Prepared by:

Jonathan Razinger
Research Technician

Attendees:
Jonathan Razinger

June 2, 2016 **FIELD REPORT** U2016 - 03

Assessement of Bridge Deck Membrane (BDM) System
Bridge 165 VT 100, Warren VT

Project Number – ER STP-0134(36)

OVERVIEW

EA: Experimental Features – SPR 352

Work Plan: WP 2012 R-1

Date: Thursday, June 2nd, 2016

Time: 11:15 AM to 12:00 PM

Weather: 76ºF, Mostly Sunny

A site visit to bridge 165 in Warren was conducted as part of an investigative check. Observations and photos on the performance and appearance of the BDM after installation were collected and can be seen in Figures 1 - 9. Figures 1 & 2 show the overall view of Bridge 165 from both sides. Figures 3 – 7 show the overall condition of the bridge deck overlay. Figure 8 shows evidence of the BDM on the side of the asphalt overlay. Figure 9 shows a close-up view of the underside of the concrete bridge.

Background on Site:
The BDM system produced by Bridge Preservation LLC was used on one bridge replacement project on VT 100 in the town of Warren, 50 feet north of the Warren and Granville town line. The bridge was produced under rapid construction techniques and the entire structure was replaced in 2012. The bridge is 21 feet long by 34 wide, with a reported average annual daily traffic (AADT) of 980. The bridge structure will be a precast rigid frame and will be precast by S.D Ireland in an outdoor containment structure. The complete system consists of: the primer, used to penetrate and seal the substrate enhancing the system's bond to the deck and the membrane, a polyurethane membrane that provides 100% effective waterproofing.

Notes:
Figures 3 – 7 show longitudinal cracking on the bridge overlay. From the visual inspection and photographic evidence, it can be said that the BDM is working and at this point it is inconclusive if the membrane is contributing to the longitudinal cracking on the bridge deck. During the inspection I noticed that the longitudinal cracking was also occurring in the surrounding asphalt

overlay, which means that the cracking could be attributed to the material properties of the asphalt overlay. While on the site visit it was noted that there was one longitudinal crack in the southbound lane and seven cracks on the northbound lane. The cracks ranged from approximately 3ft to 12ft. Figure 5 shows a centerline crack that runs the whole length of the bridge. Figure 9, which shows the underside of bridge 165, depicts some sort of white material seeping through bridge deck joints and cracks and depositing on the underside of the bridge. The depositing material is most likely chloride or salt from de-icing the roads during the winter season. In general the condition of the bridge deck is good and further studies in the bridge deck would have to be conducted to determine if BDM is contributing to the bridge deck cracking.

BDM Site Visit Photos

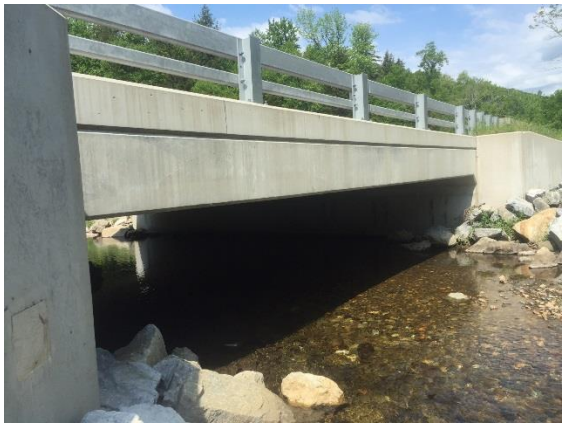

Figure 1: Overall View of Bridge 165 on VT 100, Warren VT.
Right side of bridge facing south

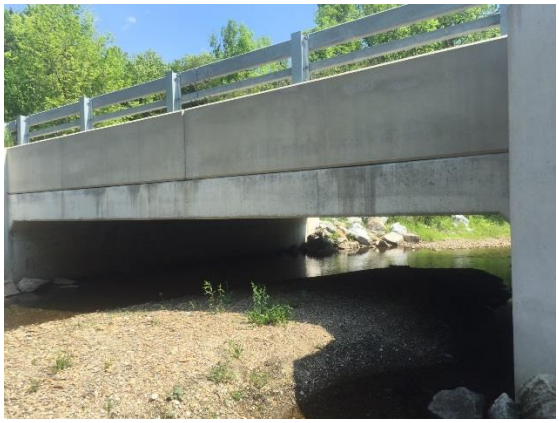

Figure 2: Overall View of Bridge 165 on VT 100, Warren VT.
Left side of bridge facing north

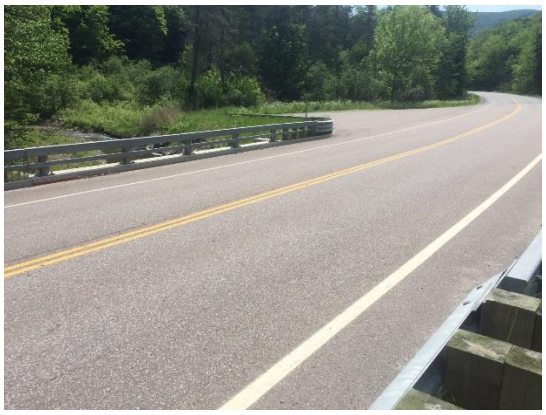

Figure 3: Overall view of bridge overlay. Side view looking south.

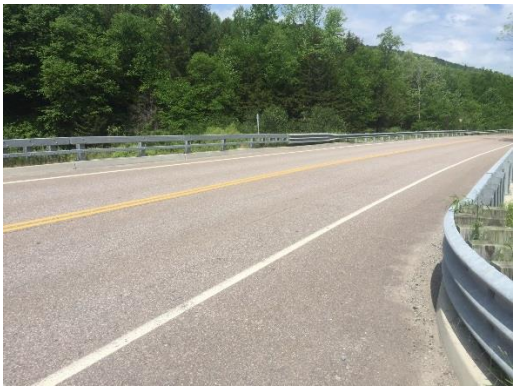

Figure 4: Bridge Overlay, looking north.

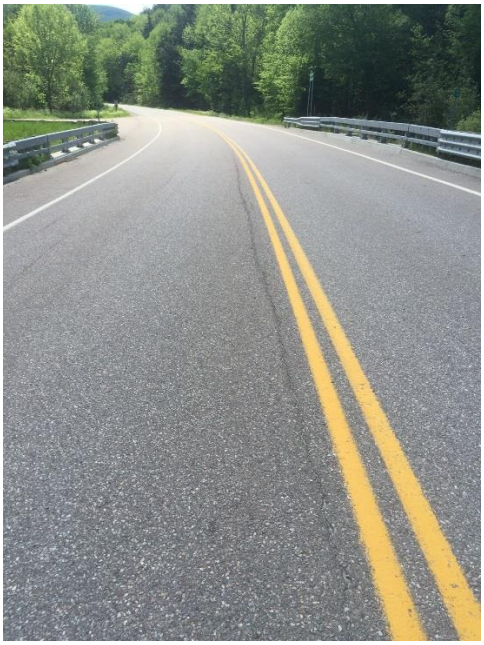

Figure 5: Centerline crack throughout bridge Overlay, looking south.

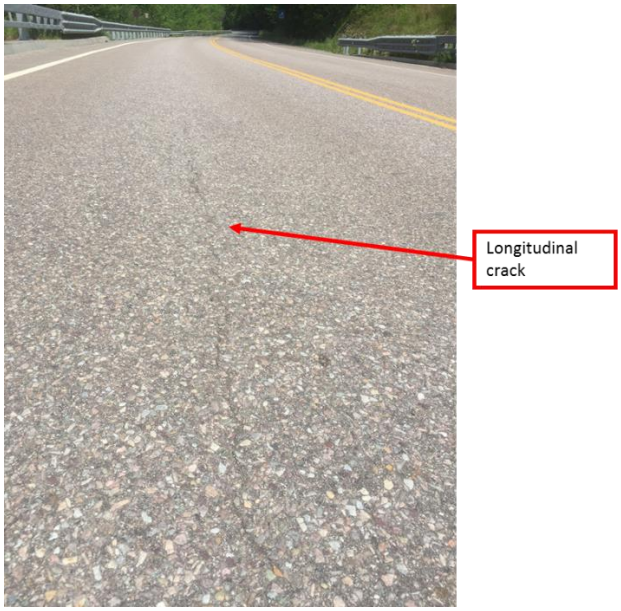

Figure 6: Longitudinal crack on southbound lane

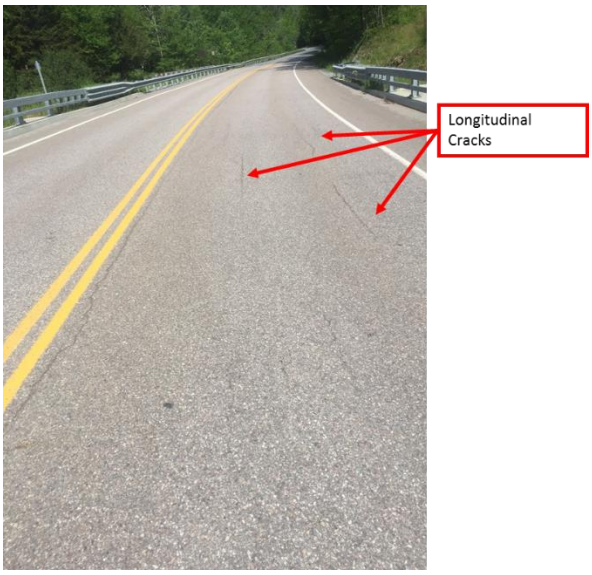

Figure 7: Longitudinal cracks on northbound lane

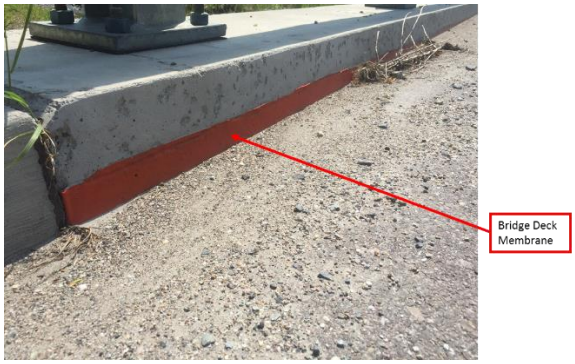

Figure 8: Bridge deck membrane

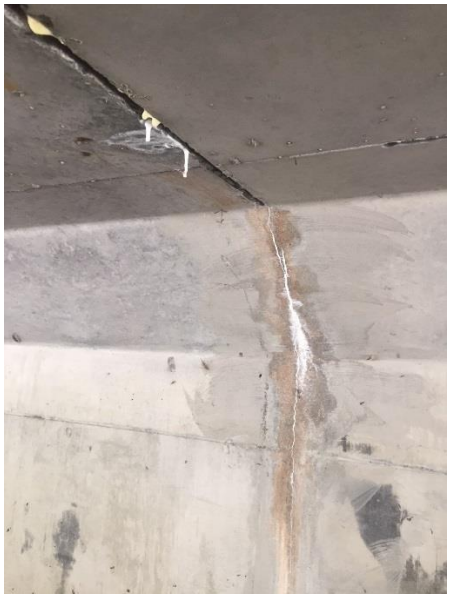

Figure 9: Bridge underside deposits