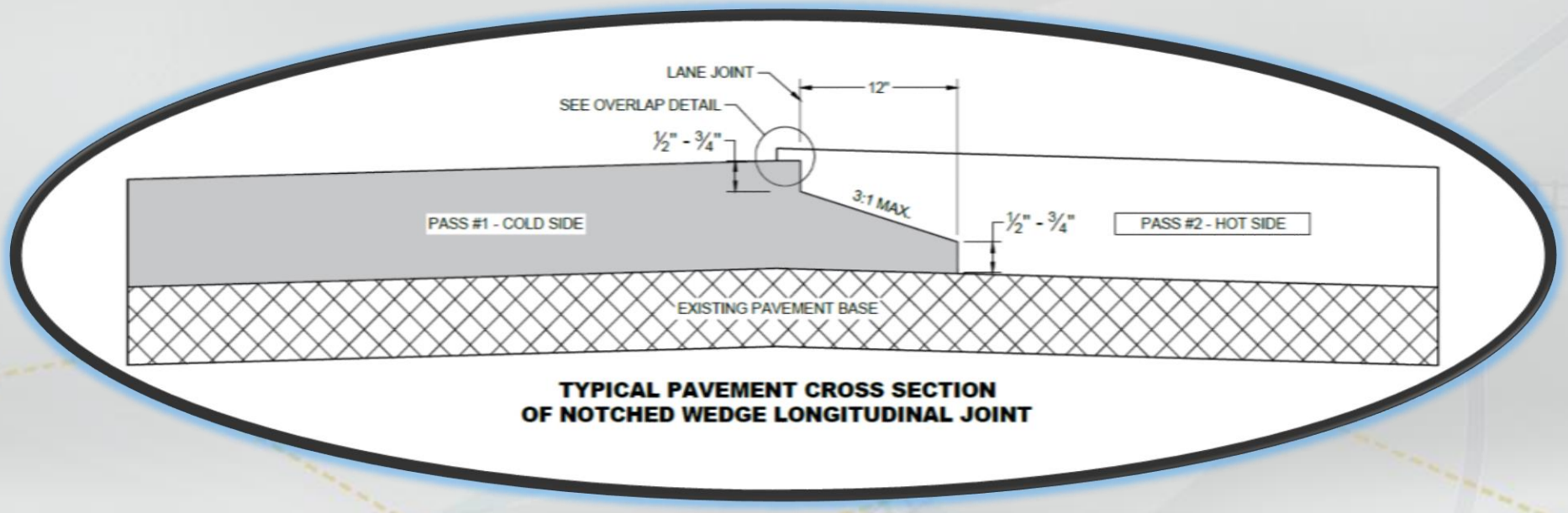
HMA Materials Training

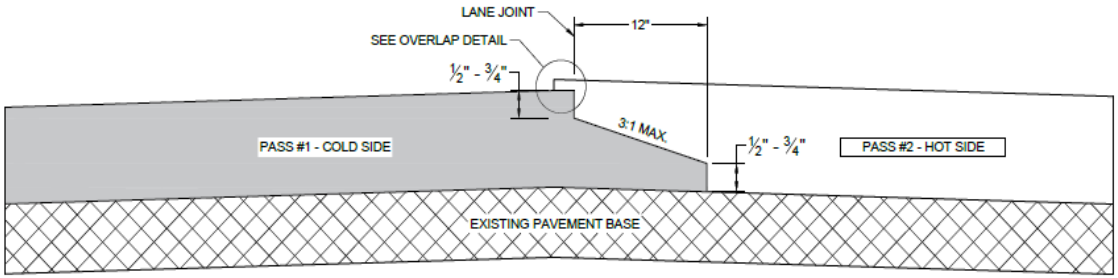
Erik Lyngdal
Materials Laboratory Coordinator

Annual Materials Training

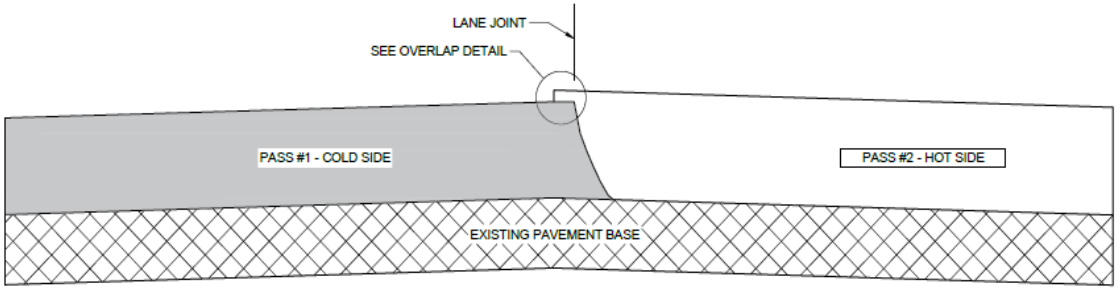
Longitudinal Joint Construction



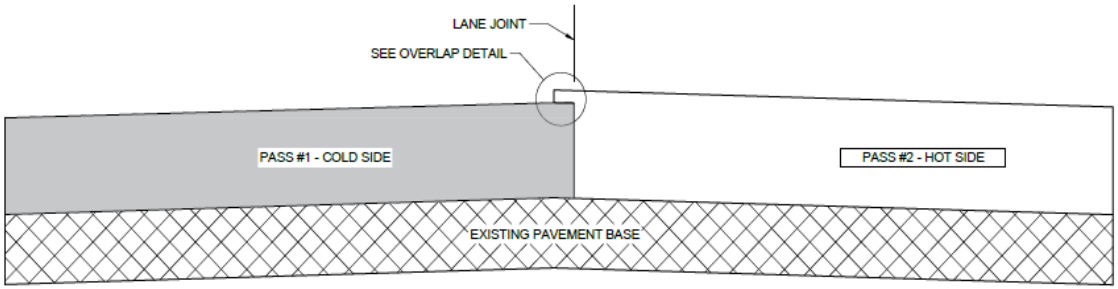
TYPICAL PAVEMENT CROSS SECTION OF NOTCHED WEDGE LONGITUDINAL JOINT



TYPICAL PAVEMENT CROSS SECTION OF NOTCHED WEDGE LONGITUDINAL JOINT



TYPICAL PAVEMENT CROSS SECTION VERTICAL LONGITUDINAL JOINT



TYPICAL PAVEMENT CROSS SECTION OF MILLED LONGITUDINAL JOINT

GENERAL NOTES

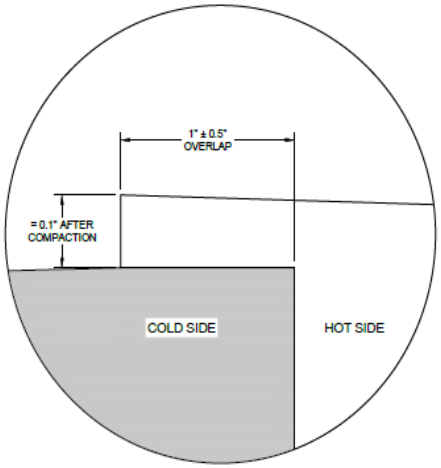
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND GENERAL JOINT CONTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY 1 ± 0.5" AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY 0.1" AFTER FINAL COMPACTION.

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO 2" FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.



OVERLAP DETAIL (TYPICAL)

DRAFT

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

DATE — /S/ HMA PAVEMENT ENGINEER

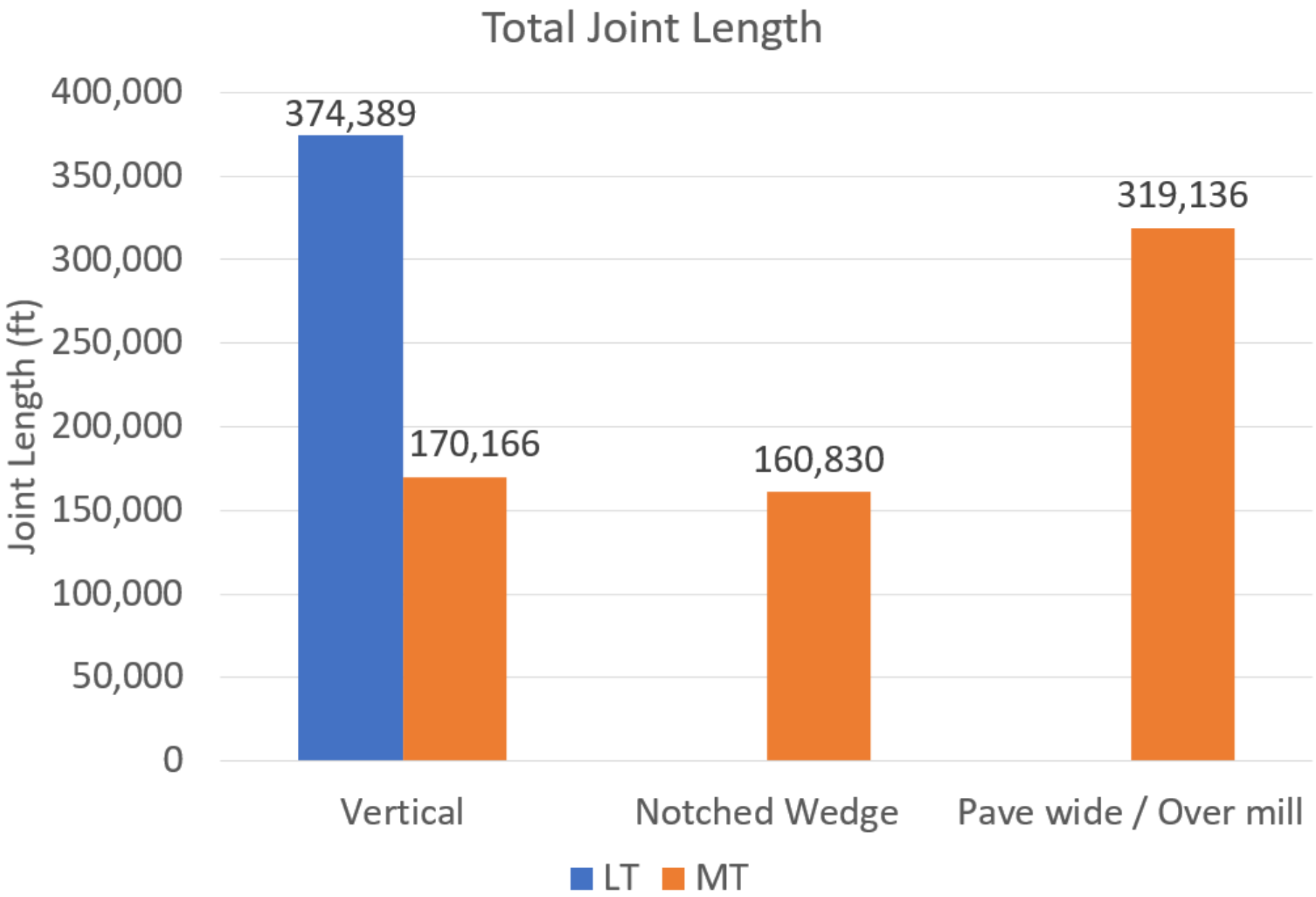
6

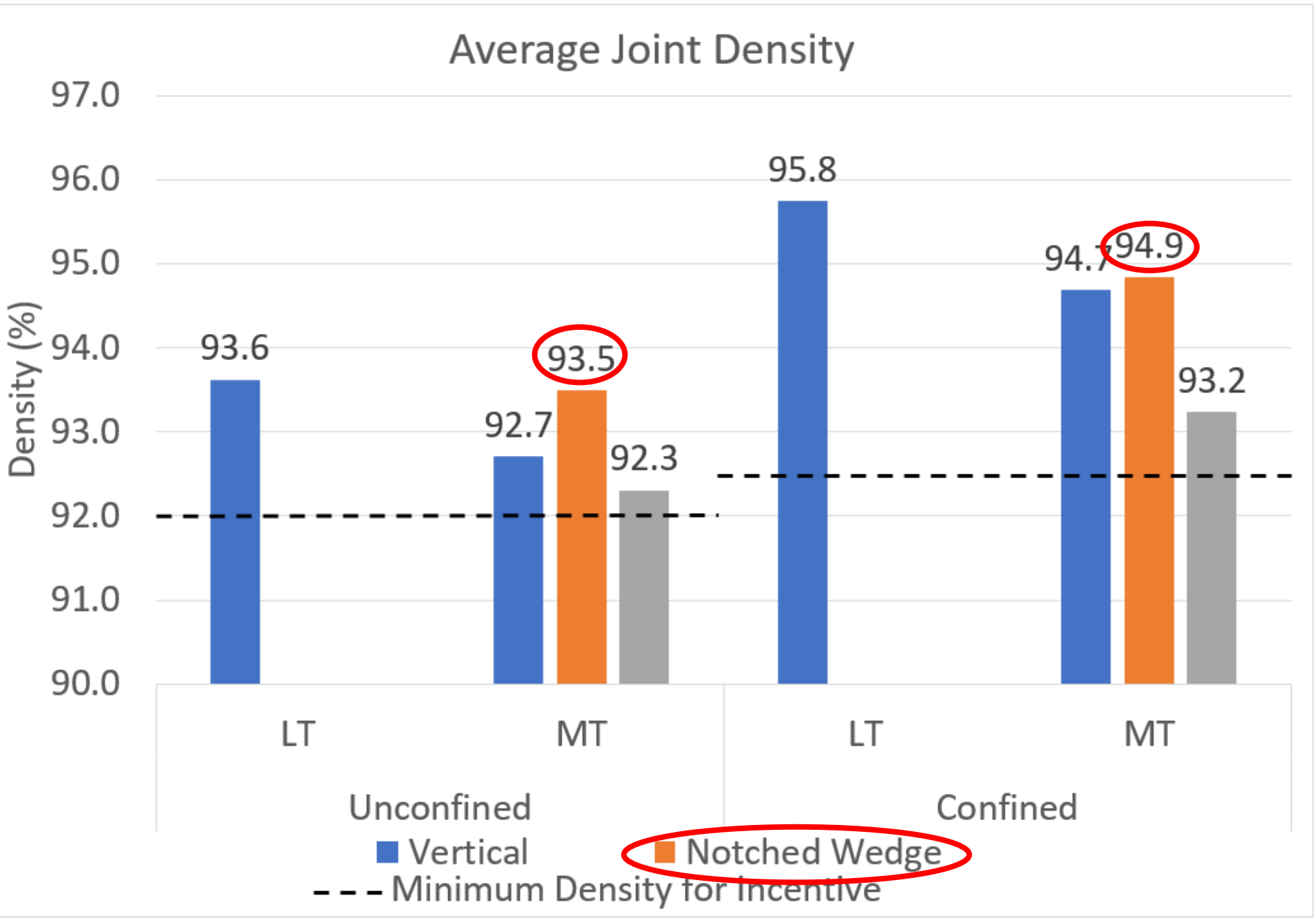
6

SDD 13C19 - 02

SDD 13C19 - 02

2018 Longitudinal Joint Density SPV Project Results


Total Joint Length
Joint Length (ft)
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
374,389
170,166
160,830
319,136
Vertical
Notched Wedge
Pave wide / Over mill
LT
MT


Average Joint Density
Density (%)
97.0
96.0
95.0
94.0
93.0
92.0
91.0
90.0
93.6
92.7
93.5
92.3
95.8
94.7
94.9
93.2
LT
MT
LT
MT
Unconfined
Confined
Vertical
Notched Wedge
Minimum Density for Incentive

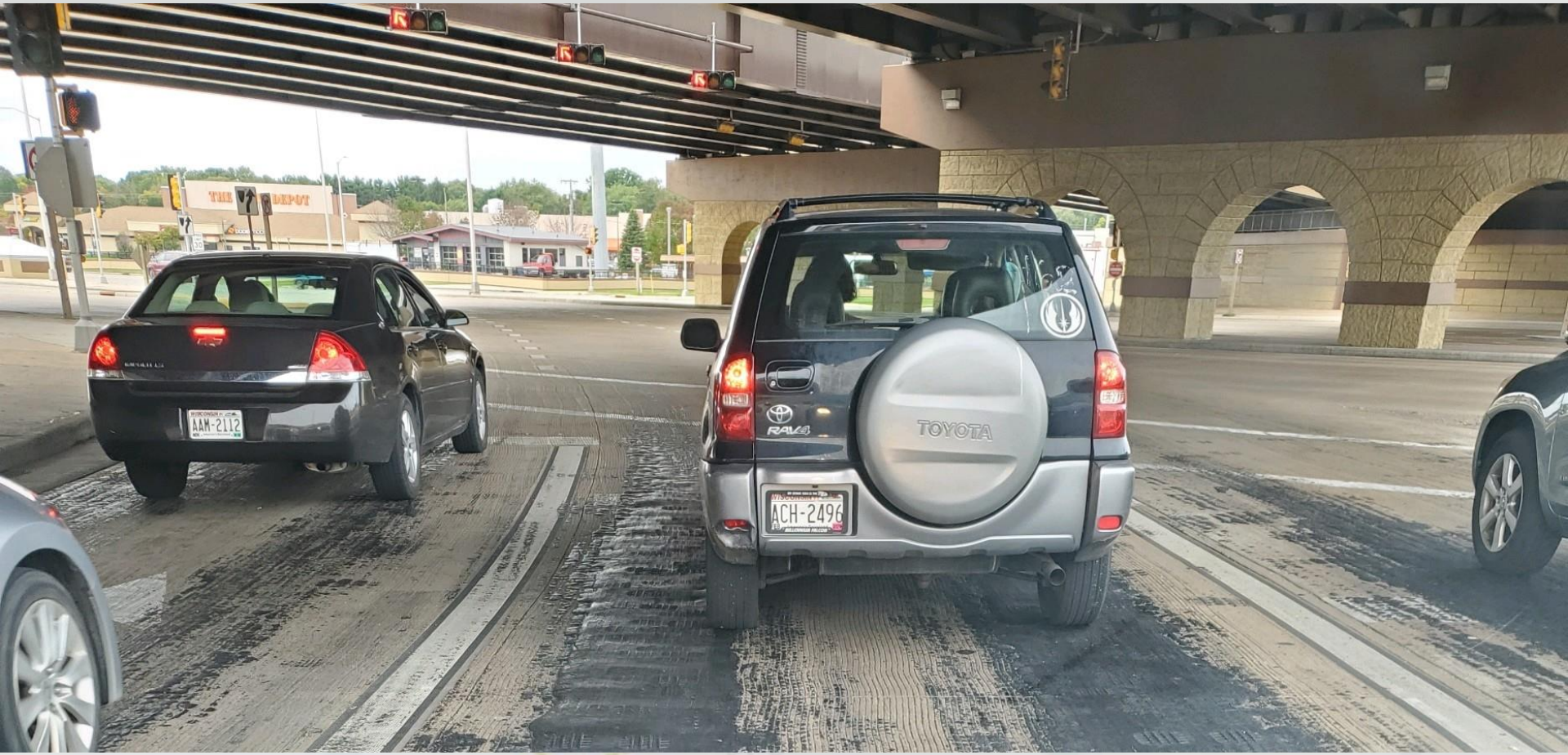
2019 Longitudinal Joint Density SPV Projects

11 projects – 2 LT, 6 MT and 3 HT

SW	SE	NE	NC	NW
USH 018	IH 41	STH 042	STH 153	USH 063
USH 012		USH 010		
STH 082		USH 151		
IH 90		STH 021		

Tack Coat

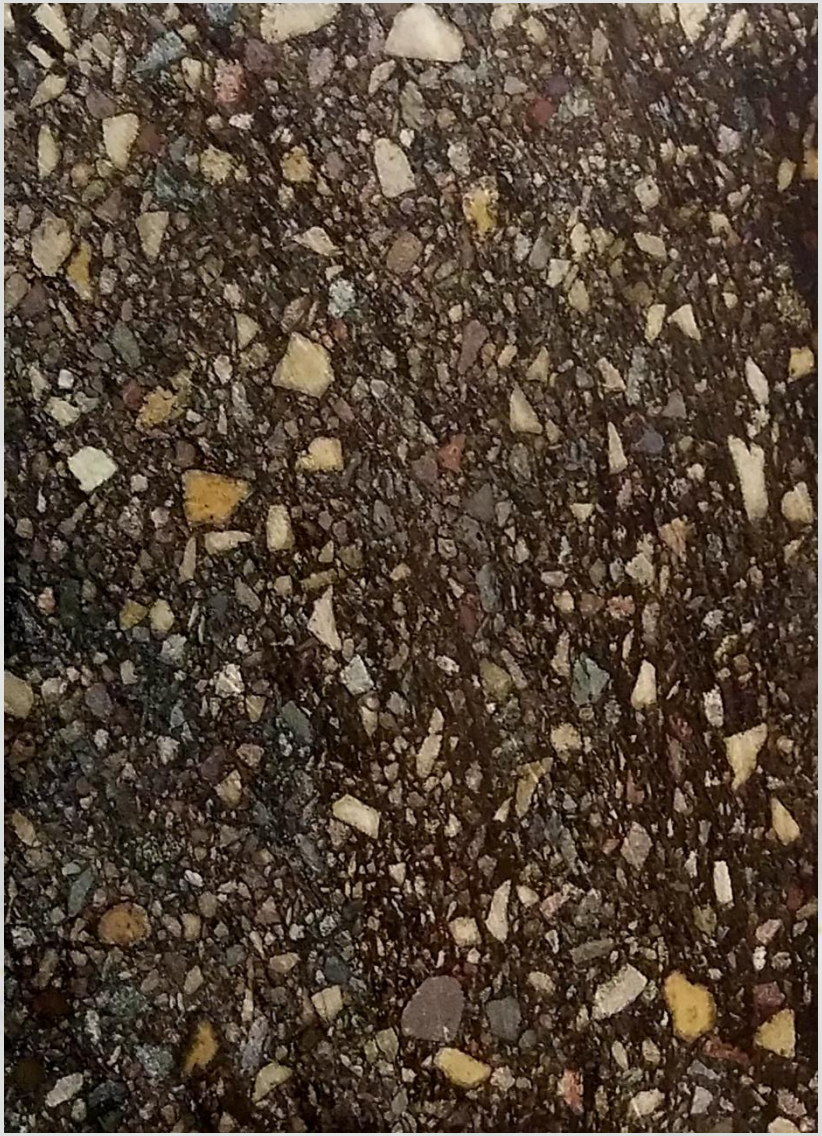
Tracking



No. 6 (4.75-mm) HMA via ASP-6

4

6

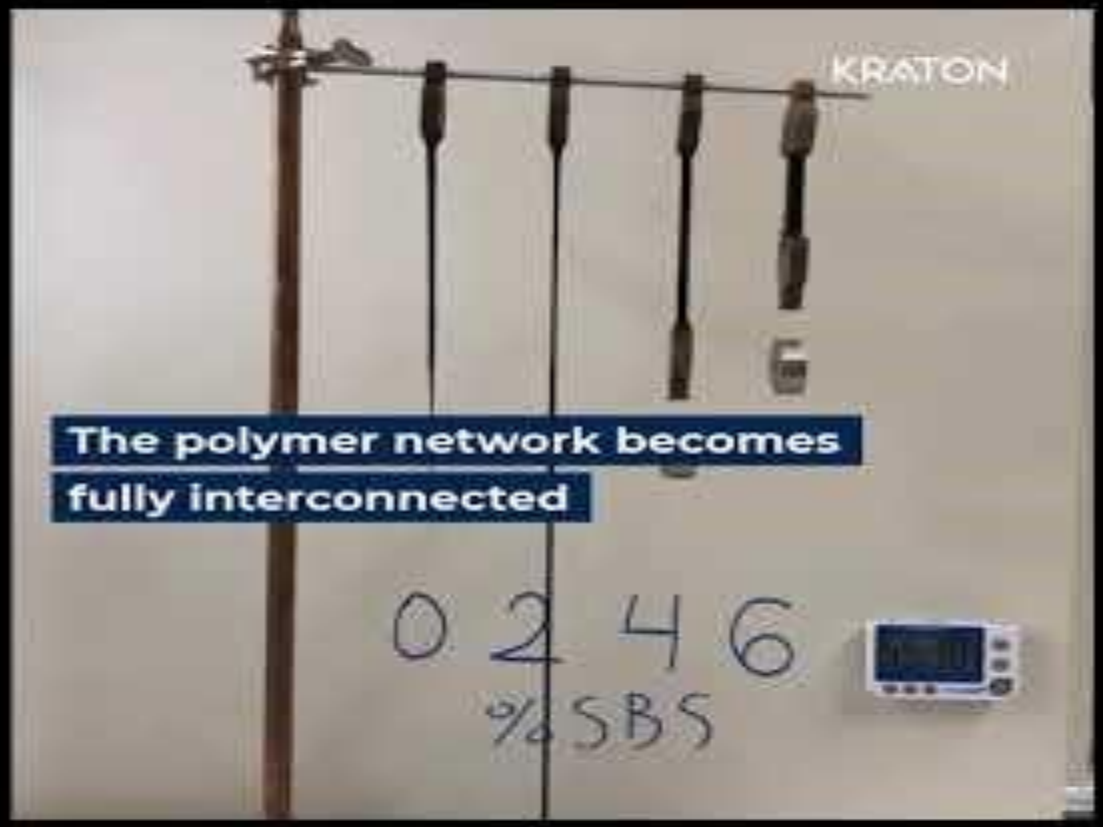


Interlayer STSP

Bending Beam Fatigue

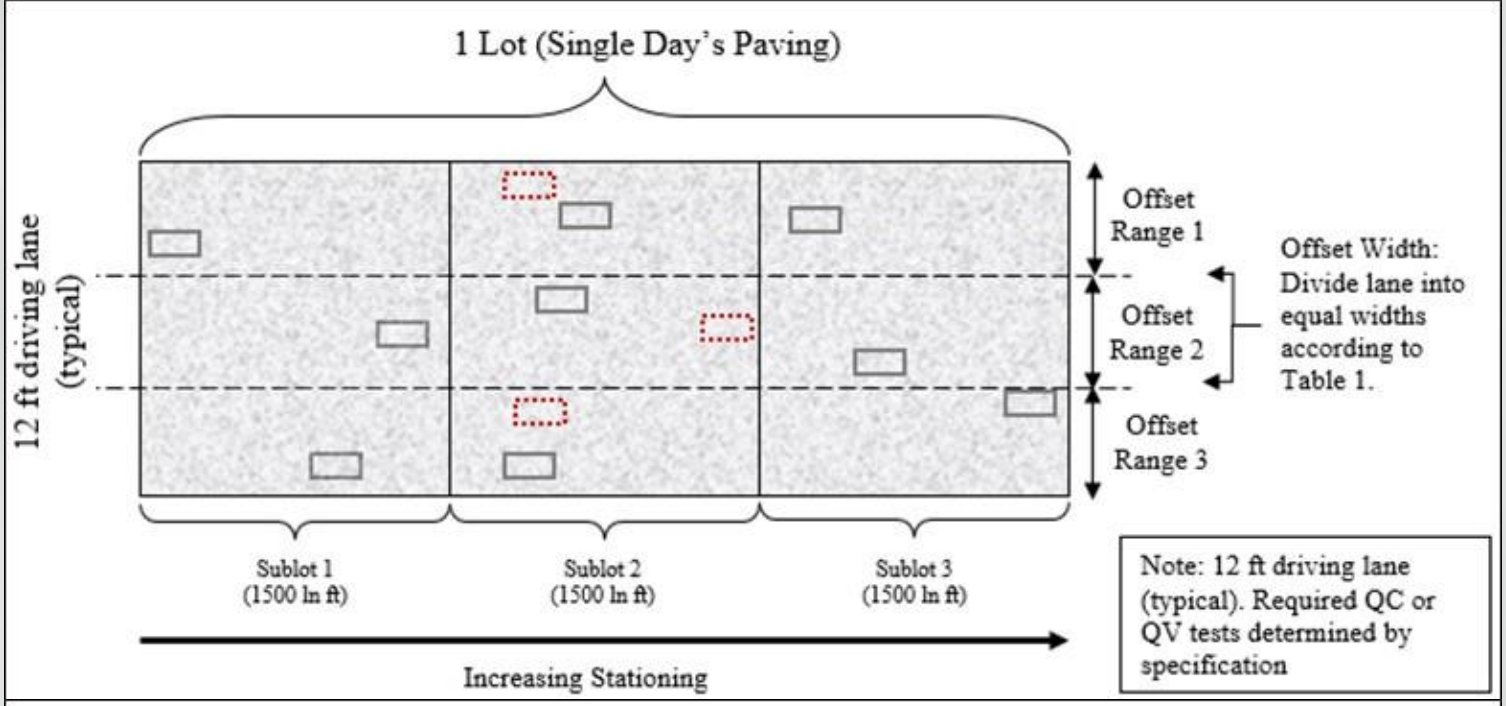
Pavementinteractive.org

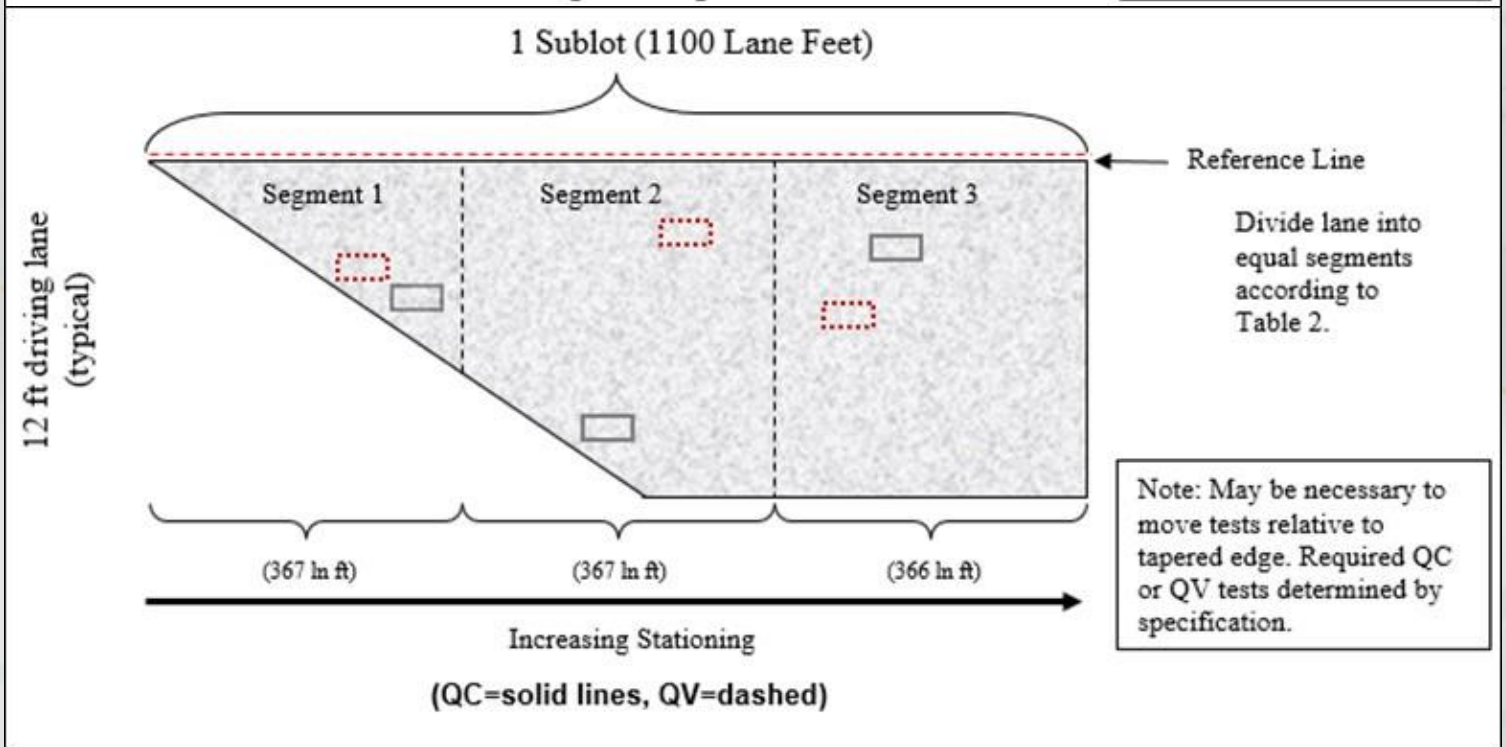
Polymer Modification
Kraton Polymers Video

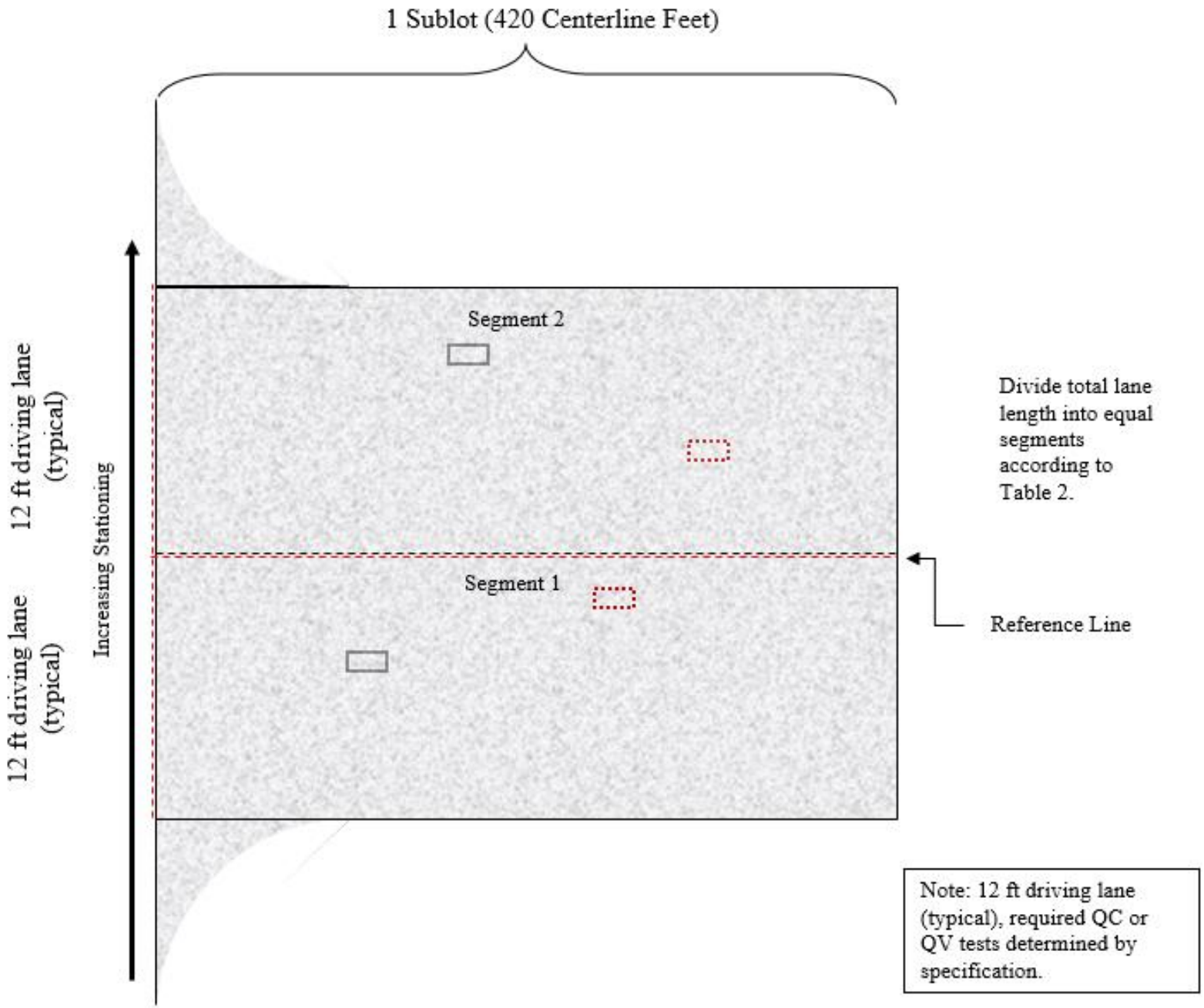


WEST
48
NO PARKING

CMM 8-15 Nuclear Density Testing

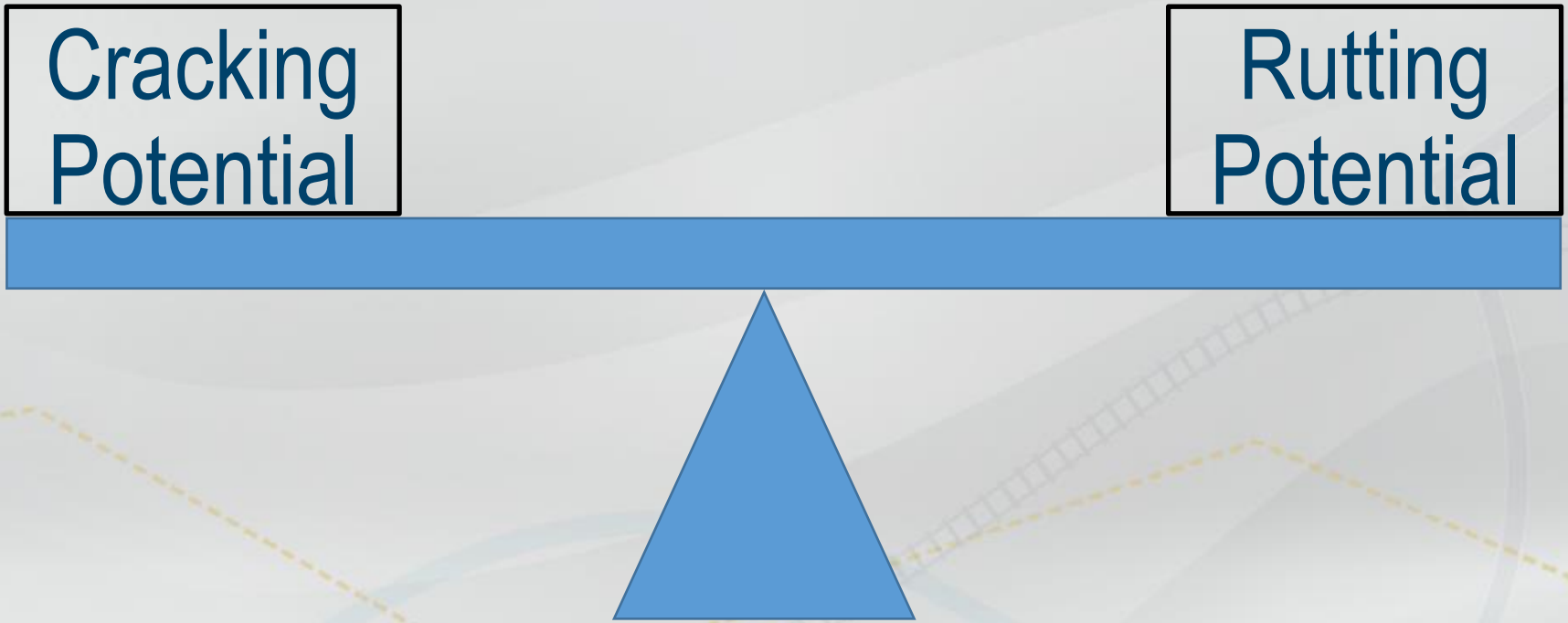

1 Lot (Single Day's Paving)
12 ft driving lane (typical)
Offset Range 1
Offset Range 2
Offset Range 3
Offset Width: Divide lane into equal widths according to Table 1.
Sublot 1 (1500 ln ft)
Sublot 2 (1500 ln ft)
Sublot 3 (1500 ln ft)
Increasing Stationing
Note: 12 ft driving lane (typical). Required QC or QV tests determined by specification


1 Sublot (1100 Lane Feet)
12 ft driving lane (typical)
Reference Line
Segment 1
Segment 2
Segment 3
Divide lane into equal segments according to Table 2.
(367 ln ft)
(367 ln ft)
(366 ln ft)
Increasing Stationing
Note: May be necessary to move tests relative to tapered edge. Required QC or QV tests determined by specification.
(QC=solid lines, QV=dashed)

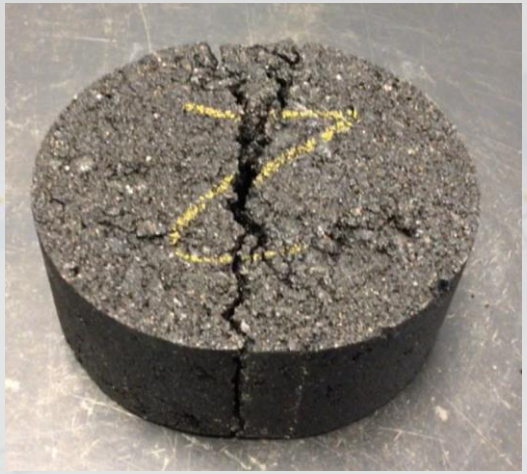


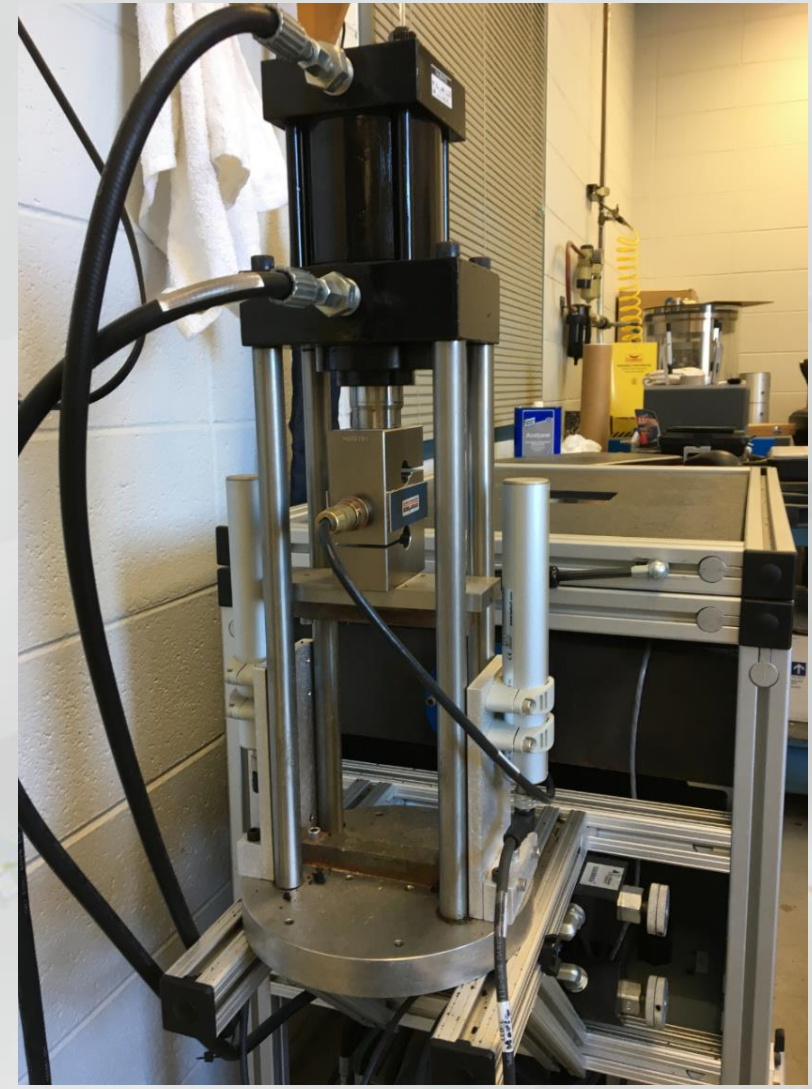
(QC=solid lines, QV=dashed)

Balanced Mixture Design

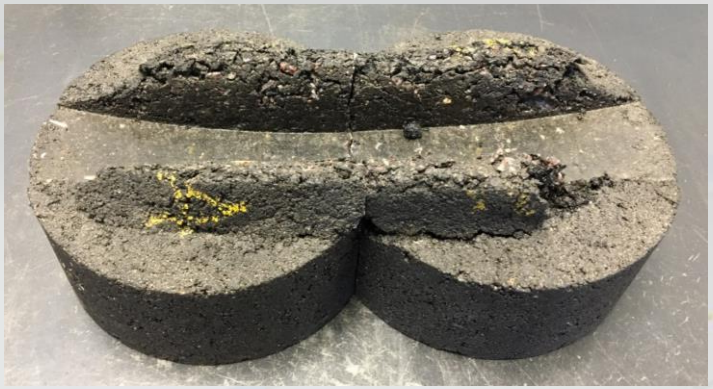


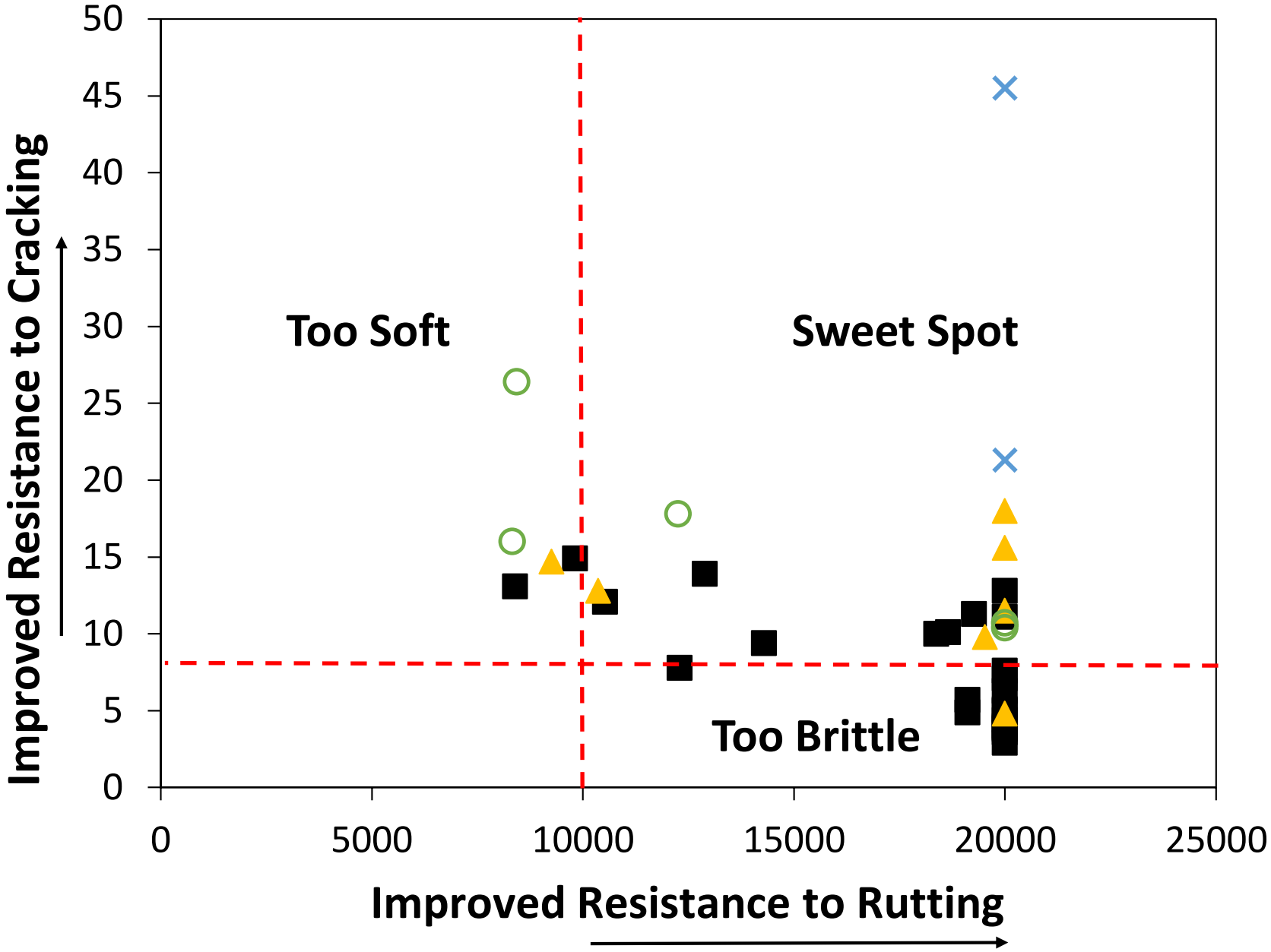
Cracking Potential



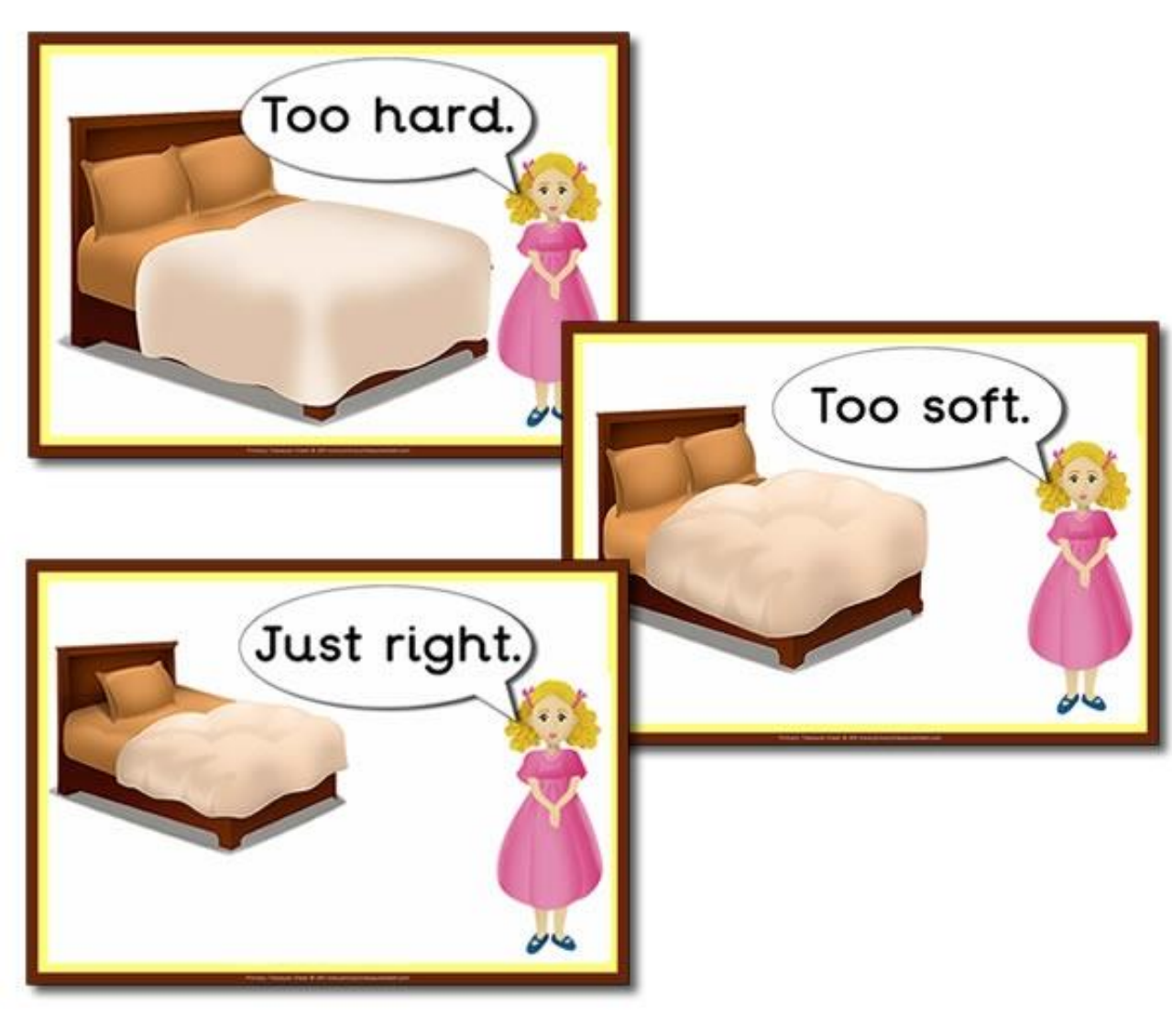


Rutting Potential




Too Soft
Sweet Spot
Too Brittle
Improved Resistance to Cracking
Improved Resistance to Rutting
0
5
10
15
20
25
30
35
40
45
50
0
5000
10000
15000
20000
25000

Balance Mix Design
find the mix that is Just Right!



CMM 8-36 QMP - HMA

- G_{mm}, G_{mb}, and Compaction testing procedures updated to WisDOT-Modified AASHTO
- Ignition Oven:
  - WisDOT will use Ignition Oven for AC% testing unless otherwise stated
  - Individually-packaged samples required for all ignition oven correction factors
  - New requirement for correction factor sample labeling
    - Now includes reason for submittal (new deign, annual reverification, other)

END