Background

► Barnes County ND was the owner of the project
► Project was located South of Valley City.
► Project Scope was a Cold In Place Recycling

► Jason Manlove, PE
  ► Construction Project Manager for projects
► KLJ Corporately has approx. 750 employees and is a multi-disciplinary engineering firm
  ► KLJ-Valley City has approx. 40 employees mostly in Surface Transportation and Survey Groups. The Valley City office was the design office for this project.
2007 Project

- Project Length 9.6 Miles
- Existing Section Approx. 6.5” of Asphalt on 6.5” of Aggregate Base Course
- Proposed Typical Section 4” of Cold In Place Recycle
- Existing Roadway has depressed transverse cracks approx. every 25’
Problems

- At the completion of the project during the curing period 11.5” of rain was received.
- Weight restrictions were not issued during curing period. During this time several loads of aggregate and borrow were hauled from a local supplier resulting in premature rutting of 1/2”.
- In 2009, a Microsurface project was completed to eliminate the rutting.
2009 Project

- Project Length 7.0 Miles
- The project scope was the same as the 2007 project
2007 - Lessons Learned

- To increase angularity, 125 Tons/Mile of crushed granite was incorporated during the 2009 milling process which provided more stability in the cold in place material and greatly reduced rutting.

- The County imposed load restrictions during the curing period.
Project Costs

2007 Project Costs
- Cold In Place Recycling = $55,000/Mile
- County Chip Seal = $15,000/Mile
- Microsurfacing Project = $52,000/Mile

= $122,000/Mile

2009 Project Costs
- Cold In Place Recycling = $92,000/Mile
- County Chip Seal = $17,000/Mile

= $109,000/Mile
Thin Lift Overlay

- In 2015, a thin lift overlay was added to both projects.
- Project cost = $110,000/Mile
Total Project Costs

- 2007+2015 = $232,000/Mile
- 2009+2015 = $219,000/Mile

Other options discussed but ruled out due to cost
- Total Reconstruction = $750,000/Mile
- Widen & Structural Overlay = $350,000/Mile
Project Outcomes

- Cold In Place Recycling is a good fit if used in conjunction with a tied HMA overlay
- Good fit for narrow roadway sections
- Restrict road to truck traffic during curing period