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September 2015

IH43/IH94/IH794

Marquette Interchange & Valley Bridges

IH43/IH94

PROJECT UPDATE

Public Involvement Meeting No. 1

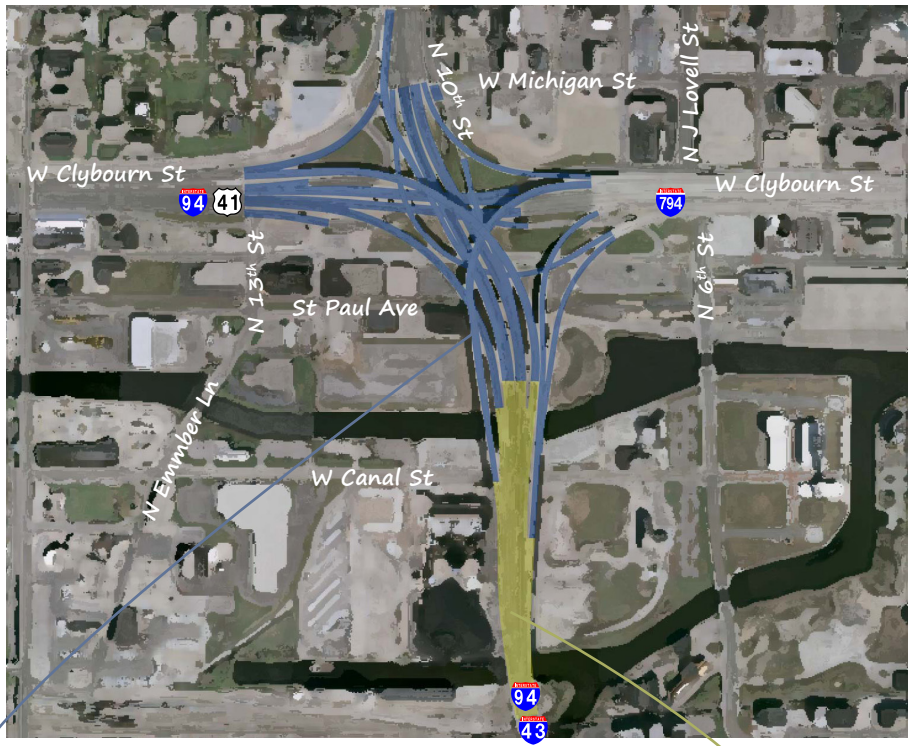
The Wisconsin Department of Transportation (WisDOT) is preparing for work on structures located within the Marquette Interchange and on the north end of the Valley Bridge. This meeting will have an informal, open house format, with representatives from WisDOT available to discuss the project and address questions and concerns.

The work scheduled as part of this project is routine maintenance and was anticipated when the interchange was reconstructed. This maintenance will ensure that the bridges will last the 75-year life anticipated during design.

Scope of Work

The Marquette Interchange reconstruction was completed in 2008. During routine bridge inspections, bridge deck transverse cracks have been observed over the structures. Cracks in concrete decks are common, and routine maintenance to seal the cracks is necessary to prevent the deck reinforcement from deteriorating. To ensure maximum life of the interchange structures, all 29 bridges within the core of the Marquette Interchange will receive a polymer overlay as part of the bridge maintenance project. In addition, approximately 120 high pressure sodium (HPS) fixtures will be converted to light-emitting diode (LED) fixtures to reduce energy usage.

Most of the Valley Bridge was rehabilitated with a concrete overlay in 2013 and painted in 2014 and 2015. Construction time constraints did not allow the northern bridge units to be completed with either of the above mentioned projects. Therefore, this project will provide a concrete overlay to the northern units.



Project Purpose & Need

Marquette Interchange Structures / Polymer Overlay

In an effort to reduce future maintenance costs and ensure the bridges reach their life expectancy, WisDOT will apply a polymer overlay to all 29 bridges in the core of the Marquette Interchange. The deck overlay consists of an advanced polymer concrete that quickly develops a high tensile strength to seal, protect, and extend the life of bridge decks.

Bridge deck cracks are the results of several factors. First, it is common for cracks to develop during original construction due to shrinkage as the concrete cures. Second, daily and seasonal temperature changes (thermal cycling) create deck cracks as the bridge expands in heat and contracts in the cold. Third, vehicles on the bridges, especially heavy trucks, flex the bridge and stress the decks. The more cracks that are left untreated, the more water and deicing salts reach the steel reinforcing bars.

Bridge repairs and replacement are expensive items faced by highway agencies. The main cause of deterioration is the use of salt during winter maintenance operations. The salt water seeps into the cracks and is absorbed into the concrete, causing the reinforcing steel to rust and expand. If maintenance is postponed and not addressed, the reinforcing bar corrosion will create additional cracks and concrete spalls throughout the deck surface.

Valley Bridge / Concrete Deck Overlay

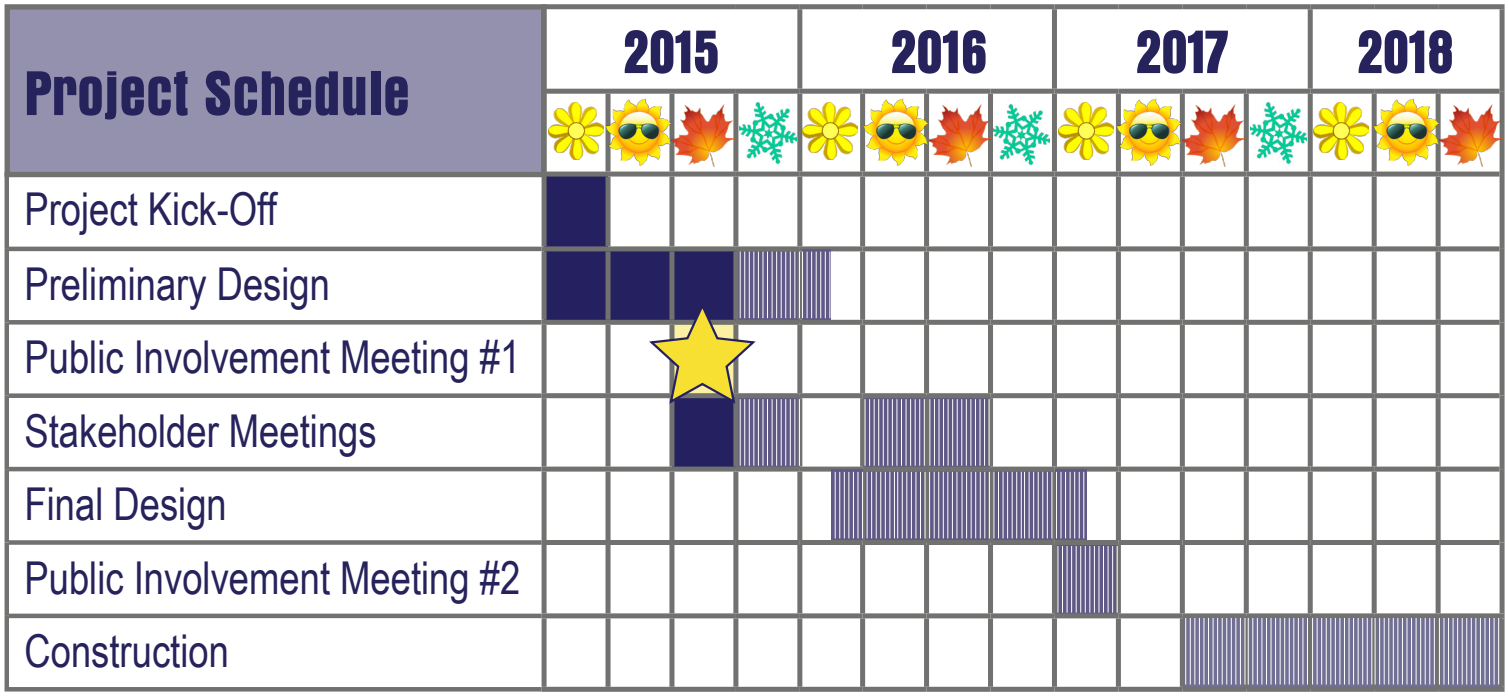
The Valley Bridge was initially constructed around 1967 and the concrete deck was replaced between 1988 and 1989. The decks were widened as part of the Marquette Interchange project completed in 2008. A significant portion of the bridge was overlaid in 2013. This project will overly the northern units to complete the planned maintenance on the structure.

Polymer Overlays

What are polymer overlays?
A polymer overlay is an applciation that consists of two coats of a polymer with aggregate on top of each layer. The total thickness is about 3/8". A polymer 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 polymer concrete that quickly develops strength and impermeability, providng a very durable protection that extends bridge deck life.

Polymer overlays are proposed to preserve the concrete decks of these critical structures in the WisDOT highway system. Polymer overlays reduce the diffusion of chloride ions and provide skid resistance. Under ideal conditions, the polymer overlay can be placed on a 12-foot late at a rate of 10 to 15 feet per minute. Approximately one mile of 12 foot bridge deck can be overlaid in eight hours.



This is the first of two public involvement meetings planned for the project. The second meeting will be held in the spring of 2017 and will include information related to traffic impacts associated with the project. Construction is anticipated to occur in the fall of 2017 and carry through the 2018 calendar year.

Traffic Impacts

The rapid cure characteristics of polymer overlays minimize disruptions, reduce traffic control costs, and ease the inconvenience of repair scheduling. The project team is studying alternatives for performing the overlay work while minimizing impacts to traffic. Night work is being considered as an option for the polymer overlays planned for the Marquette Interchange.

Concrete overlays on the northern units of the Valley Bridge will require the longer term closure of ramps within the Marquette Interchange.

Further details and timelines associated with these closures will be available as the project moves through the preliminary design phase in 2016.

The project team will meet with stakeholders any time within the project duration to discuss concerns and review project impacts to properties during construction.

WISCONSIN DEPARTMENT OF TRANSPORTATION

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