RESEARCH STUDY Q & A

INTRO: Polymer overlays are a relatively newer technology that are used in the preservation of bridge decks. WisDOT participated in a research study with a goal to select the product that will provide maximum results for Wisconsin bridges.

Q1: What were the study objectives?
A1: The objectives of this study were:
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 was the test section?
A2: The test section was on the East to South system ramp of the Marquette Interchange on Structure B-40-1422, Unit 1.

Q3: What was being studied?
A3: WisDOT applied four different types of polymer overlays to the structure in different locations (Location A-D on map) and monitored performance of the products.

Q4: What is a polymer overlay?
A4: 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 5/8”. This product is very durable and provides protection to extend the life of bridge decks.

Q5: Why are polymer overlays proposed for the Marquette Interchange Structure?
A5: 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 from winter applied salts, and provide skid resistance.

Q6: How long does it take to apply the polymer overlay to a structure?
A6: 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 or if staged construction is required to minimize impacts to traffic. The overlays will be performed during night time operations to minimize traffic delays.