

Instrumented Pavement Response I-64 Recycling Project

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Overview

- Objective
- I-64 project
- Instrumentation
- Results
- Summary



Objective

- Install sensors to conduct periodic monitoring using loaded trucks
- Compare results with other test sections (NCAT) to quantify the structural performance of the I-64 section

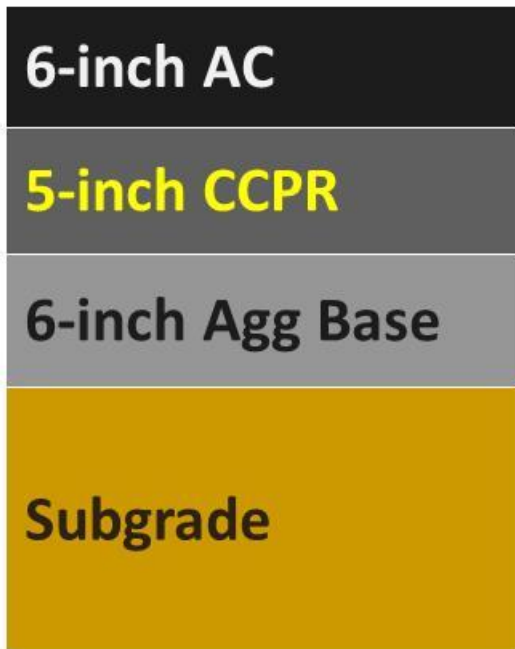


VDOT Sponsored Sections at NCAT



NCAT Test Track Sections

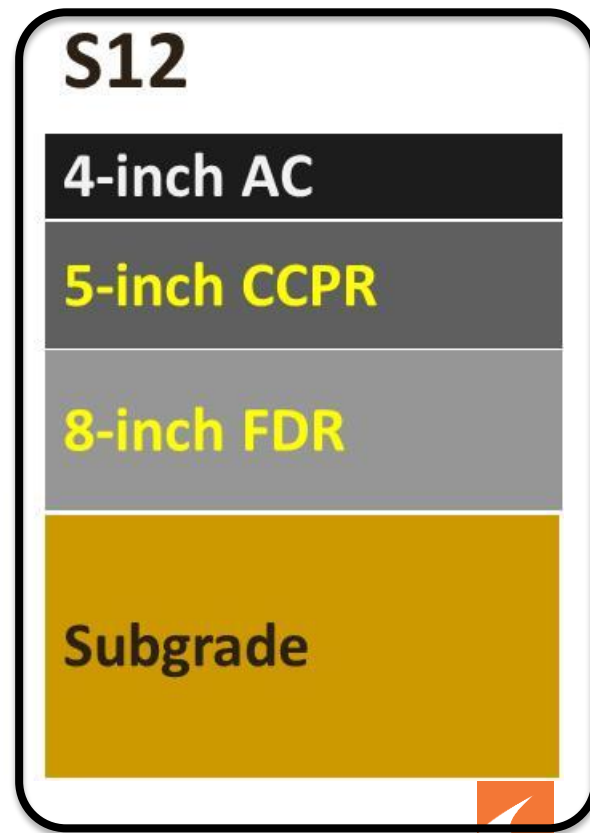
N3

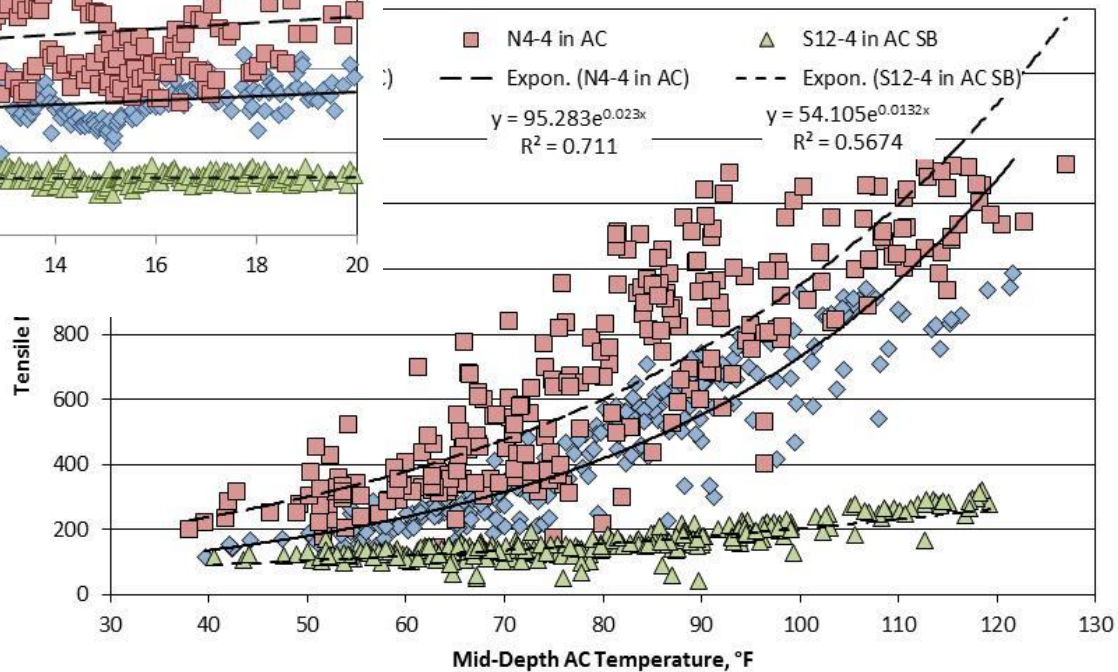
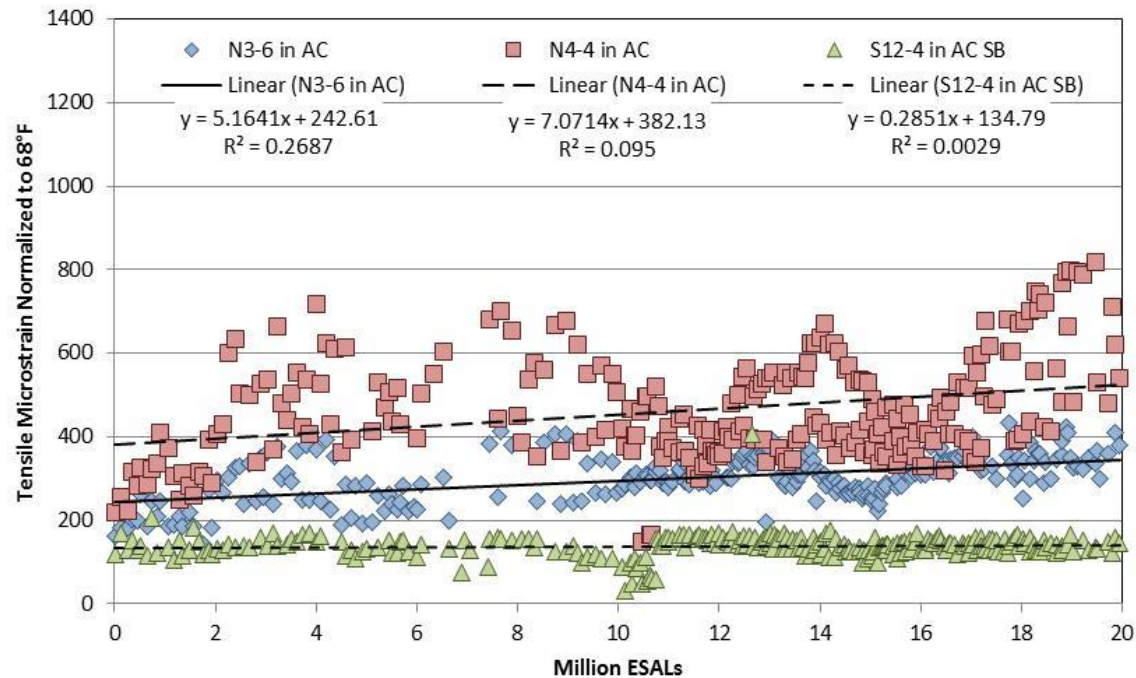


N4



S12

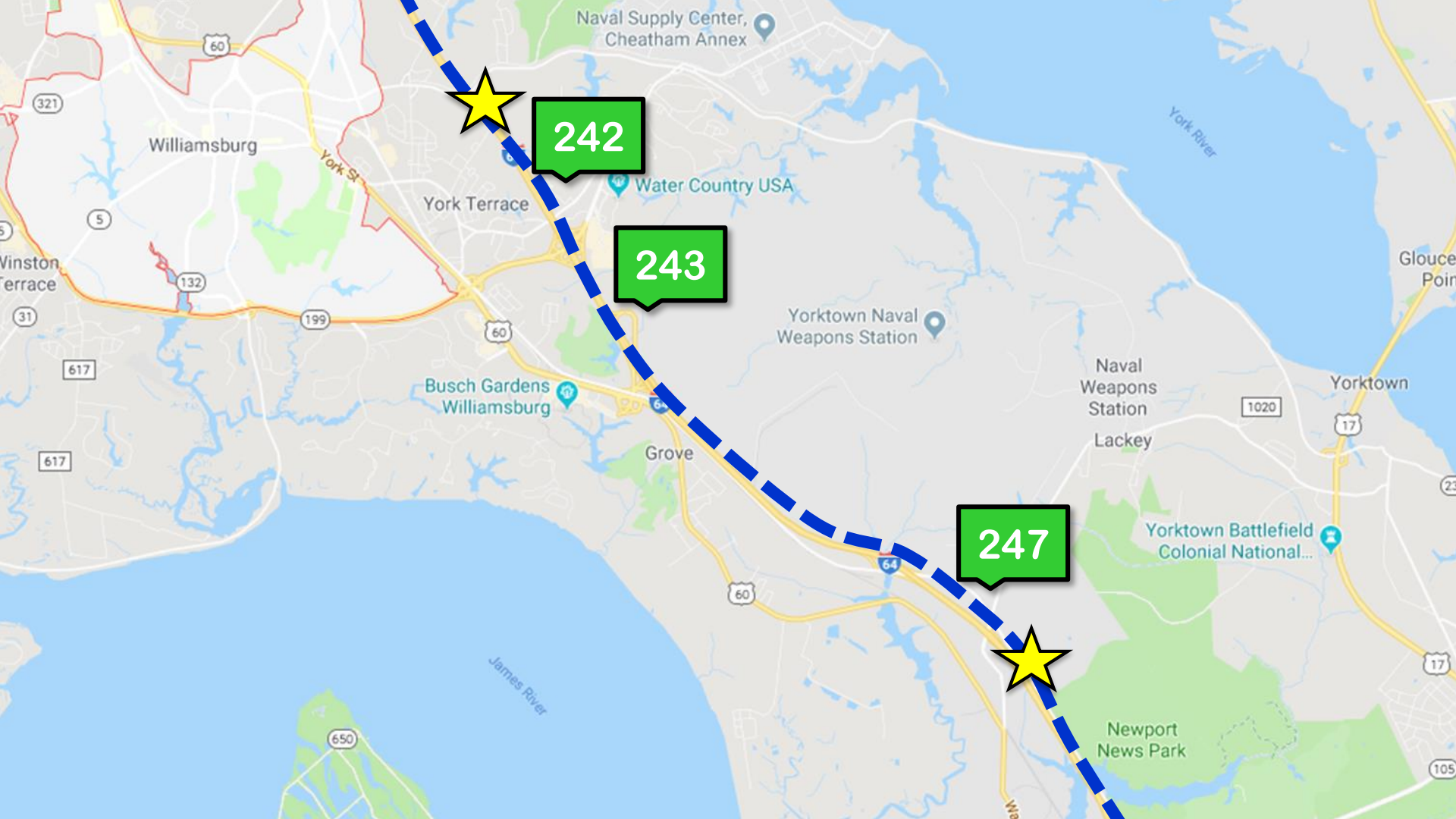




I-64 Segment II

- Location
 - Newport News, James City, and York Counties
- Scope
 - 7.08 miles, both directions
 - Add a travel lane and a 12ft shoulder to the inside
 - Reconstruct existing lanes and outside shoulder
 - \$189.7 Million
- Traffic
 - 3,000+ trucks per day (per direction)
 - I-81 = 8,400+, NCAT = 20 years on I-64





I-64 Segment II

- New travel lane and inside 12ft shoulder
 - Import crushed concrete or RAP, stabilize as FDR
 - OGDL
 - CCPR
 - 4 inches SMA
- Existing lanes and outside 12ft shoulder
 - Remove existing concrete
 - FDR existing base
 - OGDL
 - CCPR
 - 4 inches SMA



EXIT 243B

143

WEST

Williamsburg
BUSINESS ROUTE
LEFT 1/2 MILE

EXIT 243A

TO 60

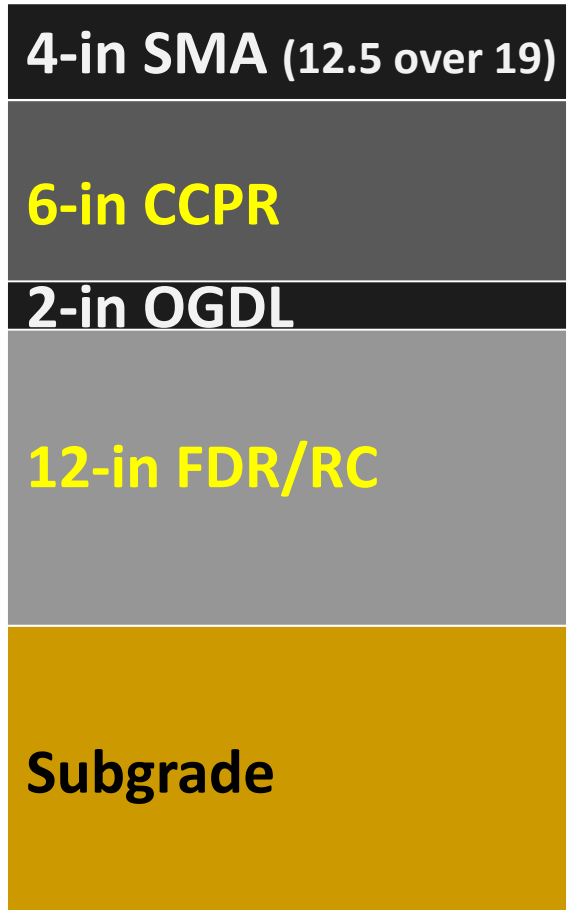
Busch Gardens

1 1/2 MILE









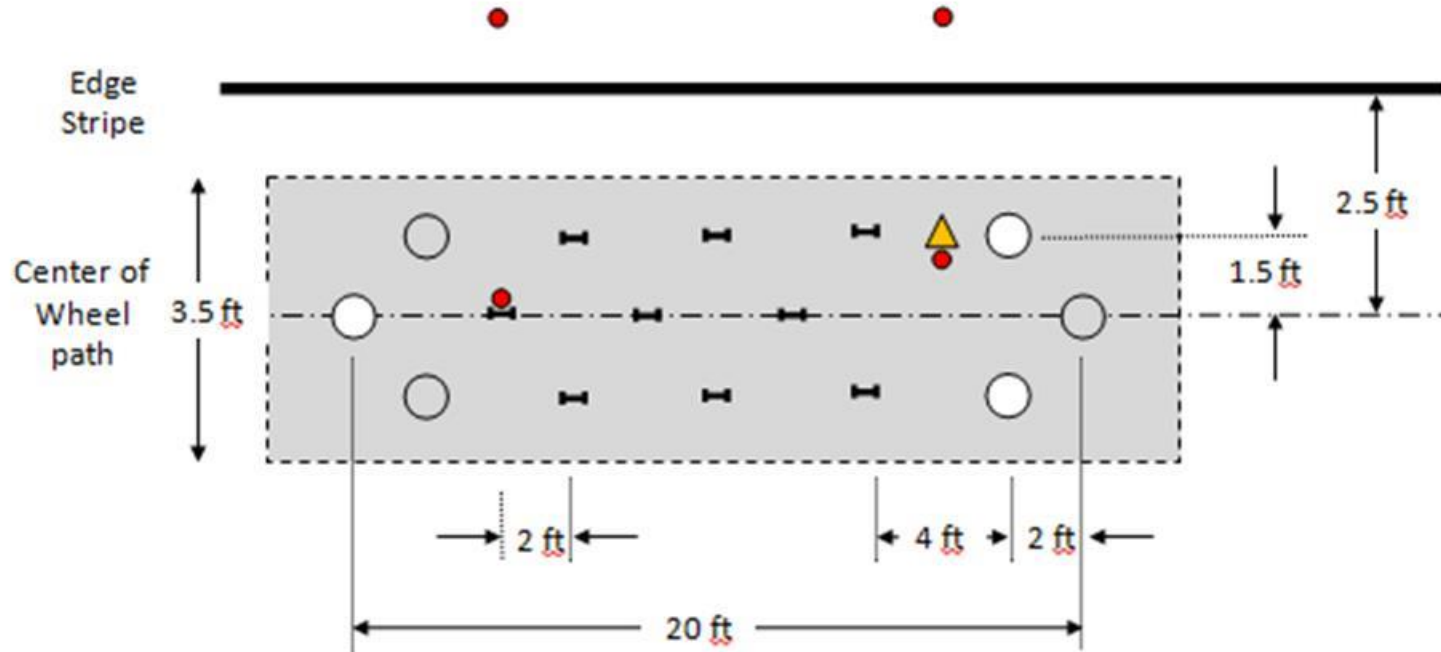
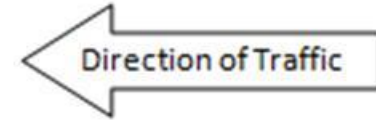
I-64 Segment II Design

Processes	Quantities
FDR existing lanes	345,000 SY
Cement treated concrete/ RAP new lanes	146,000 tons
CCPR	168,000 tons
Total recycled materials about 519,000 tons	



- Pressure cell on top of OGDL
- Pressure cell on top of subgrade
- ≡ Horizontal asphalt strain
- Temperature probe array
- ▲ TDR moisture probe array

Instrumentation



Installation

- Part 1 (after FDR)
 - Excavate portions of FDR layer
 - Place pressure cells and moisture probes on top of and 2ft into the subgrade
 - Replace material and compact
- Part 2 (prior to CCPR)
 - Place strain gauges, pressure cells, and moisture probe on top of OGD
 - Place CCPR

































I-64, Williamsburg, VA 23185



I-64, Williamsburg, VA 23185



Add destination

Leave now

OPTIONS



Send directions to your phone



via I-64 E

6 min

Fastest route, the usual traffic

4.7 miles

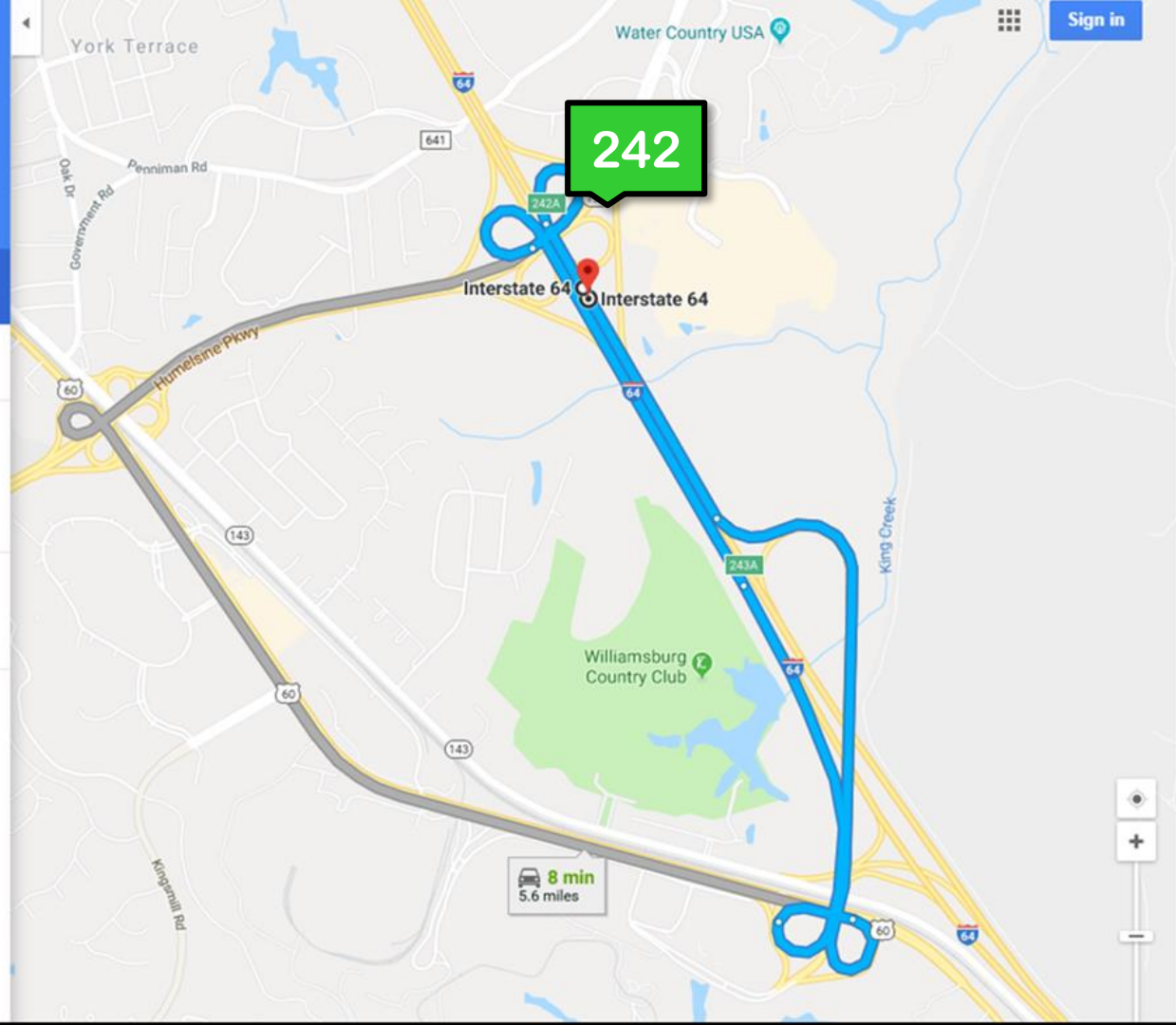
DETAILS



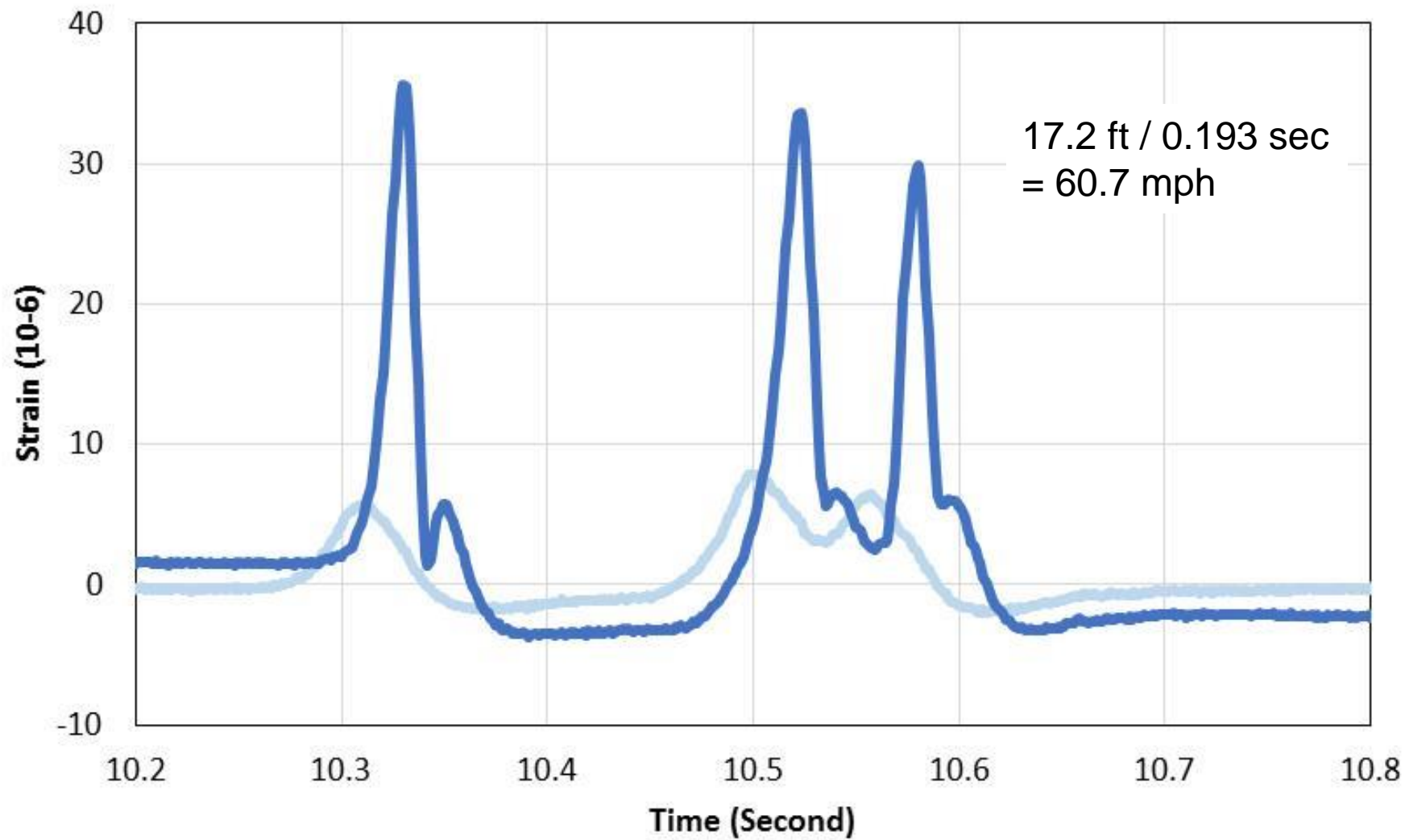
via US-60 E

8 min

5.6 miles







Summary

- Pavement instrumentation can be used to quantify structural performance
- Results will be compared over time and to other sections
- More to come...



Thank you!

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