

Northeast Bridge Preservation Partnership
Manchester, New Hampshire
September 9-11, 2015
Steve Johnson, Senior Engineer

Trial Project Location

Bridge between Piermont, NH and Bradford, VT with a failed thin overlay

Statistics

- 352' single span Pennsylvania steel truss
- 20'-6" roadway width (curb to curb)
- Original construction 1929
- 1993 rehab installed a half-filled grid steel deck with lightweight concrete and a ½" experimental overlay



1993 Rehab Overlay application

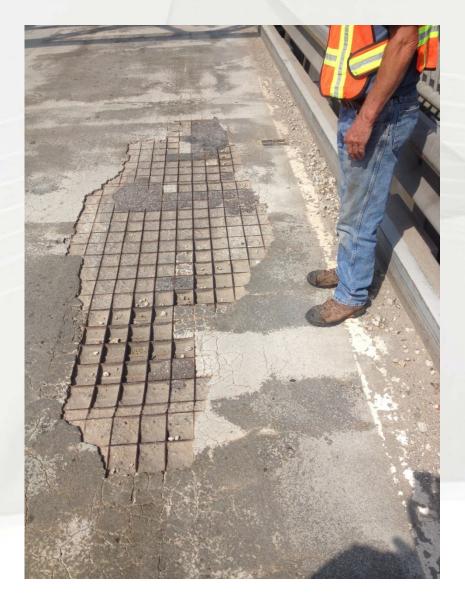








Existing Condition







Trial Products

Quikrete FastSet Latex Modified DOT Overlay

Kwik Bond Polyester Polymer Concrete (PPC 1121)





Deck Preparation

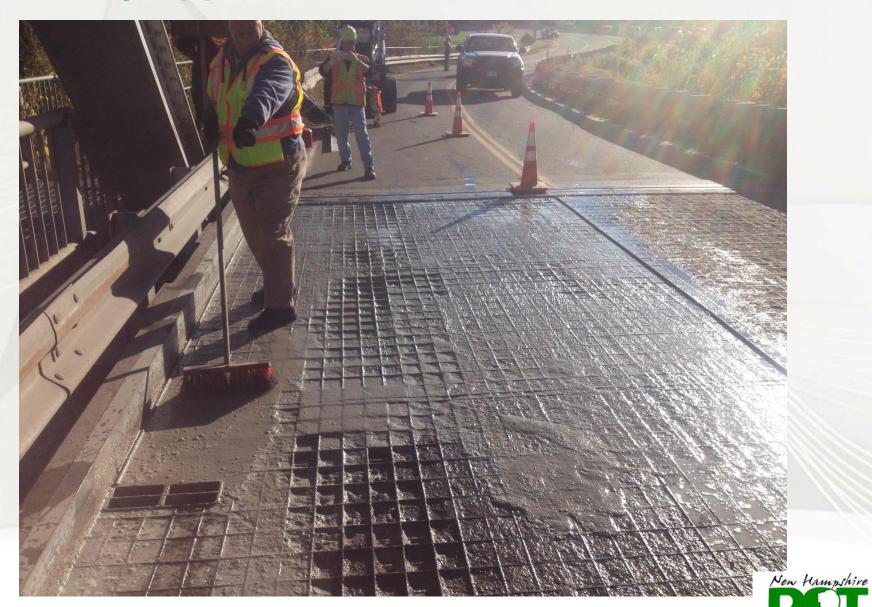




Latex Modified Installation October 9 & 10, 2014



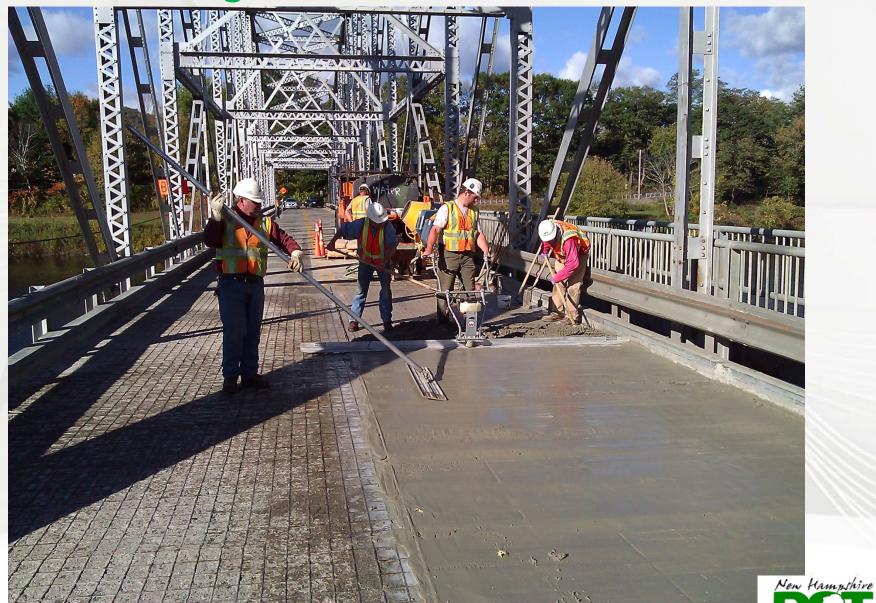
Slurry Application



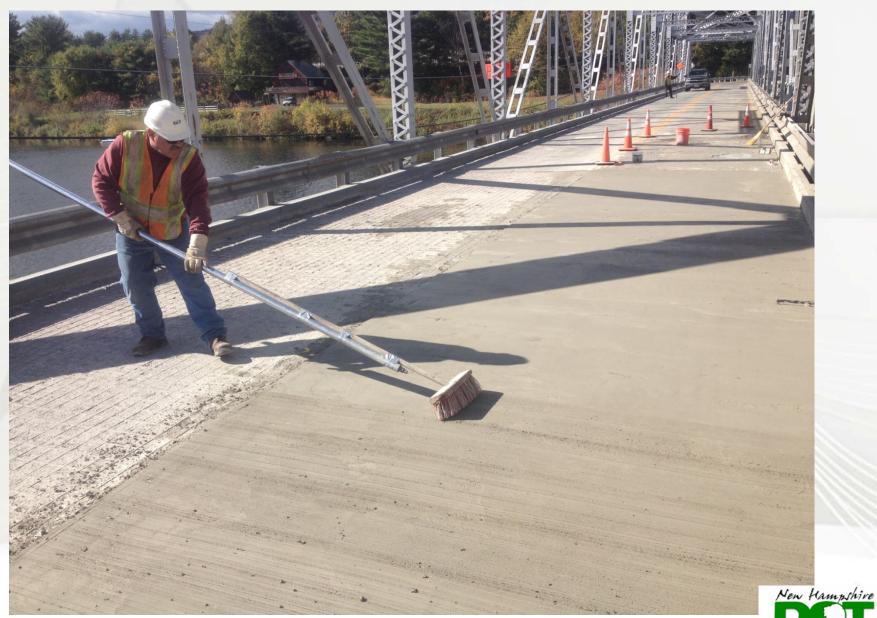
Placement



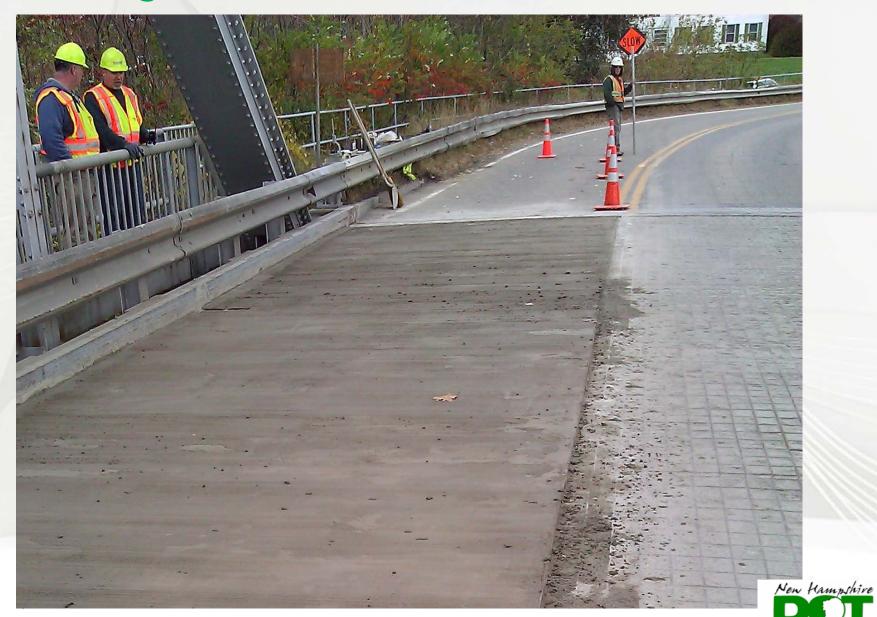
Bull Floating



Broom Finish - Phase 1



Waiting



7° makes a difference

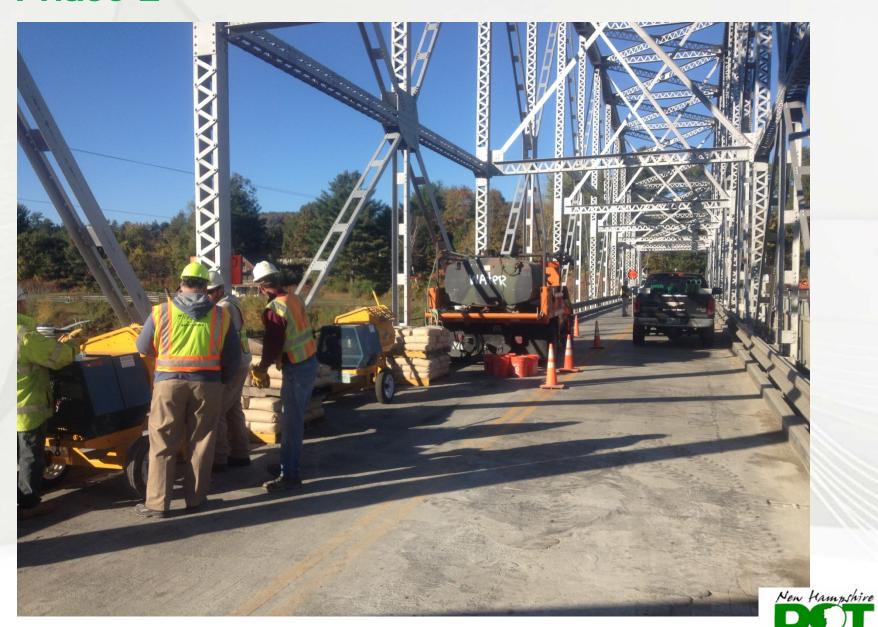
Sun Shade







Phase 2



Phases 1 and 2 Complete



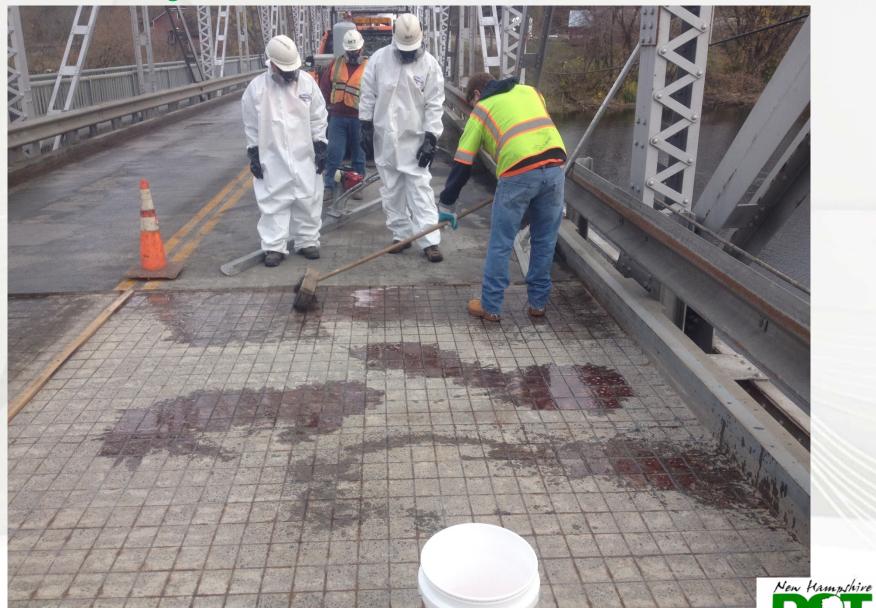
Polyester Polymer Concrete October 28, 30, 31, 2014



Our "Chemist"



Methacrylate Primer



Phase 1 Installation



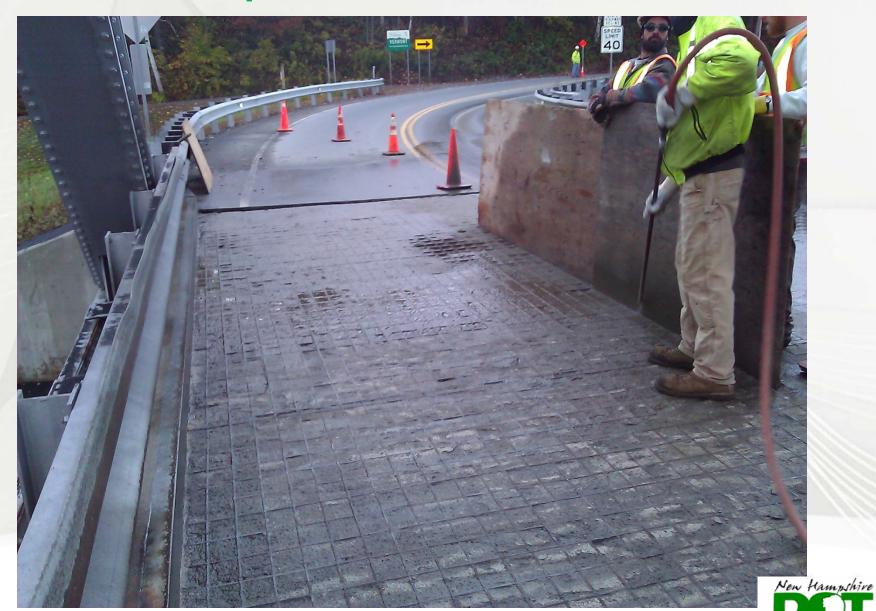
Floating



Friction Sand and Tining



Surface Preparation – Phase 2



Phase 2 - Installation



Phase 3 - Installation

Why aren't there any Pictures?

Oh, and did I mention that we ran short of material?



Final Finish – Phases 1, 2, and 3









2015 Results – Polyester Polymer Concrete

Minimal cracking



2015 Results – Polyester Polymer Concrete

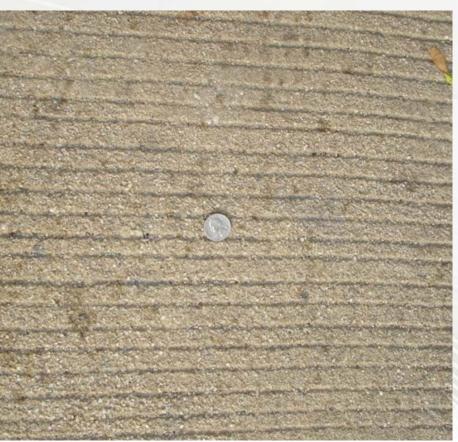
Some rust bleed through – was expected



2015 Results – Polyester Polymer Concrete

Some snowplow blade wear - also seen in Bradford

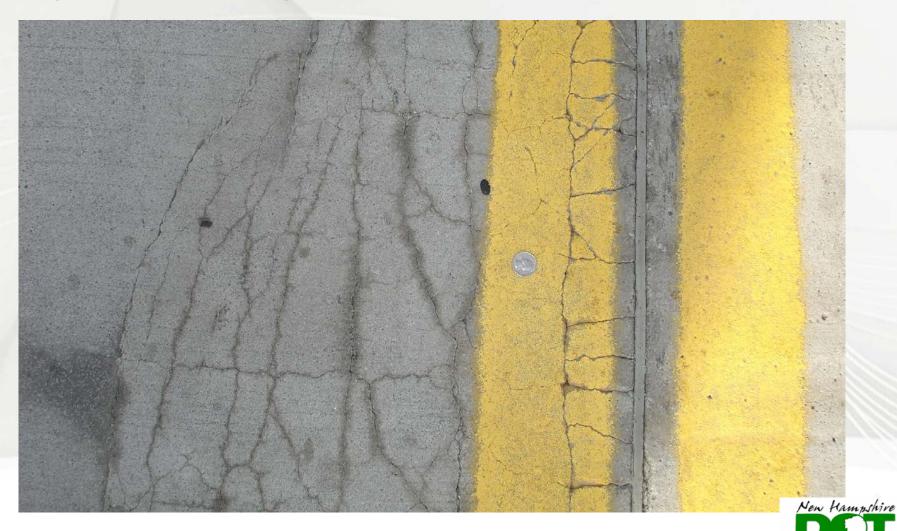






2015 Results - Latex Modified Concrete

Significant cracking in one location



2015 Results - Latex Modified Concrete

Hairline map cracking in numerous locations



2015 Results - Latex Modified Concrete

Minimal wear from snowplow blades



Top 5 Lessons Learned

- Not the right location for Latex Modified Concrete –Structure is too flexible
- 4. 1/2" Latex Modified overlay is difficult to place and doesn't allow tining Use a thicker overlay
- 3. Fill deep grid depressions prior to placing Polyester Polymer Concrete Overlay to reduce potential cracking
- 2. Use a thicker Polyester Polymer Concrete Overlay to allow future sawcut grooving



Number One Lesson Learned

1. CLOSE THE BRIDGE TO TRAFFIC DURING CONSTRUCTION!!







