

RESEARCH STUDY Q & A

INTRO: POLYMER OVERLAYS ARE A RELATIVELY NEW TECHNOLOGY THAT ARE USED IN THE PRESERVATION OF BRIDGE DECKS. WISDOT IS PARTICIPATING IN AN ON-GOING RESEARCH STUDY WITH A GOAL TO SELECT THE PRODUCT THAT WILL PROVIDE MAXIMUM RESULTS FOR WISCONSIN BRIDGES.

Q1: WHAT ARE THE STUDY OBJECTIVES?

A1: THE OBJECTIVES OF THIS STUDY ARE:

- 1) TO EXPLORE THE WATERPROOFING CAPABILITIES, DURABILITY, AND ADDITIONAL BENEFITS OF UTILIZING POLYMER OVERLAYS ON BRIDGE DECKS IN WISCONSIN
- 2) TO COMPARE PERFORMANCE OF POLYMER OVERLAYS WITH CONVENTIONAL DECK SEALERS, POLYMER MODIFIED ASPHALTIC CONCRETE OVERLAYS, AS WELL AS NEW AND EMERGING TECHNOLOGIES TO DETERMINE THE OPTIMAL BRIDGE DECK MAINTENANCE STRATEGY TO BE EMPLOYED BY WISDOT.

Q2: WHERE IS THE TEST SECTION?

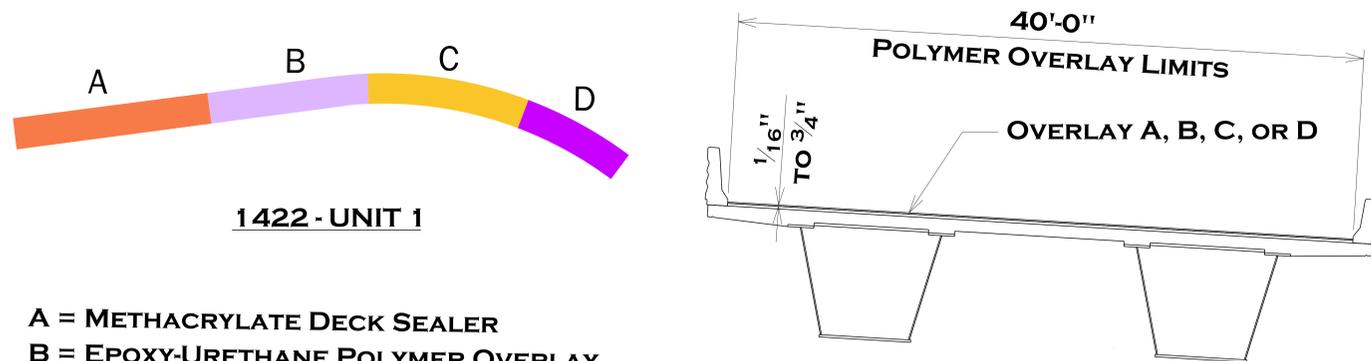
A2: THE TEST SECTION IS ON THE EAST TO SOUTH SYSTEM RAMP OF THE MARQUETTE INTERCHANGE ON STRUCTURE B-40-1422, UNIT 1.



IH 43/IH94/IH 794 MARQUETTE INTERCHANGE MILWAUKEE, WI

Q3: WHAT IS BEING STUDIED?

A3: WISDOT HAS APPLIED FOUR DIFFERENT TYPES OF POLYMER OVERLAYS TO THE STRUCTURE IN DIFFERENT LOCATIONS (LOCATIONS A-D ON MAP) AND WISDOT IS MONITORING PERFORMANCE OF THE PRODUCTS.



- A = METHACRYLATE DECK SEALER
- B = EPOXY-URETHANE POLYMER OVERLAY
- C = EPOXY POLYMER OVERLAY
- D = POLYESTER POLYMER CONCRETE OVERLAY

CROSS SECTION THRU ROADWAY

Q4: WHERE IS WISDOT AT WITH THE STUDY SCHEDULE?

A4: THE TEST SECTION OVERLAYS WERE APPLIED IN 2013. WISDOT IS IN THE PROCESS OF MONITORING THE PERFORMANCE OF THE VARIOUS PRODUCTS. WISDOT IS MONITORING SECTIONS FOR FREEZE-THAW RESISTANCE, SNOWPLOW BLADE EFFECTS, ABRASION RESISTANCE, SKID RESISTANCE, BOND TO CONCRETE, CHLORIDE PERMEABILITY, REINFORCEMENT CORROSION, AND ULTRAVIOLET RADIATION.

Q5: WHEN WILL IT BE COMPLETE?

A5: THE STUDY IS ON-GOING AND IS A SEPARATE PROJECT THAN THE MARQUETTE INTERCHANGE/ VALLEY BRIDGE PROJECT PRESENTED AT THIS PUBLIC INVOLVEMENT MEETING. THE STUDY IS PLANNED FOR COMPLETION ON NOVEMBER 30, 2015

Q6: WHAT ARE POLYMER OVERLAYS?

A6: A POLYMER OVERLAY IS AN APPLICATION THAT CONSISTS OF TWO COATS OF A POLYMER WITH AGGREGATE BROADCAST ON TOP EACH LAYER. ITS TOTAL THICKNESS IS ABOUT 3/8". THIS OVERLAY QUICKLY DEVELOPS A HIGH TENSILE STRENGTH TO SEAL, PROTECT AND EXTEND THE LIFE OF BRIDGE DECKS. A POLYESTER POLYMER CONCRETE OVERLAY IS AN APPLICATION THAT CONSISTS OF A SEALING PRIMER ALONG WITH A SINGLE-LIFT POLYMER CONCRETE THAT QUICKLY DEVELOPS STRENGTH AND IMPERMEABILITY TO THE DECK SURFACE. ITS TOTAL THICKNESS IS A MINIMUM OF 3/4". THIS PRODUCT IS VERY DURABLE AND PROVIDES PROTECTION TO EXTEND THE LIFE OF BRIDGE DECKS.



BROADCASTING AGGREGATE FOR POLYMER OVERLAY



POLYESTER POLYMER OVERLAY WITH METHACRYLATE SEALER



PLACEMENT AND FINISHING A POLYESTER POLYMER OVERLAY

Q7: WHY ARE POLYMER OVERLAYS PROPOSED FOR THE MARQUETTE INTERCHANGE STRUCTURES?

A7: OVERLAYS AND SEALERS HAVE LONG BEEN UTILIZED IN PROTECTION AND REPAIR STRATEGIES FOR BRIDGE DECKS. THE POLYMER OVERLAYS ARE PROPOSED TO PRESERVE THE CONCRETE DECKS OF THESE CRITICAL STRUCTURES WITHIN THE WISDOT HIGHWAY SYSTEM. POLYMER OVERLAYS REDUCE DIFFUSION OF CHLORIDE IONS, AND PROVIDE SKID RESISTANCE.

Q8: HOW LONG DOES IT TAKE TO APPLY THE POLYMER OVERLAY TO A STRUCTURE?

A8: THE TOTAL APPLICATION TIME REQUIRED FOR A STRUCTURE IS DEPENDENT ON SEVERAL VARIABLES INCLUDING WEATHER, THE LENGTH OF A STRUCTURE, HOW MANY LANES ARE ON THE BRIDGE AND IF THE OVERLAY CAN BE APPLIED UNDER A FULL BRIDGE CLOSURE OF IF STAGED CONSTRUCTION IS REQUIRED TO MINIMIZE IMPACTS TO TRAFFIC. UNDER IDEAL CONDITIONS, THE POLYMER OVERLAY CAN BE PLACED ON A 12-FOOT LANE AT A RATE OF 10 TO 15 FEET PER MINUTE. APPROXIMATELY 1 MILE OF 12' BRIDGE DECK CAN BE OVERLAID IN 8 HOURS.

IH43/IH94/IH794
Marquette Interchange & Valley Bridges
 IH43/IH94

WisDOT Research Program
Evaluation of Polymer Overlays
and Deck Sealers
Start Date: 8/2011 End Date 11/2015

