



GTR Experiments (N9, S9, N11, N4/S12)

Carolina Rodezno
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2025 Spring NCAT/MnROAD Sponsor Meeting

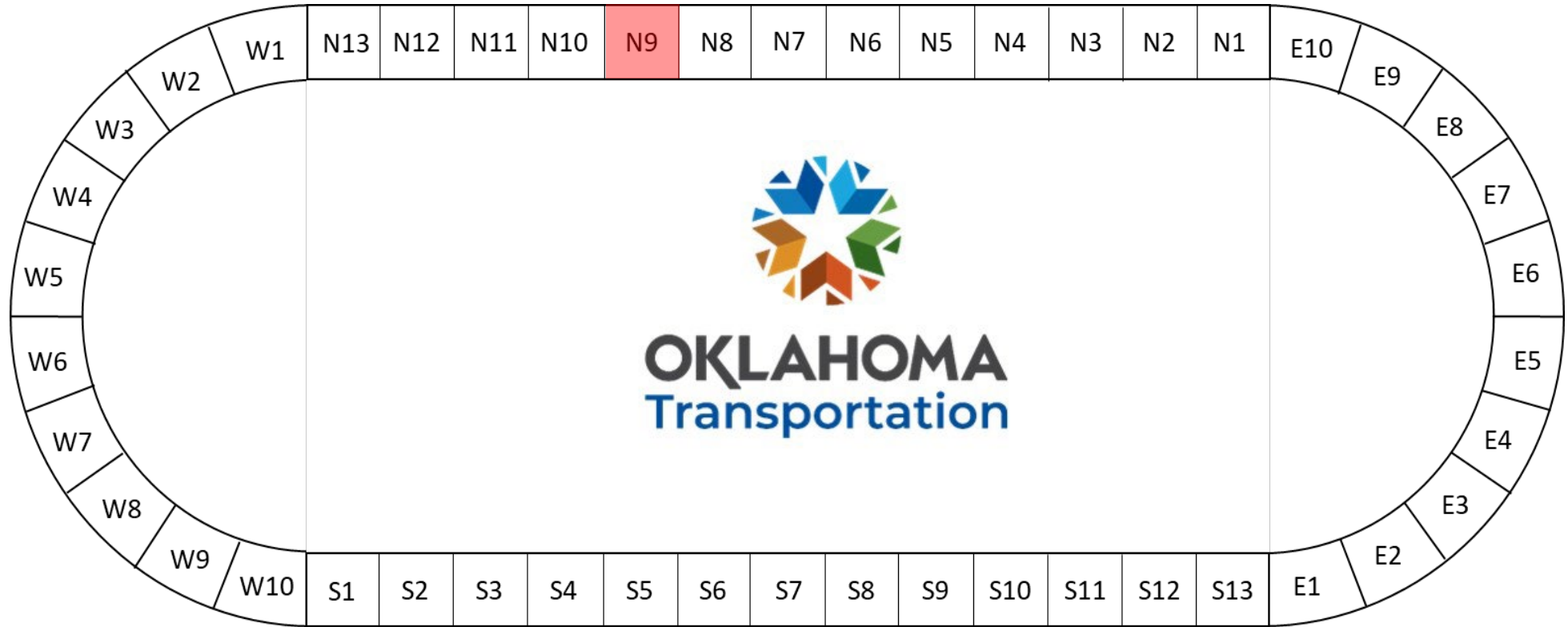




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Balanced Mix Design With Dry GTR

OKLAHOMA-N9



EXPERIMENT OBJECTIVES



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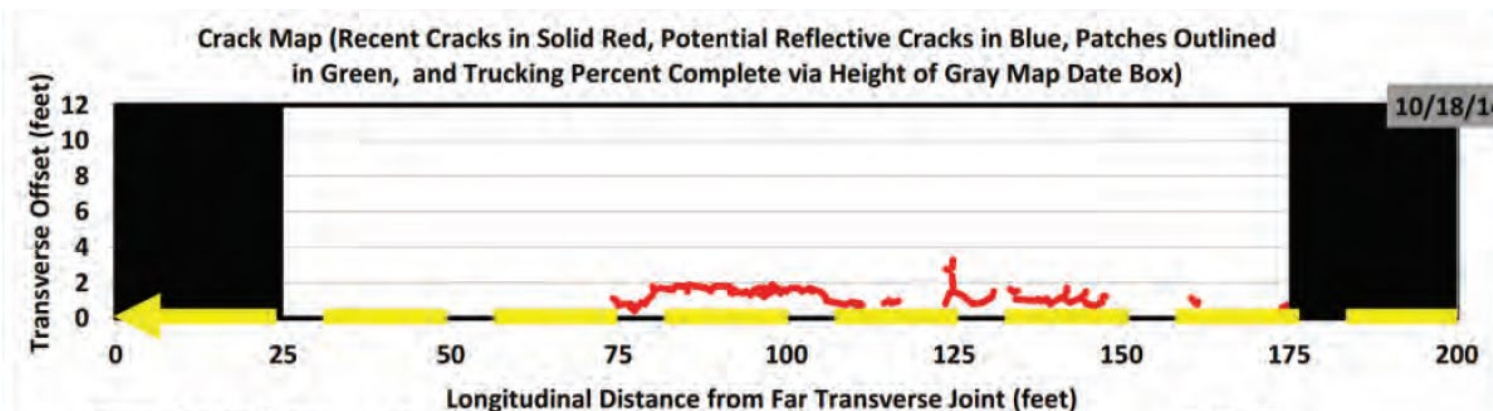
- Assess the long-term performance of a GTR mix designed using a BMD approach
 - After one TT cycle (10 MESALs), the mix outperformed the N9 mix from the previous cycle (mixture with the same gradation, but with PG 76-22)
 - The section was left in place to assess long-term performance after 20 MESALs

SECTION N9



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- 1.5-inch mill/inlay
- 12% GTR Elastiko ECR (by weight of total binder) added dry during production
- Aggregate structure and thickness similar to N9 surface mix from 2018 TT cycle
- Perpetual pavement buildup had a small amount of top-down cracking that extended below the depth of micro-milling



N9 MIX DESIGN



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- Several mix trials yielded mix design recommendation:
 - Base binder PG 58-28+12% GTR
 - AC content of 5.8% AC
 - IDEAL-CT CT_{Index} at 25°C - 64.7
 - HWTT passes to 12.5mm - 15,600 (with 0.5% LAS)

MIX DESIGN AND QC DATA



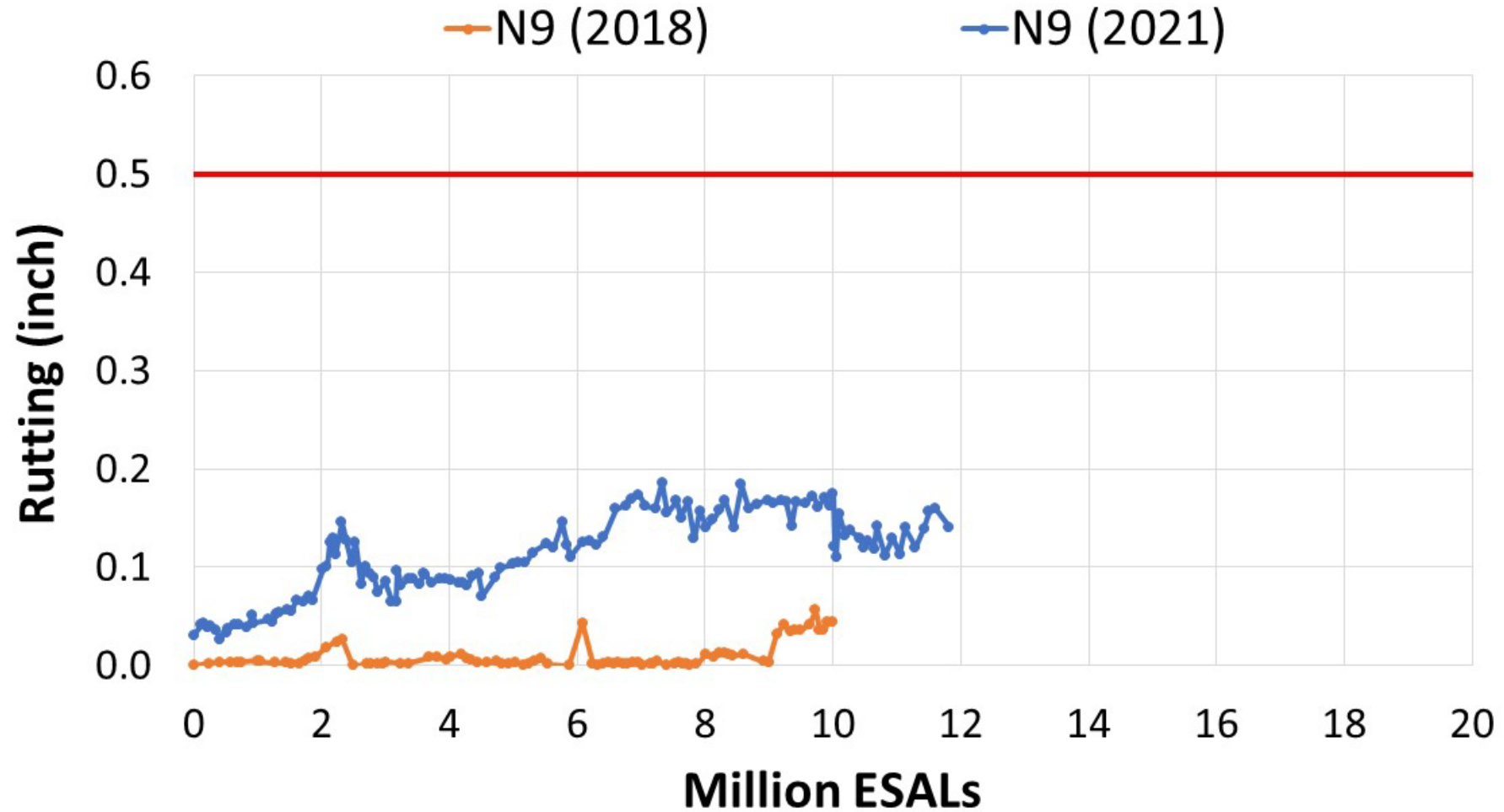
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Parameter	N9 (2018)		N9 (2021)	
	JMF	QC	JMF	QC
OBC (%)	5.6	5.6	5.8	5.7
Air Voids (%)	4.0	2.1	3.3	2.5
VMA (%)	15.5	14.0	16.4	15.5
Dust Proportion (%)	1.3	1.2	1.0	1.0
Layer Thickness (in)		1.5		1.6
In-place density (%)		96.4		95.7

FIELD RUTTING (11.8 MESALs)



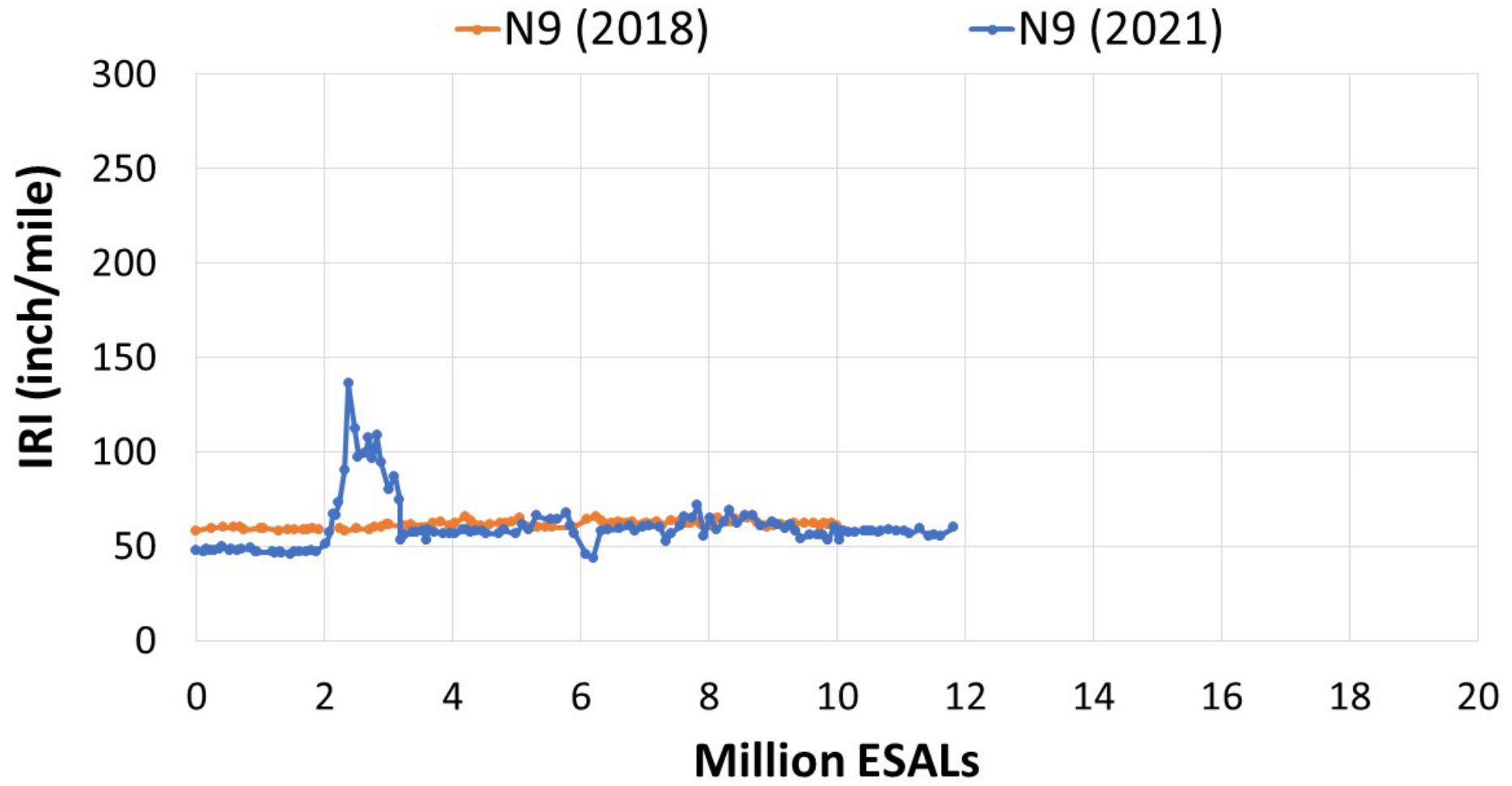
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IRI (11.8 MESALs)



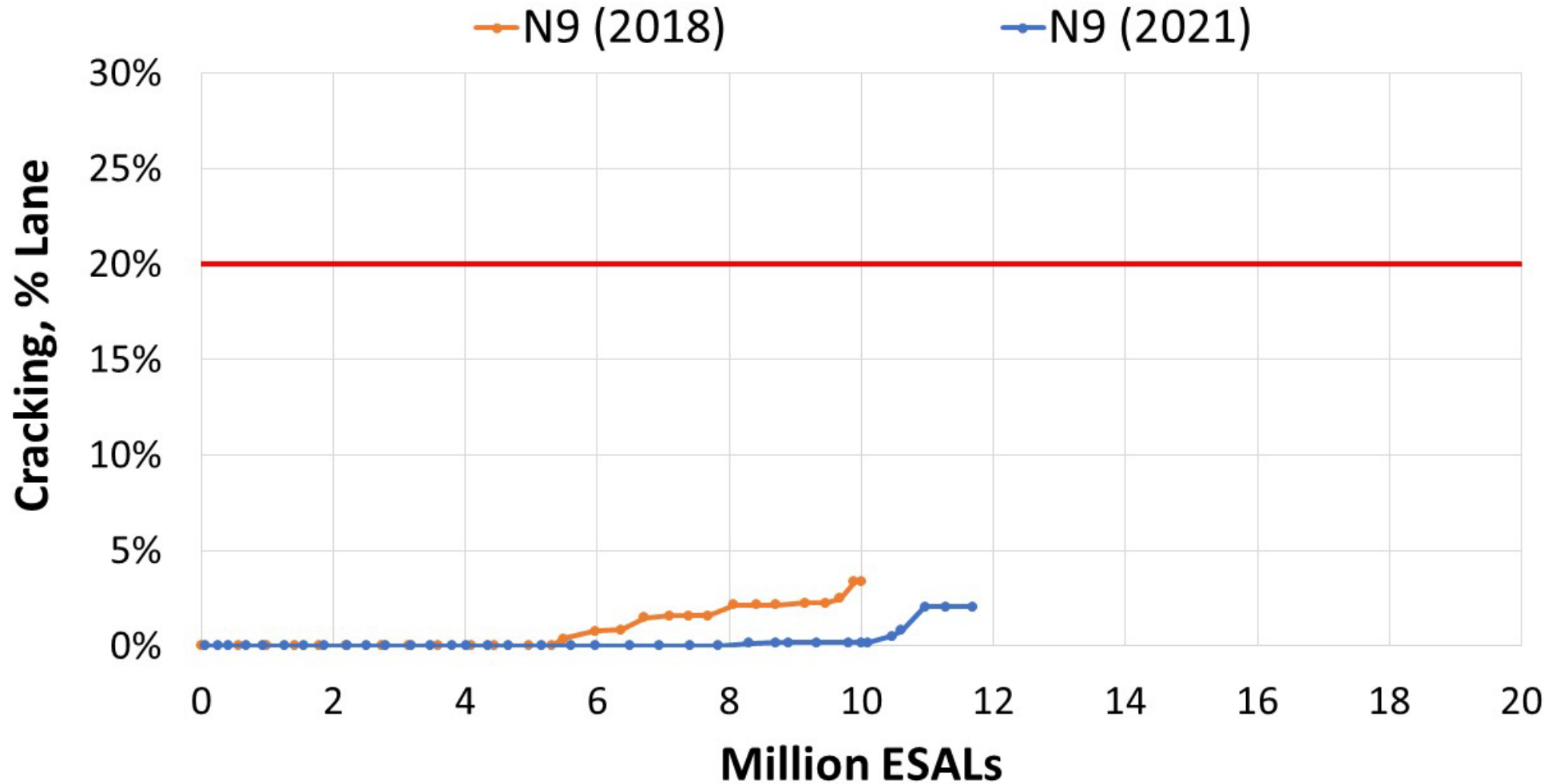
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FIELD CRACKING (11.8 MESALs)



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SUMMARY



- Cracking slowly progressing (at 2%), low severity
- Rutting and IRI have remained steady
- Continue monitoring the long-term performance of the section