

# Minnesota's Experience With Waste Shingles

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Roger Olson  
Mn/DOT Research



*Office of Materials and Road Research*



# Pine Cones?



A large pile of discarded roof shingles in various colors (black, green, brown) is shown. The shingles are scattered and broken, with some showing their adhesive backing. The word "SHINGLES" is overlaid in large, bold, orange letters across the center of the image.

SHINGLES

# Shingles - History

- Mn/DOT tests  
(with University of Minnesota)
- Willard Munger Trail (1990)
- Hwy 25 south of Mayer, MN (1991)
- Scott County Hwy 17 south of Shakopee, MN (1991)

# TH 25 Test Section



# Test Results

Project	% Shingles	PG GRADE
TH 25	0	73-20
TH 25	5	75-20
TH 25	7	79-15
CSAH 17	0	77-22
CSAH 17	10	75-24

# Shingle Processing

- Can be added like recycled asphalt pavement
- Steps include: grinding, sizing and grading
- Contaminants must be removed
- Certification of supply required
- Manufactured waste only

# Shingles - Implementation

- Mn/DOT specifications 2331.3E2e and 2360 now allows 5% shingles in hot mix
- Shingles considered as RAP
- Approval now passive
- Inclusive in the percentage allowed
- Now require 70% new binder



# Types of shingle scrap

- Manufactured asphalt shingle scrap
- Hot Mix Asphalt
- Basically all MASS is currently being recycled
  
- Tear-off scrap shingles
- Early Demos: LAT/Ramsey Co , Hassan Township, Mn/ROAD, Hennepin Co.

# Shingle Implementation

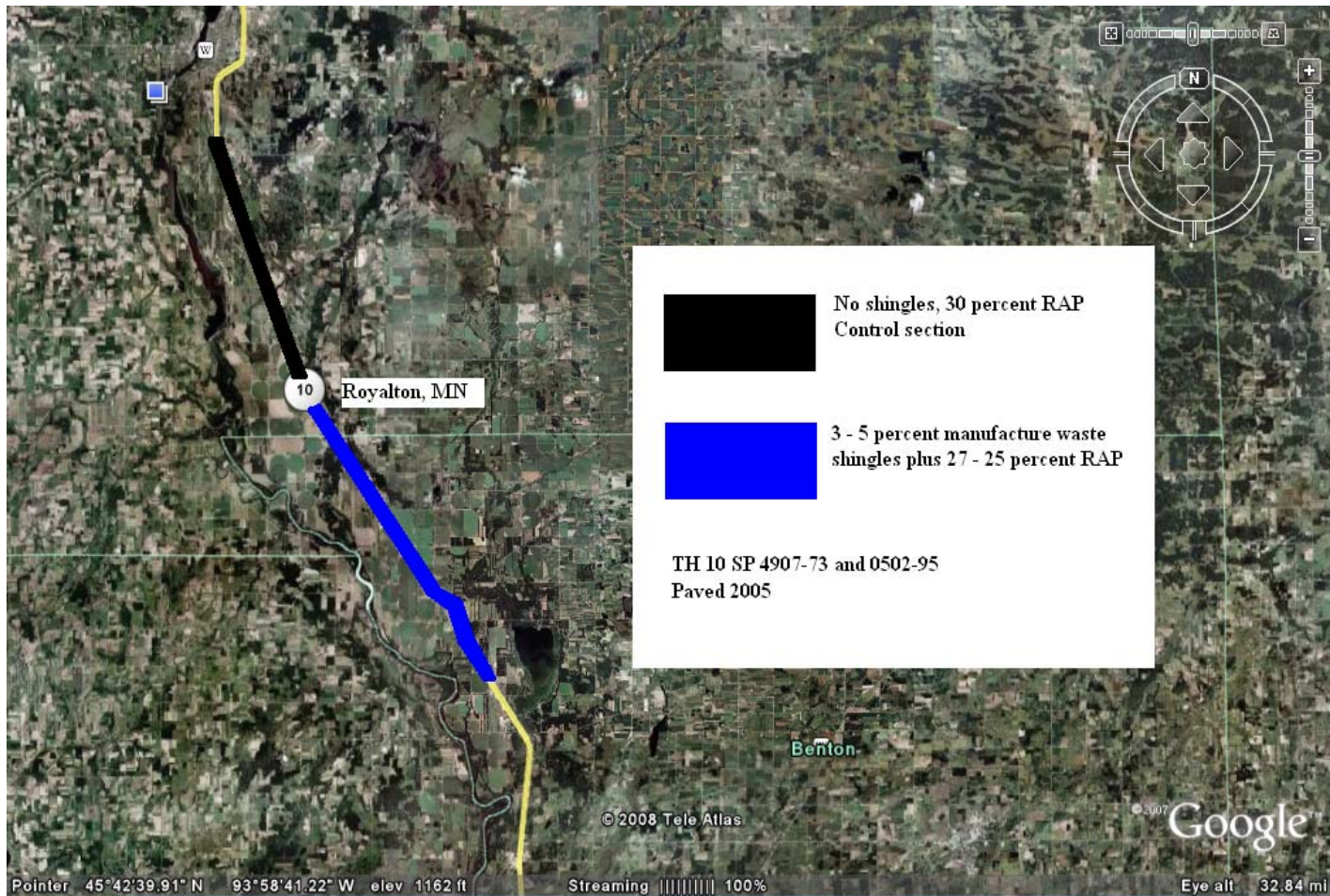
- Continue Research under Research Grant from Mn/PCA (\$50,000)
- Participate in SPR Pooled fund Study lead State- Missouri
- Dr. Chris Williams, Iowa State the Principle Investigator

# Shingle Implementation

## What's Next

- Tear Off Shingles
- Research, Development and Field Demonstrations
- Market Development Project
- Specification, Shingle gradation

# US 10 Projects



# TH 10 RAP+Shingles 2008

Pathway Services Inc. Digital Images

Image / Location Data

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 Lat: +45.7160683 Lon: -94.1854706  
 Heading: 326.5°  
 District: 3 DATE: 08/04/2008  
 Name: U10 DD: D  
 From: 166 To:  
 FRIPost: 166.000 TRIPost: 165.000

Digitized Image Control

LN	LW(ft)	NL	Pav	Set	Start-Image	Er
166.000	165.000	D	0	5116.0	5100.7	3
165.000	164.000	D	0	5312.0	5309.9	3
164.000	163.000	D	0	5306.0	5104.0	3
163.000	162.233	D	0	4103.0	4094.1	3

start PathView II, Road Co... Pathway Services Inc... ScreenShot002.bmp -...

3:08 PM

# Dakota CR 26 2006

Pathway Services Inc. Digital Images

Image

Image / Location Data

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 Lat +44.8481026 Lon -93.0332489  
 Heading 270.1°  
 District 9 DATE 08/16/2006  
 Name: CS26 DD: D  
 From: CONCORD To: G  
 FRIPost: 8.040 TRIPost: 6.952

Digitized Image Control

1 2 << >> Change Dir. Find Print  
 3 4  
 Skip 0 feet

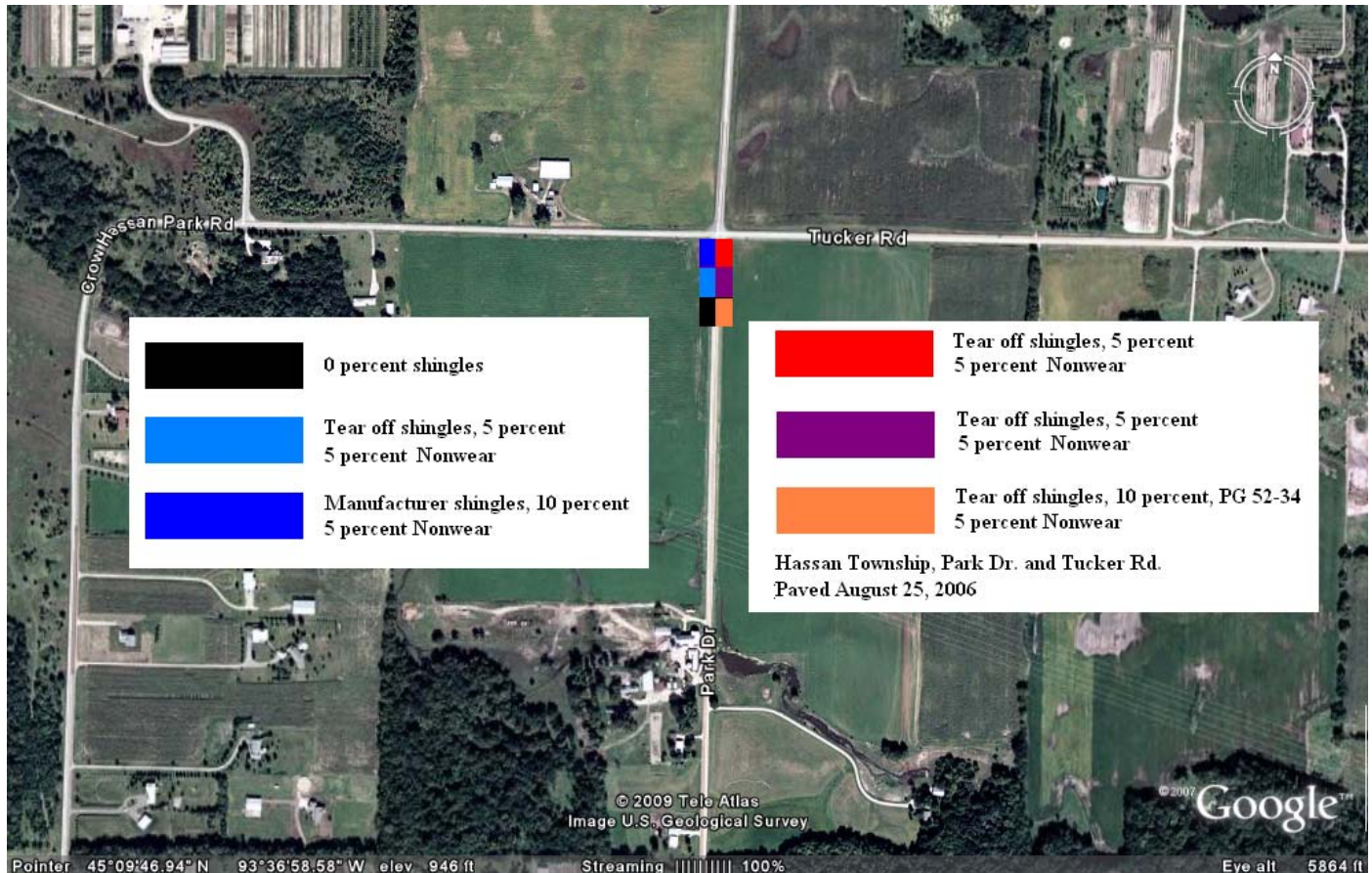
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start Microsoft PowerPoint ... Mnroad SHOULDER P... PathView II. Road Co... Pathway Services Inc... 3:36 PM

# Shingle Experiment - Hassan

Lane	Shingle	NW %	NW Binder	Wear %	Wear Binder
SB	MSS	5	58-28	5	58-28
NB	TOSS	5	58-28	5	58-28
SB	MSS	5	58-28	10	58-28
NB	TOSS	5	58-28	10	58-28
SB	MSS	0	58-28	0	58-28
NB	TOSS	5	58-28	10	52-34

# Hassan Township 2006





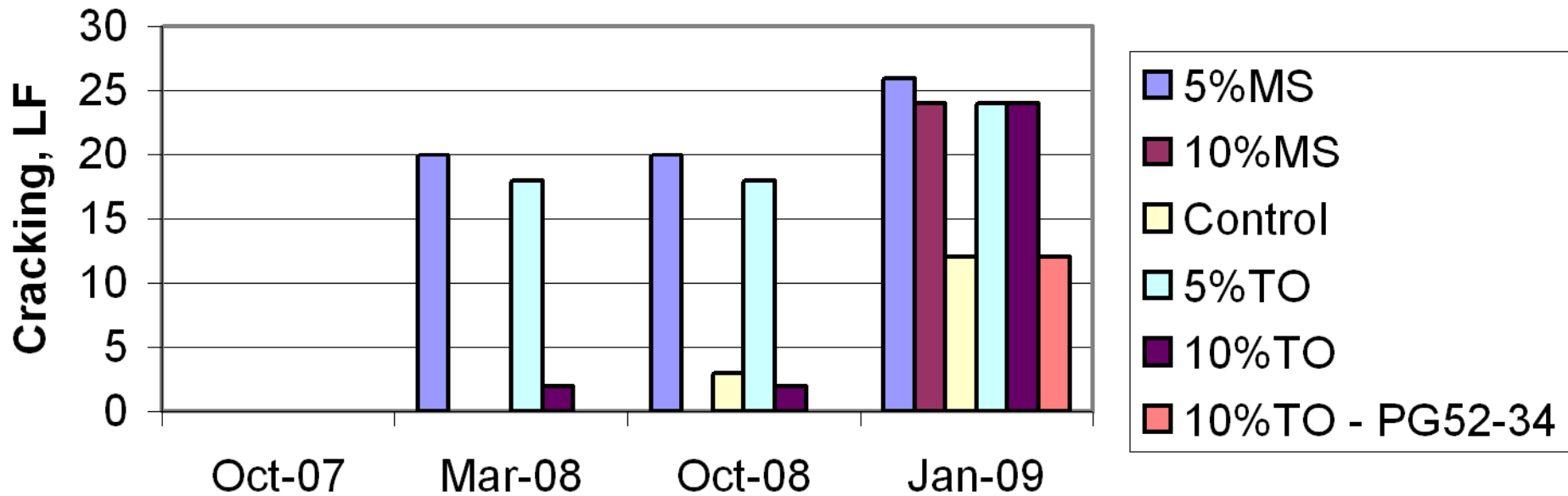
# Hassan Township 2006



# Hassan Twp, January 2009



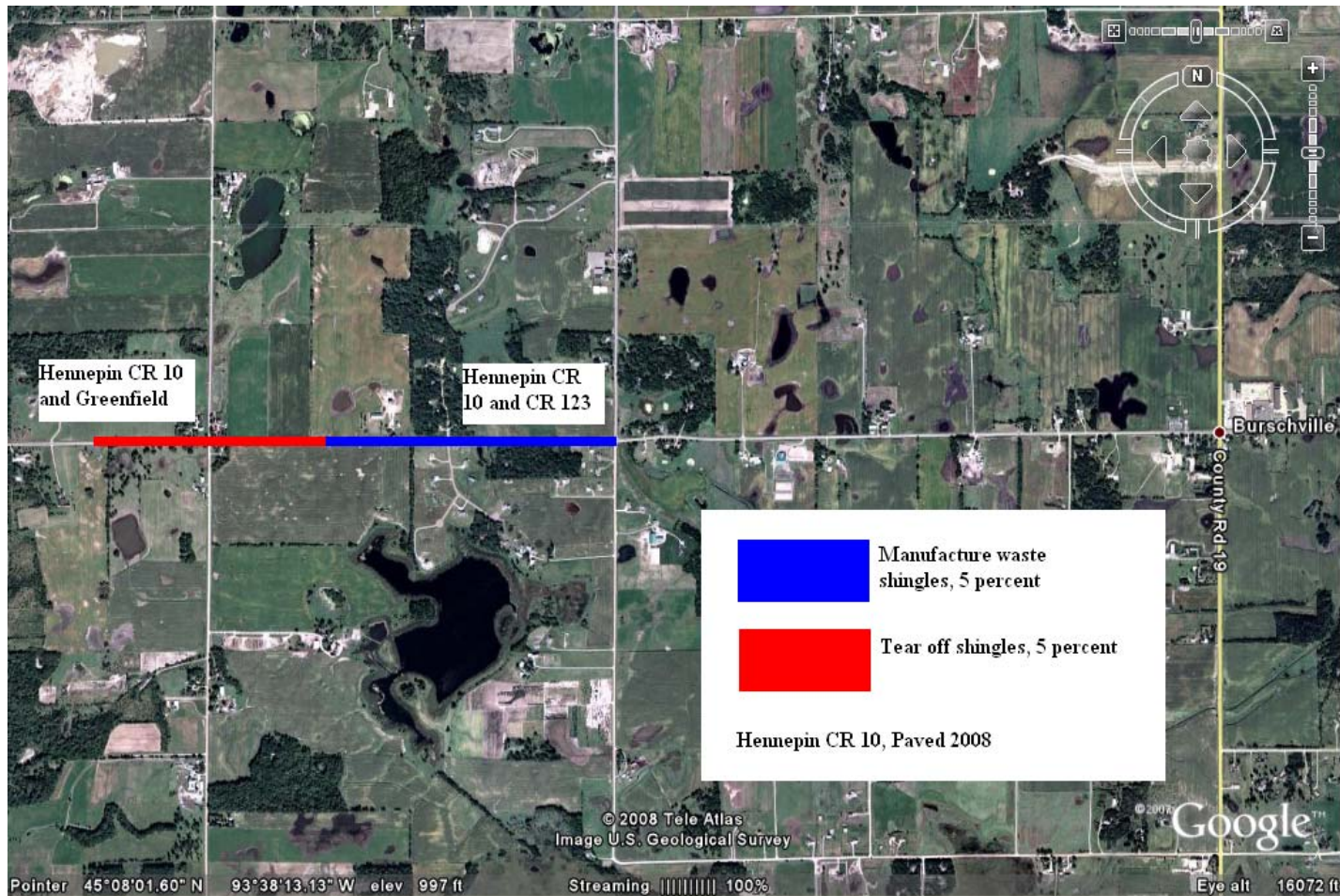
## Hassan Shingles 2006-09



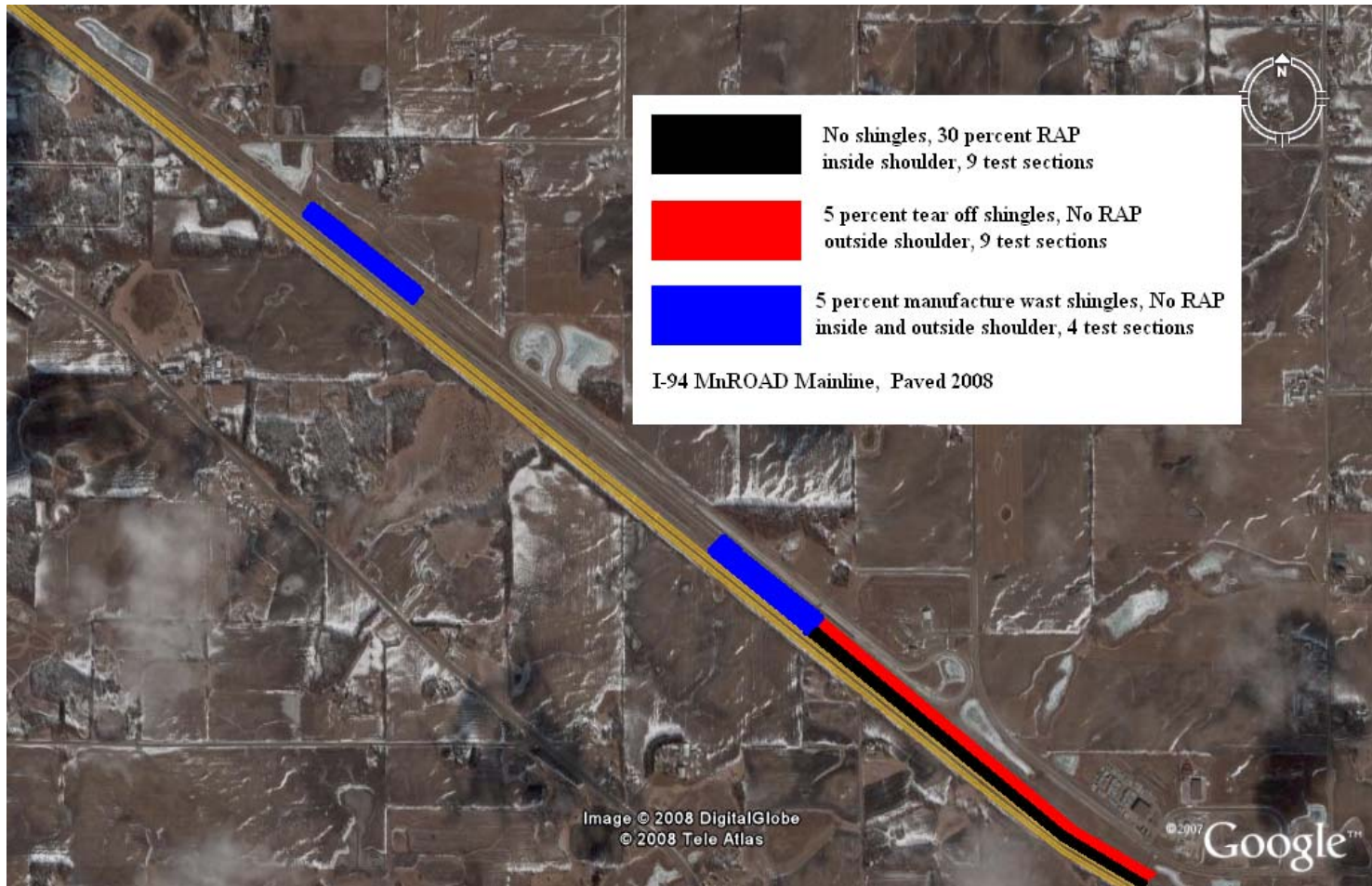
# Lower Afton Trail 2007



# Hennepin CR 10 2008



# MnROAD Shoulders 2008



# Shingles

- Tear-off, Manufactured Waste Shingles
- 5% Shingles, No RAP, PG 58-28
- Mainline Shoulders and Transition Areas

