Replay® & the City of Hutchinson

Our story
Testing the product

• 2010
  – Operational Research Assistance (OPERA) grant
    • In cooperation with McLeod County
    • Bargen, Inc. – contractor

  – Application on two very different asphalt sections
    • 15 year-old multi-use path near County fairgrounds
      – Cracks & significant raveling
    • <5 year-old driveway in the fairgrounds
      – No cracks, very little raveling
OPERA grant

- Sections prepared by sweeping & air blowers
- Product comes in totes
- Applied by 1-ton truck-mounted sprayer
- Spray bars can turn on/off to adjust to width
- Hand sprayer was used to reach odd angles
- Stayed “wet” looking for about 2 weeks
- Citrus odor diminished after application
Our tests

• Water test
  – Pour water on test sections before & after treating
  – Significant “wicking” on untreated areas before water ran away (most notable on older pavement)
  – After treatment, water ran off the surface at a much higher rate, with nominal “wicking”

• Visual test
  – Close inspection indicated treated surfaces had sealed, and become slightly lighter in color
Further tests after OPERA

• Coring
  – Cored adjacent treated & untreated test sections
  – Verified penetration of top $\frac{3}{4}''$ to $1\frac{1}{4}''$

• Percolation
  – Sealed a 1” plastic tube to treated and untreated cores
  – Over the weekend, almost 3 times the amount of water percolated through untreated cores
Further tests after OPERA

- Anecdotal
  - Cutting or jack hammering pavement from around manholes, valves, etc.
  - City staff report significantly more effort required for removing treated pavements around manholes, valves, etc. when compared to untreated pavements
Consideration

• IF WE:
  – treat new pavements within the first 1 to 3 years after paving

• WILL IT:
  – be feasible to delay the first chip seal for 6-8 years?
  – be possible re-treat streets one more time before chip seal & push the first chip seal out to 12-16 years?
Treatments
Success story

• McLeod Ave/6th Ave NE
  – Constructed in 2009, following use as a detour for Hwy 7 reconstruction
  – Crack filling in 2012 prior to treatment
  – Replay® application in 2012
  – Physical pavement condition survey in 2014
    • No additional cracking noted
    • Existing, sealed cracks did not extend
  – Only minor transverse cracking in 2015/2016
Success story

• McLeod Ave/6th Ave NE
  – Future considerations for this section
    • Crack fill
    • Re-treat with bio-based sealer in 2017
    • Defer first chip seal to 2022
      – 13 years after construction

  – If this works, this will help to maintain newly constructed City streets.
Why?

• **Money**
  – Pressure on capital and operational budgets
    • Construction cost inflation
    • Repair cost inflation

• **Staffing**
  – In November 2008, there were 17 Public Works operations & maintenance staff
    • Dropped to 10 prior to 2015
    • 2 positions added in 2015
    • Less ability to focus on street maintenance
Why?

• Convenience
  – Open to traffic in about ½ hour
  – No rock loss & tracking loose rock
  – Not necessary to remove striping materials

• Aesthetics
  – After a couple of weeks, there’s no evidence we were there, other than a slight ‘graying’ of the bituminous
  – Doesn’t hurt roadside vegetation
Future

• One of the tools
  – My thought is that bio-based sealers DO NOT replace other maintenance treatments, rather they are a great, additional tool to use in the fight to preserve pavement

• Refining strategy
  – Watch re-treatment performance. 2 treatments may be feasible. May be able to chip seal after 12-16 years on new construction.
Questions

• Thank you

• Questions?