MnROAD / NCAT Pavement Preservation Visual Survey Record
Estimated quick field survey

Date	10/22/2018
Observer (s)	MnROAD Staff
Visual Documentation	Pictures / Video
Report Developed	Yes / No

MnROAD Low Volume Road cells 55 - 58 Open Graded Friction Course

Background

In 2016 an Open Graded Friction Course was designed and constructed on the MnROAD Low Volume Road (LVR) as part of a pavement preservation partnership that included MnDOT and the National Center for Asphalt Technology. The mixture was placed in a 1-inch lift directly over existing PCC and HMA pavement in October 2016. The experiment included use of two types of tack coat material, and each tack was placed over PCC and HMA pavement (Figure 1). The result was the four LVR Test Cells 55 through 58. The mixture design details show 18% voids and a VMA of 14% at 50 gyrations. Additional design information is shown in Figure 1.

Sieve Size	Composite Formula
1"	100
3/4"	100
1/2"	93
3/8"	69
#4	13
#8	10
#16	8
#30	6
#50	4
#100	3
#200	1.7
Spec Voids	18.0
%AC	5.4
% NEW AC	**4.6**

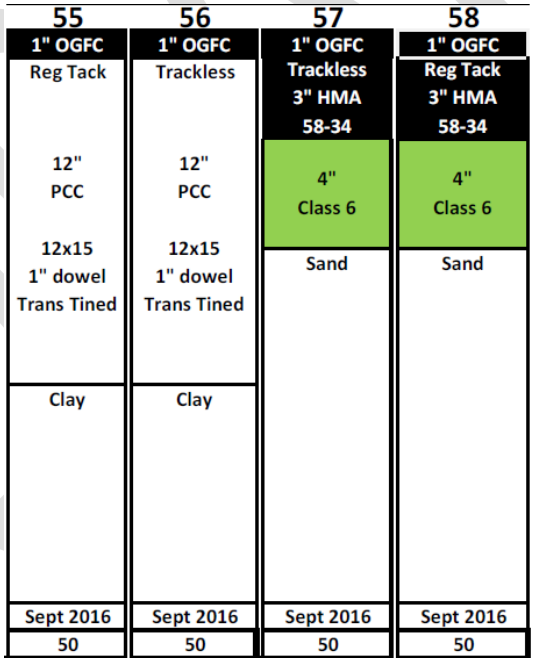

Figure 1 OGFC Design Gradation and MnROAD Low Volume Road Layout.[1]

[1] http://www.dot.state.mn.us/mnroad/testcells/pdf's/MnROAD%20Cell%20LVR%20Maps%20(Oct%202017).pdf

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MnROAD Low Volume Road cells 55 - 58 OGFC Performance

Distress		Reflected Percent	Overall Severity	Comment
Cracking	Transverse Cell 55	80	Low – Med – High Sealed 0 %	Inside Lane: 24 ft – Low 12 ft – Hairline Outside Lane: 24 ft – Low 12 ft – Hairline
	Transverse Cell 56	50	Low – Med – High Sealed 0 %	Inside Lane: 24 ft – Hairline Outside Lane: 24 ft – Hairline
	Transverse Cell 57	100	Low – Med – High Sealed 0 %	Inside Lane: 12 ft – Low(*) Outside Lane: 12 ft – Low(*)
	Transverse Cell 58	0	Low – Med – High Sealed %	0 ft cracking
	Other	0	Sealed %	
Treatment Retention			Retained % 100	
Bleeding			0 % Affected	

Comment

Cell 55 Outside Lane: 14x1 ft shoving in right wheel path noted on July 7, 2017 after construction activity.

Cell 57: (*) Reflected crack at transition from PCC to HMA.

Cell 58: Partially covered with slurry after 2017 construction activities. Outside Lane currently 5% (30 sf) covered. Inside Lane currently 20% (120 sf) covered, and permeability varies with the coverage severity.

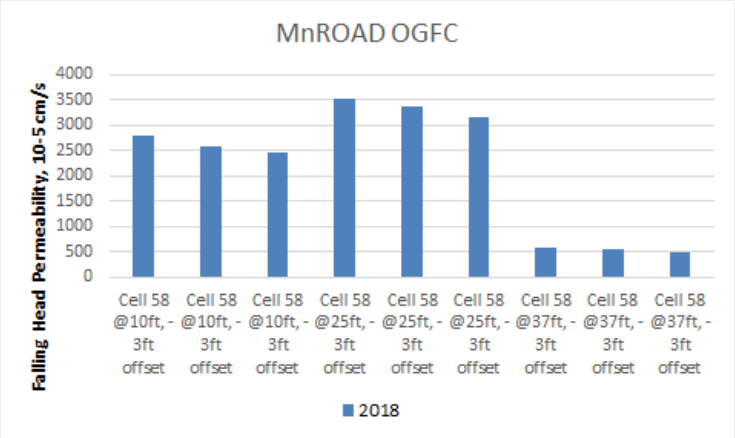

Figure 2 Falling Head Permeability of various locations on Cell 58, Inside Lane, Left Wheel Path.

Add photos below (Figure 5).

Note the decline in roughness of Cell 58 that occured in late 2017 (Figure 3). Continued monitoring is planned.

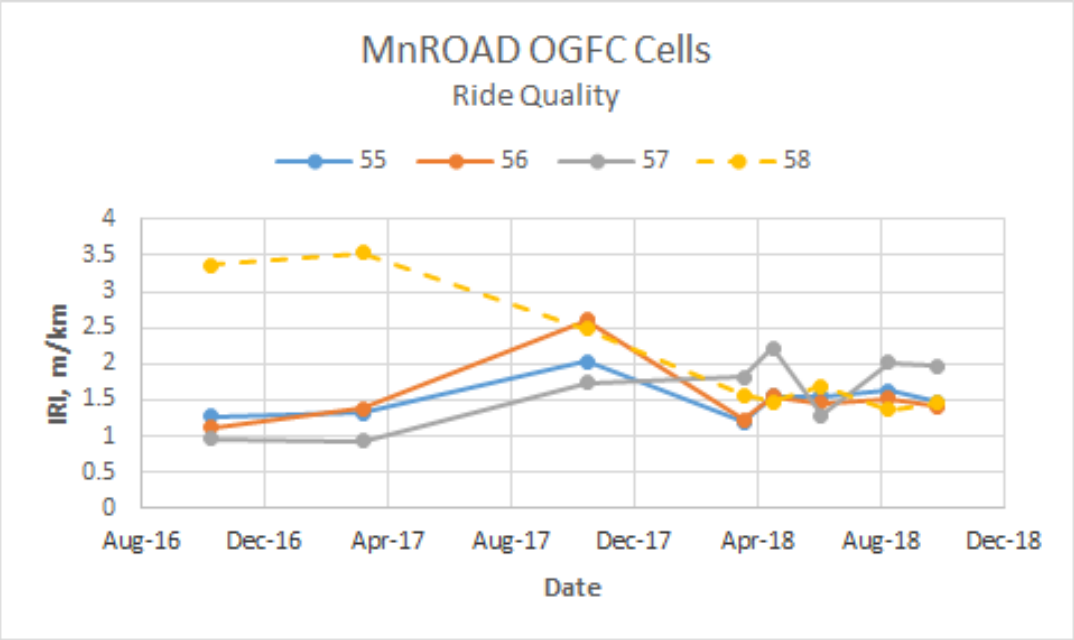

Figure 3 OGFC: Ride Quality of Trafficked (Inside) Lane.

Several locations in the Environmental (Outside) Lane were tested for field permeability on June 1, 2017. Figure 4 shows that in 2018 permeability had declined at those points by 77 to 96 percent. Continued monitoring is planned.

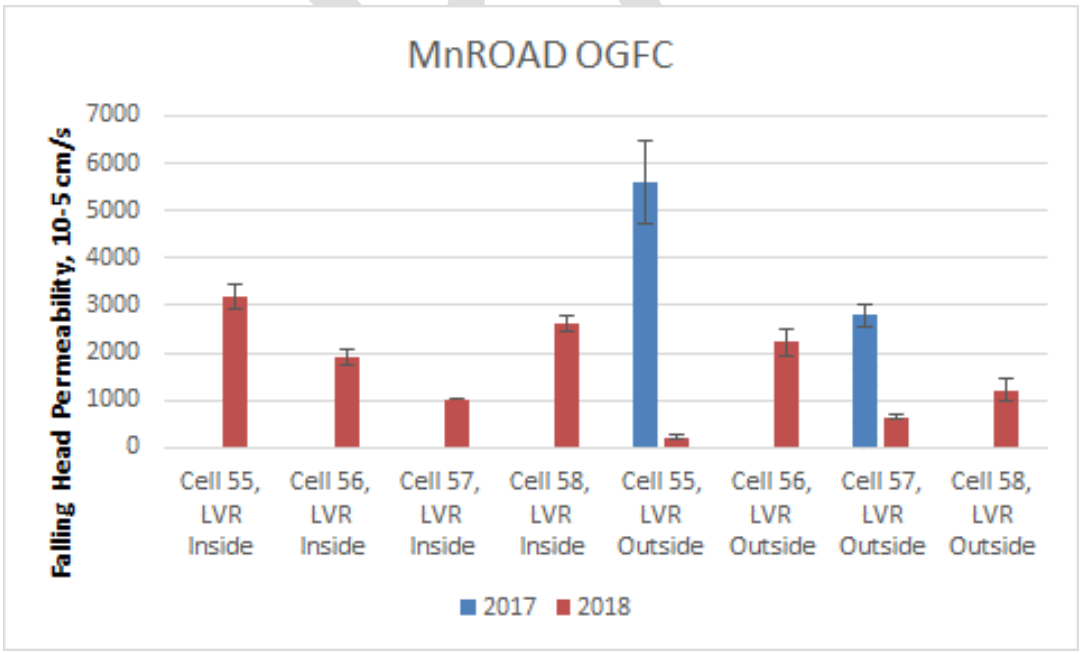

Figure 4 OGFC: Falling Head Permeability at Inside (Left Wheel Path) and Outside Lane (Between Wheel Paths).

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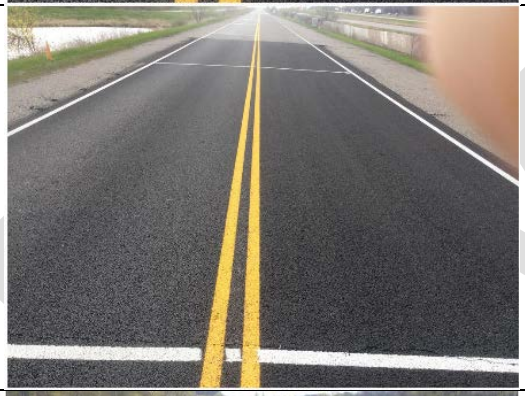
CELL	April 2017	July 2018
55		
56		
57		
58		

Figure 5 Photos of MnROAD OGFC Cells: Viewed Eastbound.