



Florida Department of
TRANSPORTATION

Open-Graded Crack Relief Layer and Asphalt Rubber Membrane Interlayer to Mitigate Reflective Cracking

Experimental Project Interim Report

FDOT Office	State Materials Office
District	3
County	Gadsden
Financial Project	411695-1-52-01
Roadway ID	50010000
State Road No.	10
US Road No.	90
Report Date	11/14/2016

Project Description

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County	Gadsden
Financial Project	411695-1-52-01
Roadway ID	50010000
State Road No.	10
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Lanes Tested	R1, L1

Objective

The objective of this study is to evaluate the effectiveness of various reflection crack mitigation strategies including an open-graded crack relief layer, an asphalt rubber membrane interlayer, and

Background

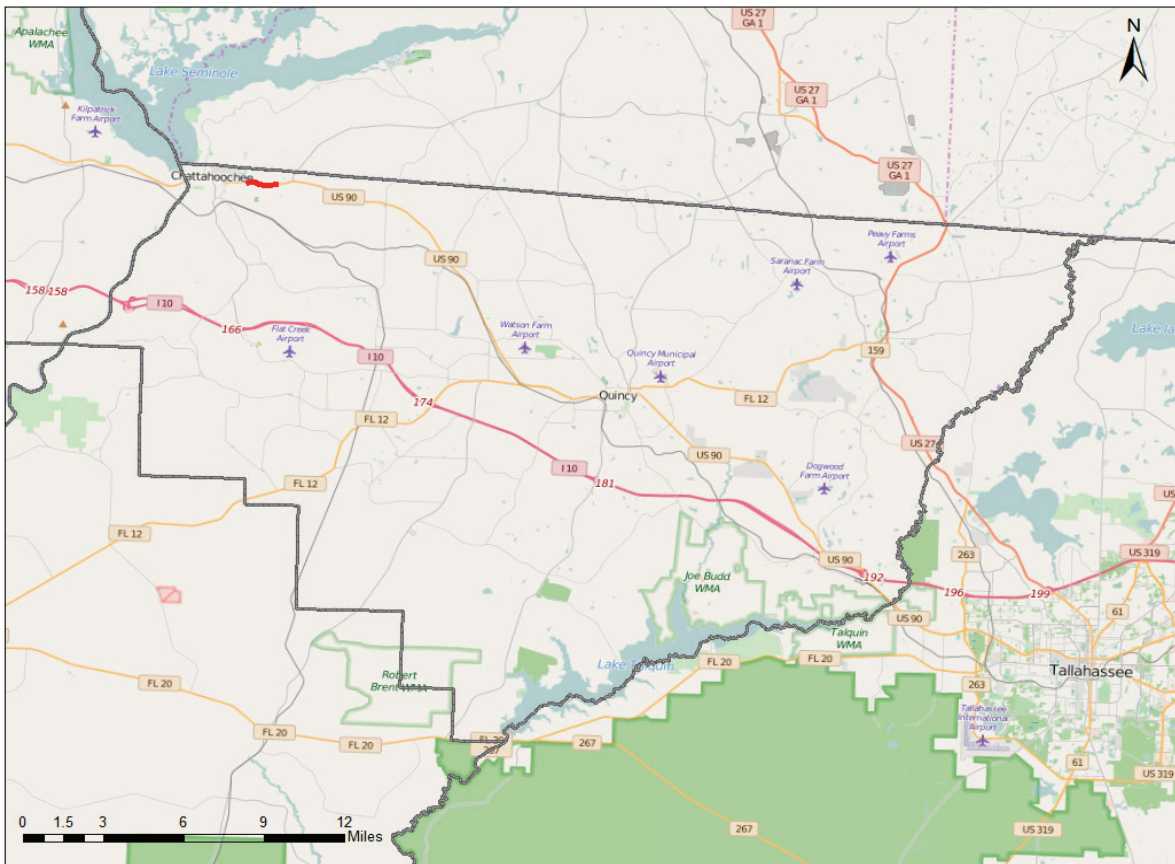
This experimental project is located on SR-10/US-90 in Gadsden County. The original two-lane roadway was constructed in the late 1920s and consisted of a 7 inch concrete pavement with unpaved shoulders. Several rehabilitations have taken place over the years including asphalt overlays, an initial widening from two to three lanes, and a subsequent widening from three to four lanes. Prior to rehabilitation, this roadway exhibited significant reflection cracking in the two inside lanes (R1, and L1) where the original jointed plain concrete pavement still exists as base layer.

Description

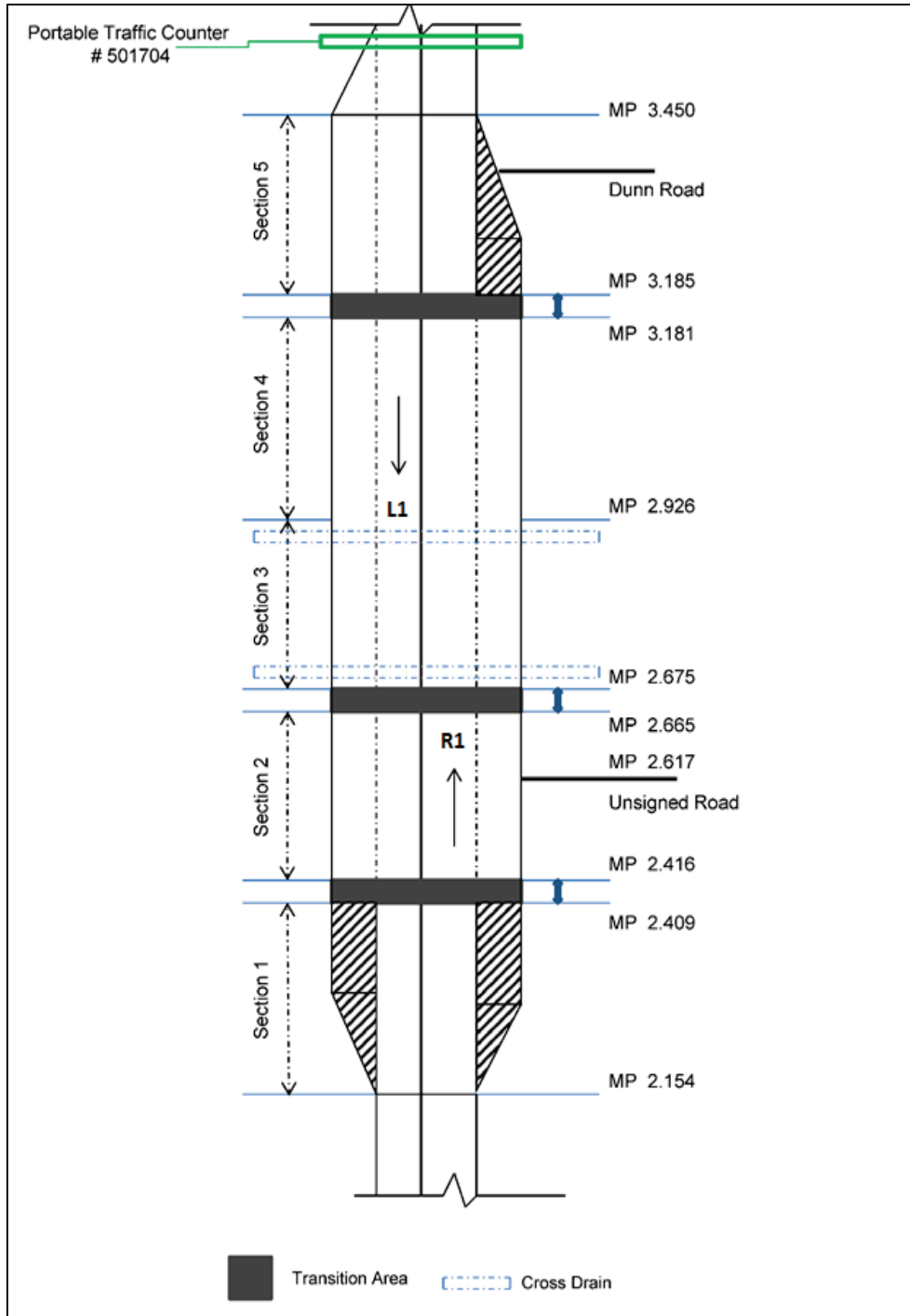
The experimental project consists of five test sections ranging from 1315 to 1542 feet in length. The test sections were incorporated in the scope of a 16.5 mile resurfacing project (FIN 411695-1-52-01), which was completed in January 2010. The experimental design called for milling 3 inches of the existing asphalt and placing back 1.5 inches of Superpave 12.5 structural course in sections 1,2,4, and 5 and placing 2.5 inches of the same SP-12.5 in section 3. Directly above the milled surface, section 1 received a 0.5 inch overbuild, section 4 received a 1 inch open-graded crack relief layer, and section 5 received a 0.5 inch asphalt rubber membrane interlayer. Pavement performance is evaluated in terms of pavement deflection, cracking, rutting, and smoothness.

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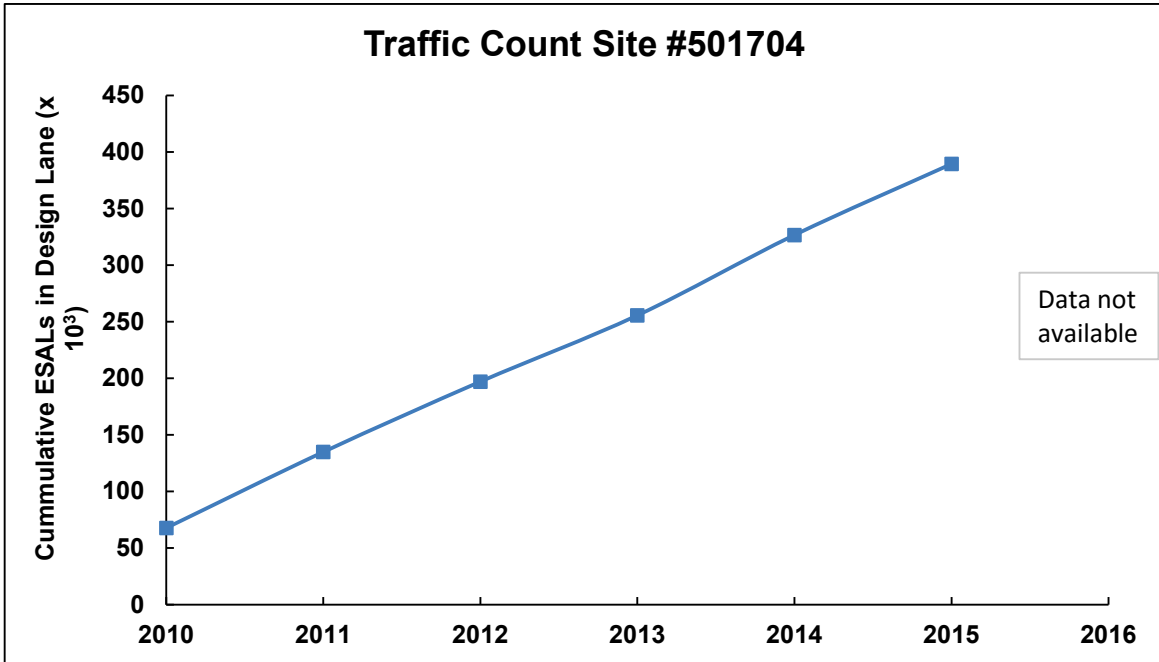
Project Layout



Pavement Thickness

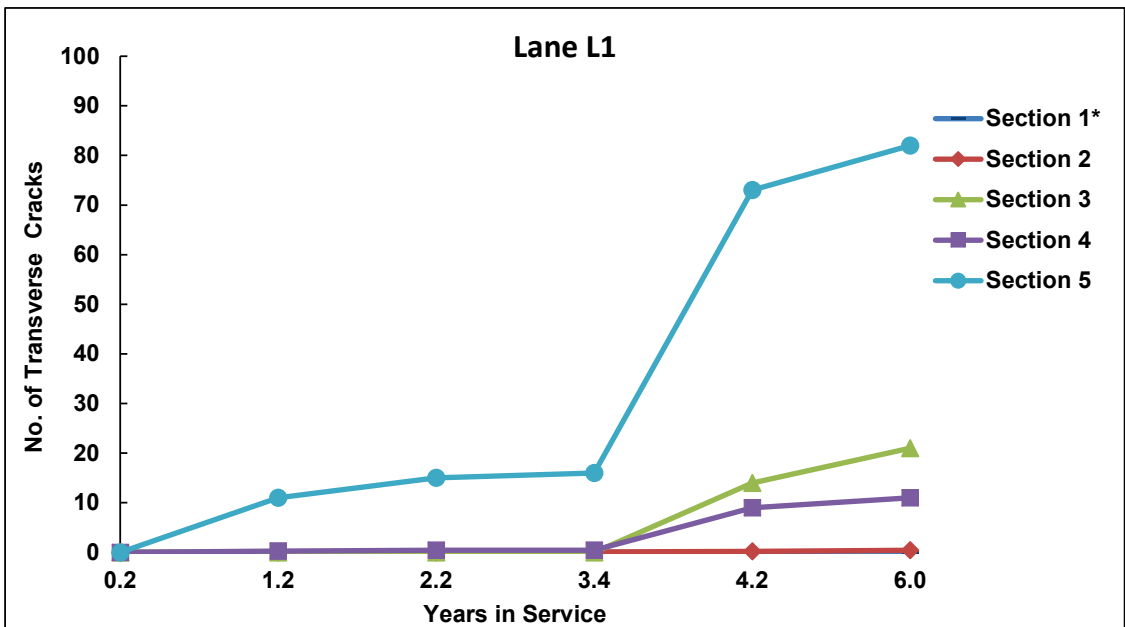
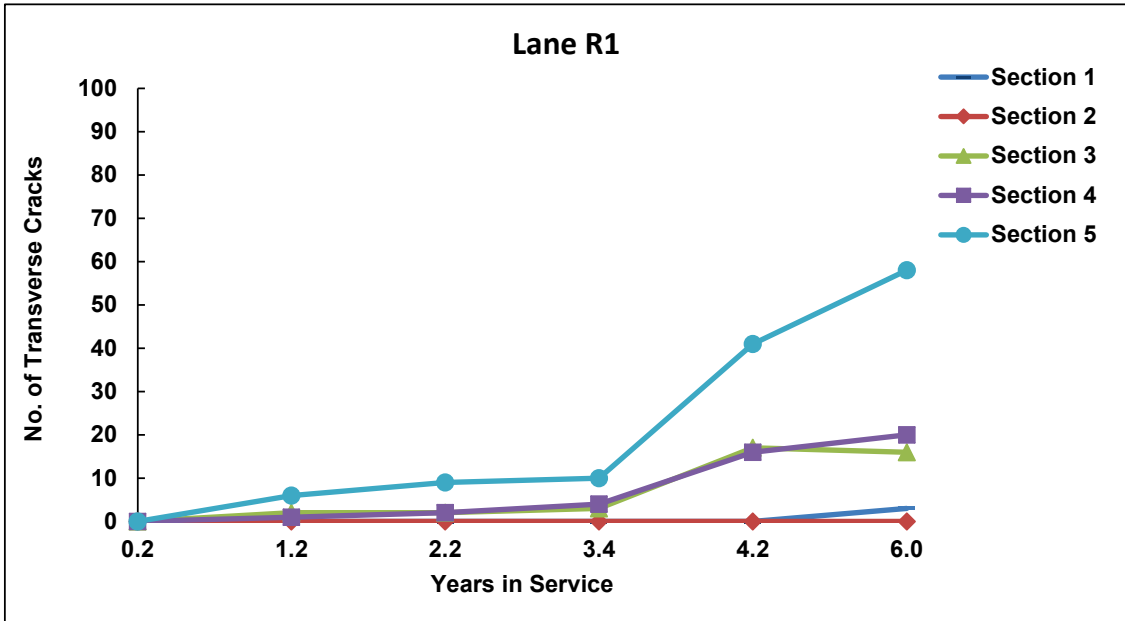
	R1	L1										
Section 1	<table border="1"> <tr><td>1.0" FC-9.5</td></tr> <tr><td>1.5" SP-12.5</td></tr> <tr><td>0.5" SP-9.5</td></tr> <tr><td>2.2" AC</td></tr> <tr><td>7.0" PCC</td></tr> </table>	1.0" FC-9.5	1.5" SP-12.5	0.5" SP-9.5	2.2" AC	7.0" PCC	<table border="1"> <tr><td>1.0" FC-9.5</td></tr> <tr><td>1.5" SP-12.5</td></tr> <tr><td>0.5" SP-9.5</td></tr> <tr><td>2.2" AC</td></tr> <tr><td>7.0" PCC</td></tr> </table>	1.0" FC-9.5	1.5" SP-12.5	0.5" SP-9.5	2.2" AC	7.0" PCC
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Traffic



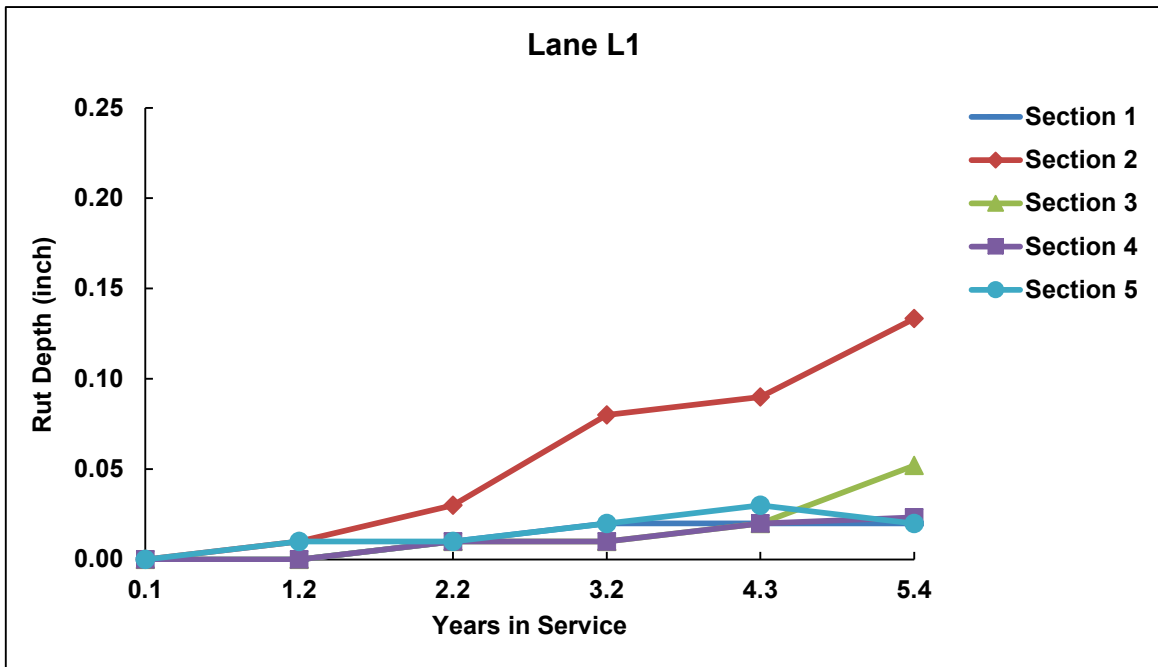
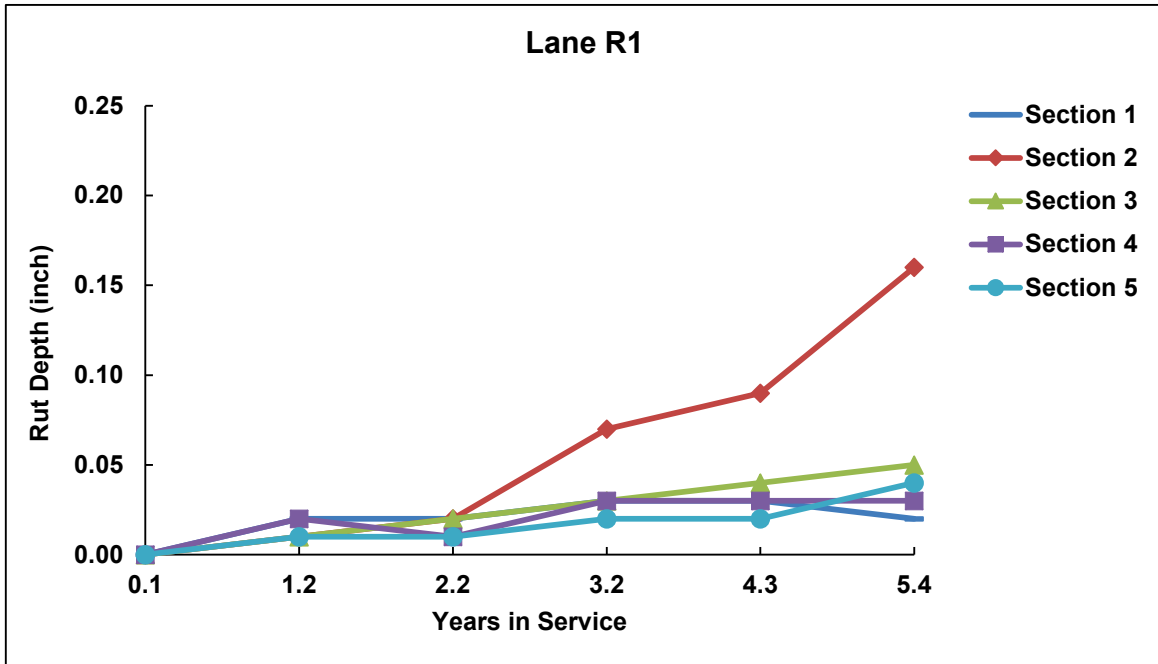
Note: 2016 traffic data not available

Transverse Cracks

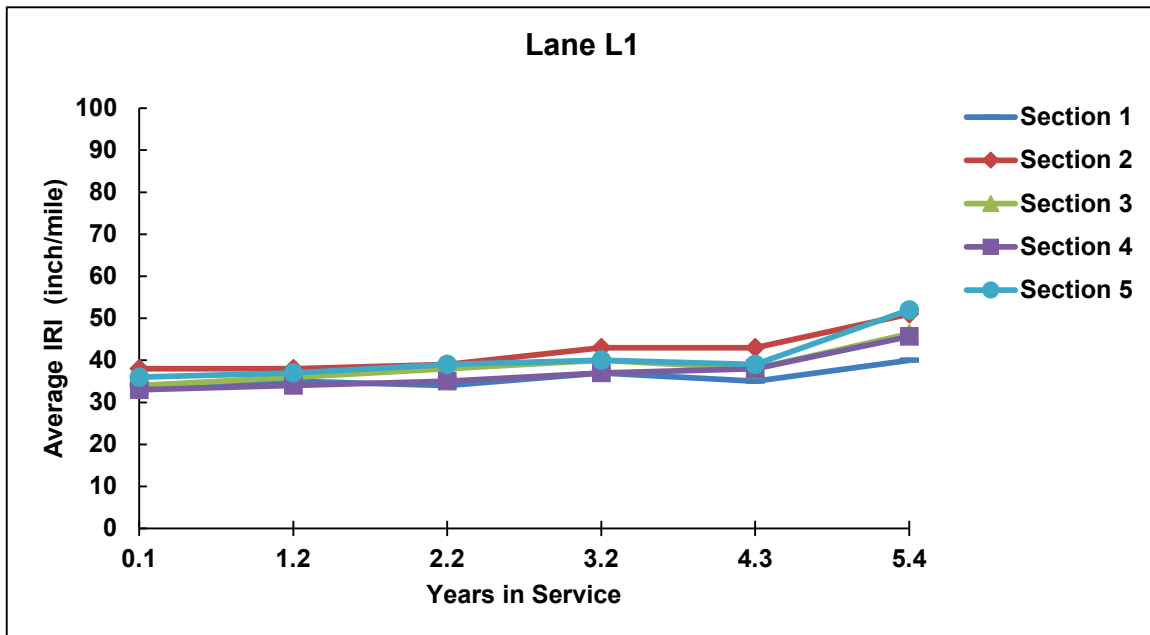
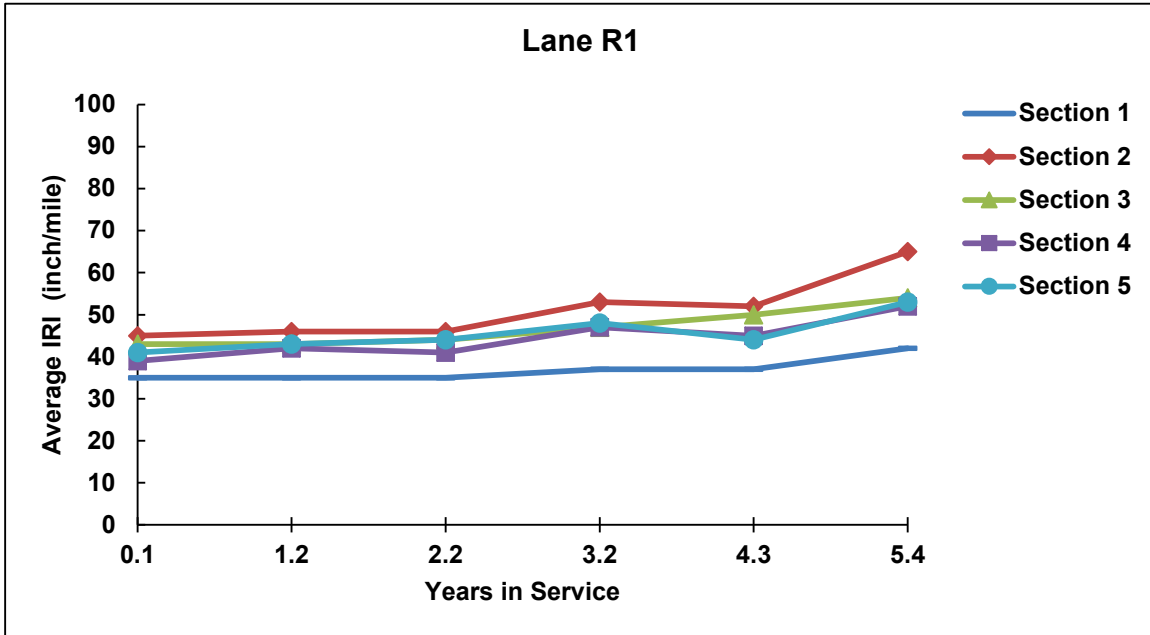


* Section 1 has no cracking

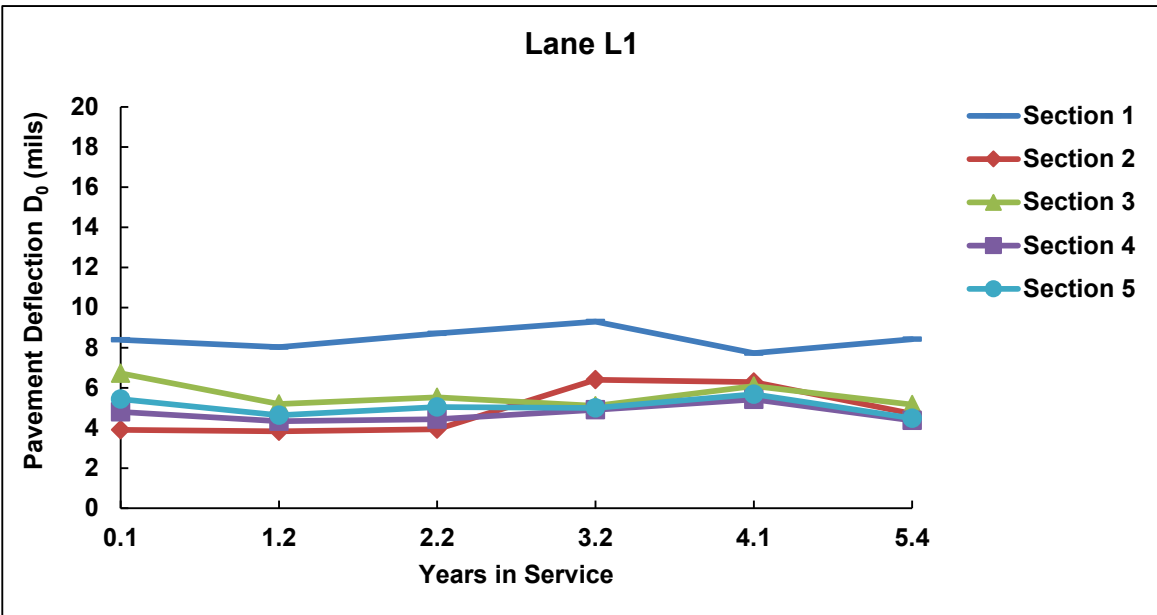
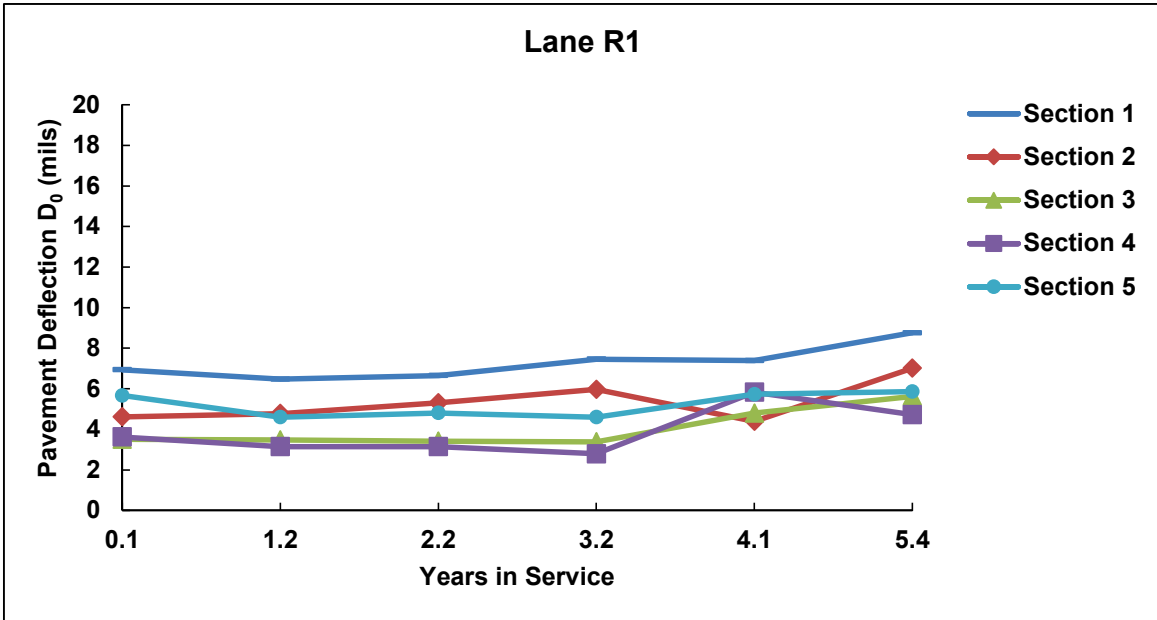
Rut Depth



Smoothness



Deflection



Deflection (2015)

