Minnesota Update

Dealing with Reflective Crack
Aging Study
Texas Under Seal

- Texas under seal is chip seal placed under an overlay
  - Is Stress Relief Membrane
  - The chip seal acts like super tack
Performance of Texas Under Seal

PM Data by Year

Control Section Performance
TH 56 Aging Test Site
What was Done & Why

• Built aging study
  – Because 15 years take 15 years
• 3” mill and overlay 1999
• PG 58-28 binder
• Chip sealed 1 mile sections starting at year 1
• Last sections was chip seal 2004
TH 56 Aging Test Site
What was Done & Why

• Wanted to see what effect PM has on aging
• When is best time to apply treatment
• Cored in 2011 for Asphalt Institute study
TH56 Cores

- Cores
  - Remove chip seal (if any)
  - Cut into two 25-mm layers
  - Test for fracture energy (cracking potential)
  - Recover component asphalt to check aging
Disk-Shaped Compact Tension Test: DC(T)
DC(T) Results: TH-56

Higher fracture energy is better

TH56: DC(t) Data @ -24°C

- Control-99: 151.2
- 2000 Seal: 308.4
- 2001 Seal: 277.4
- 2002 Seal: 208.0
- 2003 Seal: 275.2
- 2004 Seal: 182.8
- 2005 Seal: 207.6
TH56 Findings

• Sealing improves resistance to aging (cracking)
• Sooner is better when sealing
  – Waiting for 3 or more years to seal after construction produced similar results as unsealed pavement related to DCT
  – Sealing after 1 or 2 years showed improvement in resistance to aging (cracking)
Ride Data

TH 56 IRI Average

- Control Section Paved 1999
- Chip Sealed 2004

- Expon. (Control Section Paved 1999)
- Expon. (Chip Sealed 2004)

Crack Repair Done

R² = 0.9609
R² = 0.9131

20 30 40 50 60 70 80 90 100
Control Section
Chip Sealed Year 5