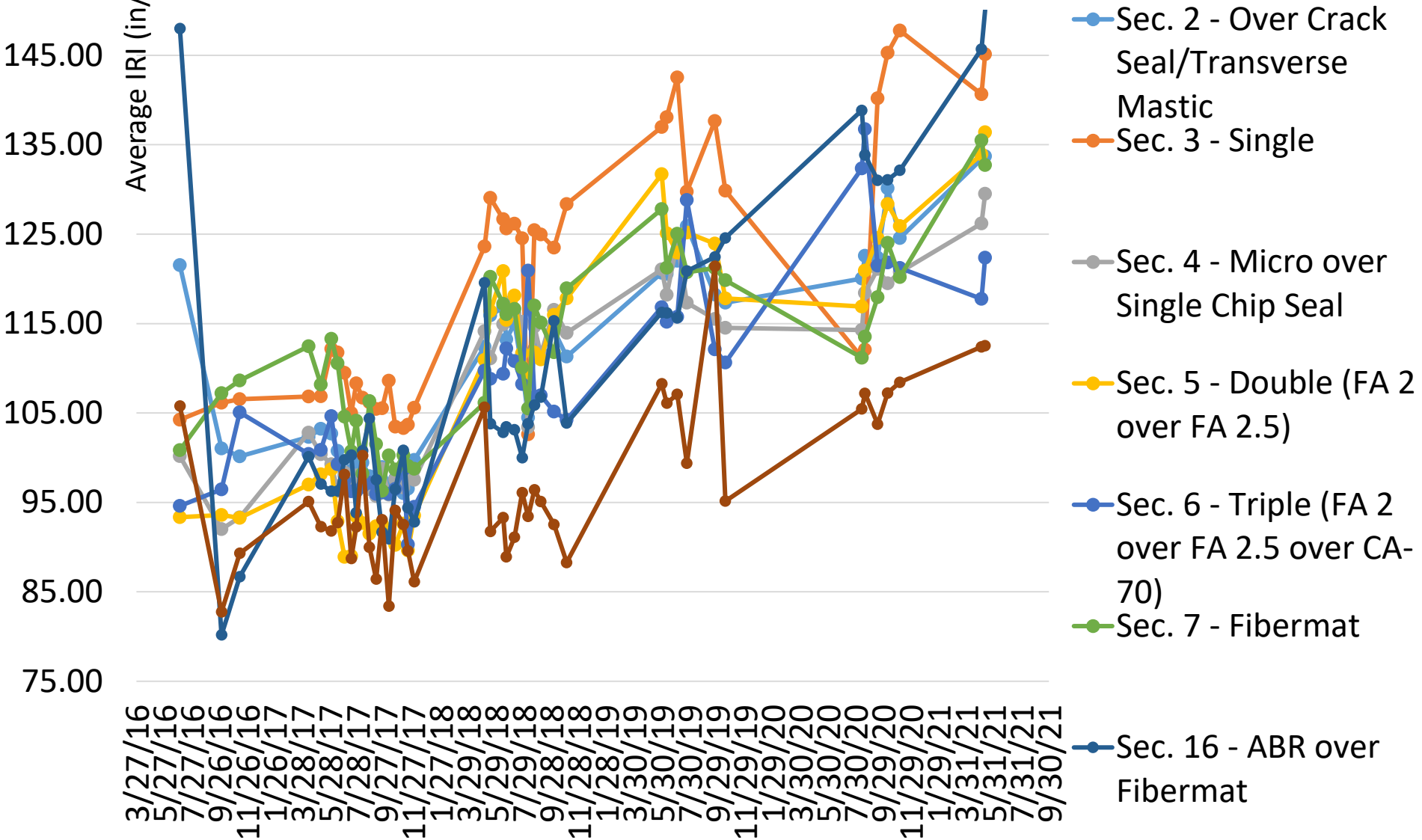




# Microsurfacing Treatments, CSAH 8

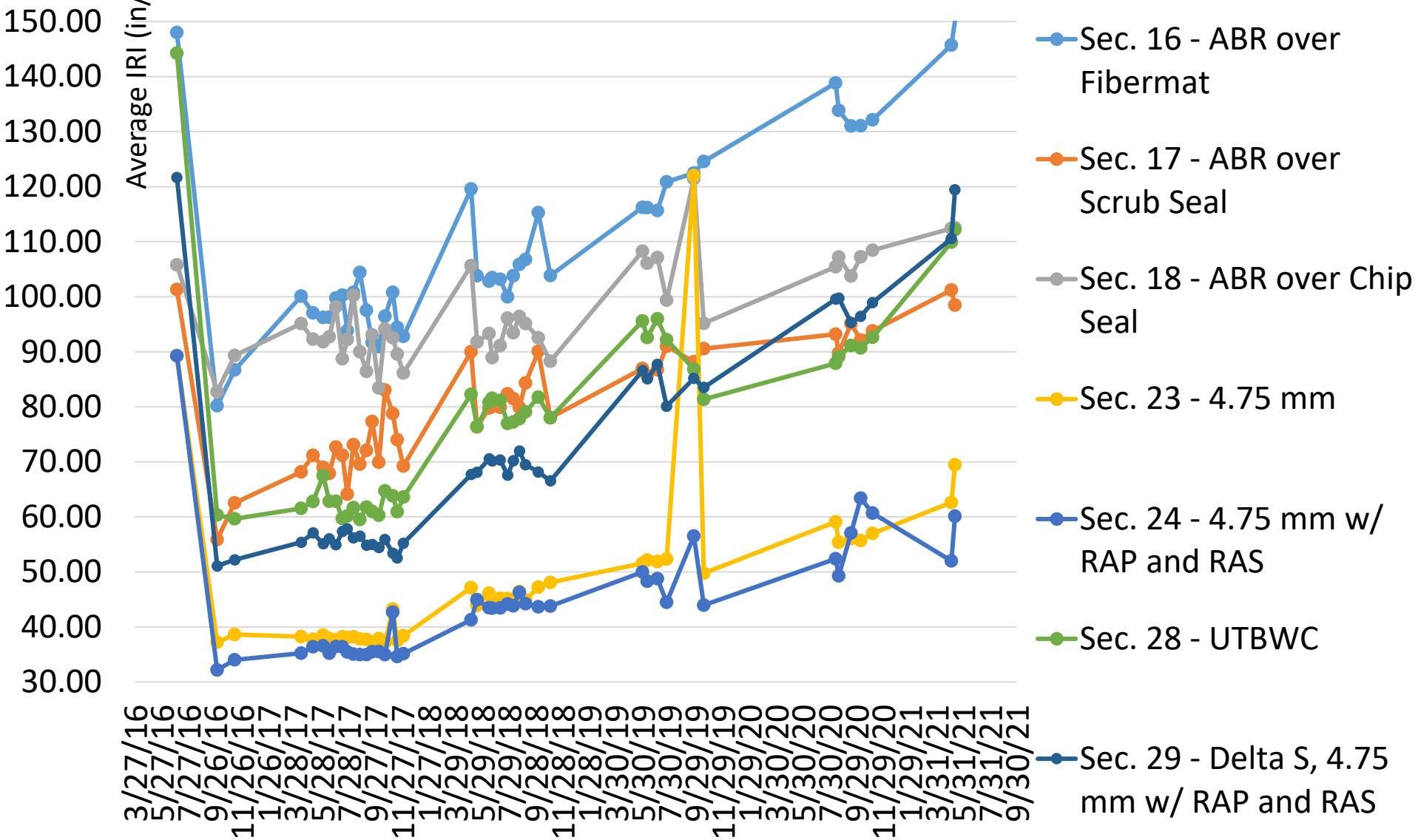


# Chip Seal Treatments, CSAH 8

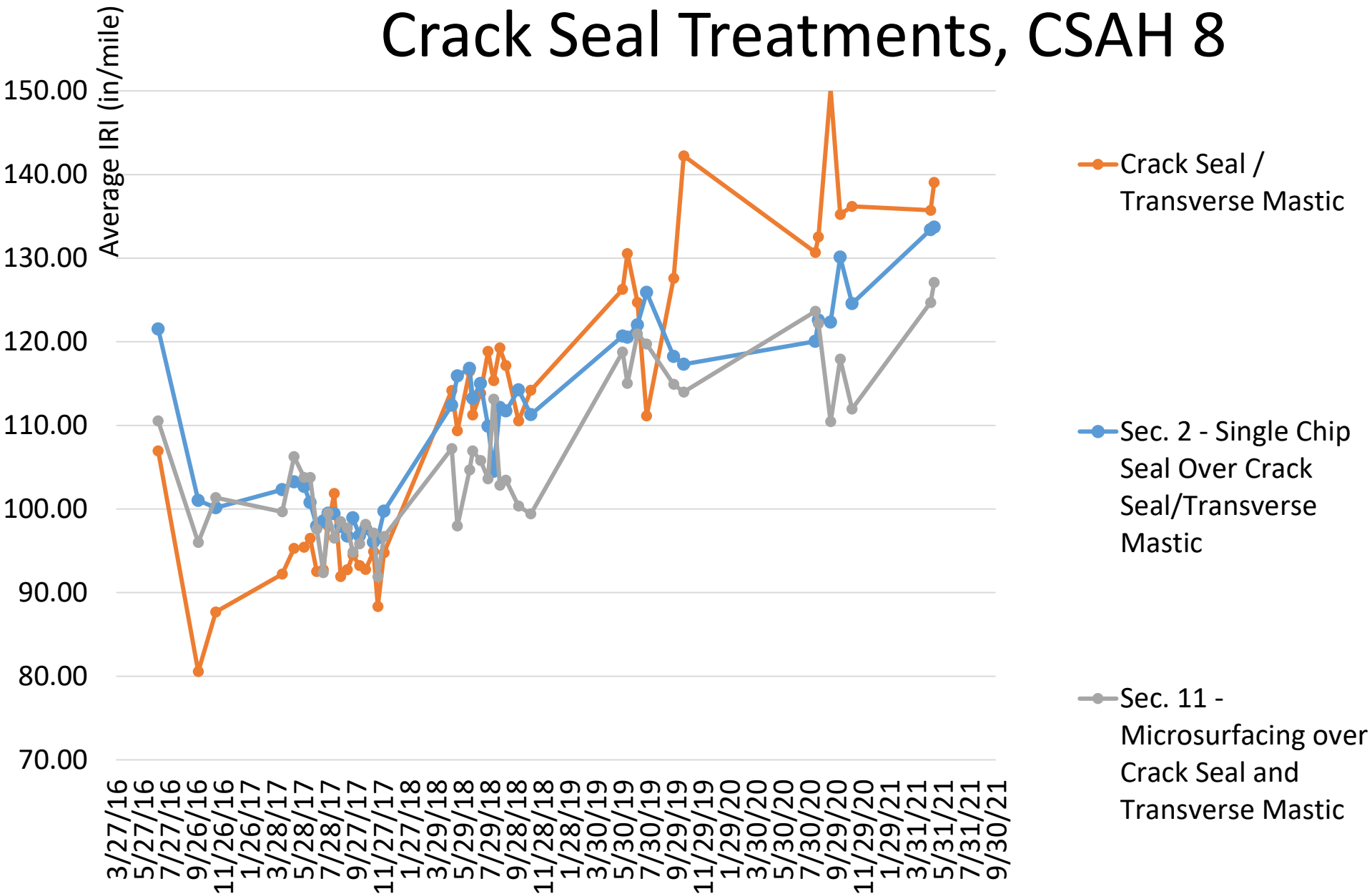




# Thinlay Treatments, CSAH 8



# Crack Seal Treatments, CSAH 8





# Open Graded Friction Coarse “OGFC”



August 2016 – Hardrives Contractor



OGFC/PCC conventional tack  
OGFC/PCC ultrafuse tack

OGFC/HMA ultrafuse tack  
OGFC/HMA conventional tack



# *Observations*

- *Control sections are failing*
- *Generally, IRI roughness increases from fall to spring*
- *CSAH 8 - thermal cracking*
- *US 169 – surface cracking*

***0.34 g/sy***



***0.40 + fibers***





# *Triple chip seal*



# *Observations*

- *Cape seal is very tough*





# *Observations*

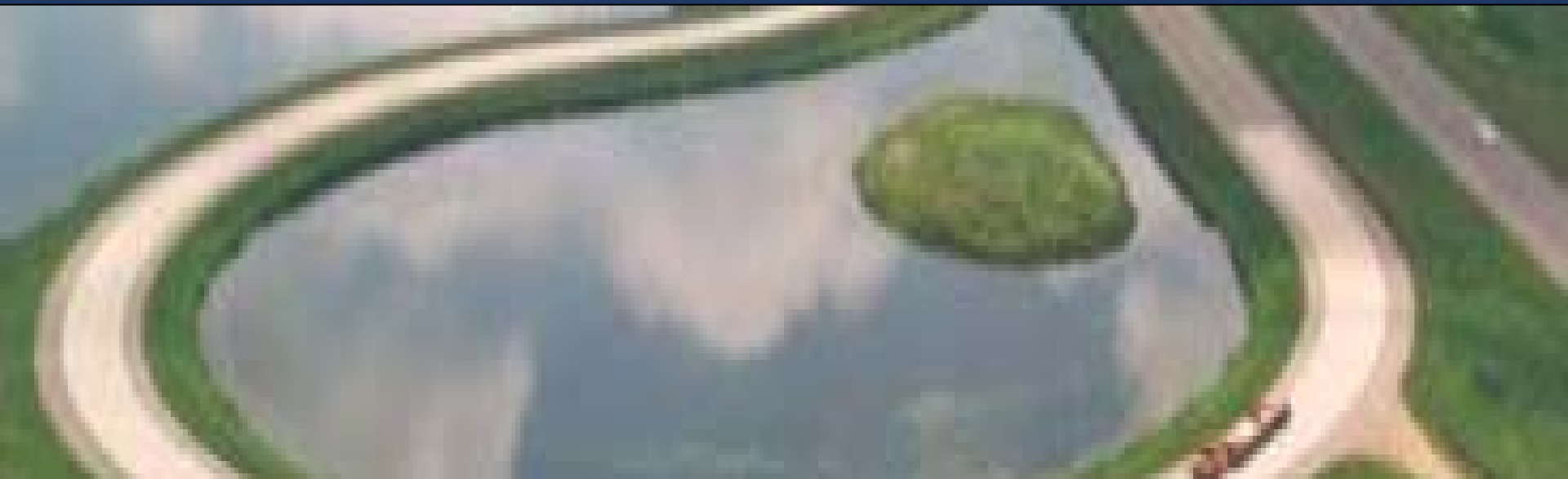
- *Crack fill prior to a surface treatment (NCAT)*





“It was not our wealth that made our highways possible; rather it was our highways that made our wealth possible”,

Thomas Harris McDonald  
Commissioner of Public Roads  
1939 – 1953



Jerry Geib  
jerry.geib@state.mn.us

