

EXPERIMENTAL PROJECTS WORK PLAN

POLY-CARB MARK HIGH FRICTION BRIDGE DECK TREATMENT

Location: Musselshell River: 2 miles south of Roundup on N16 (US 87)

Project Name: South of Roundup

Project Number: HSIP 16-2(14)47 SF119-SKID TRTMNT

Experimental Project No. MT-13-01

Type of Project: High Friction Bridge Deck Treatment

Principal Investigator: Craig Abernathy: Experimental Project Manager (ExPM)

Description

The Department is nominating the subject project as a preservation and performance enhancement in first using a solvent-less, low-viscosity polymer seal to repair (or chemically weld) cracks in horizontal concrete decks. A second application overlay, using a hybridized copolymer of epoxy and urethane layer with a broadcast of glacial gravel (basalt quartzite granite) is applied as the friction course.

Bridge Statistics

Crossing: Musselshell River
Bridge Length: 273 ft.
Bridge Width: 40 ft. (face of rail to face of rail)
Deck cross slope: 6% superelevation
Deck longitudinal grade: ~ 2%
NBI Deck Rating: 8 (Very Good)
Deck Element: 100% in Condition State 1

Experimental Design

The treatment system will consist of application of **Poly-Carb MARK – 135 SAFE-T-SEAL** gravity fed crack repair system followed by application of **the Poly-Carb MARK-163 FLEXOGRID Overlay System**. The aggregate source for the overlay system will be

Washington Rock Quarries. The purpose for selecting these items are past successes, limited variables (not mixed with squeegees), as well as other product attributes which are anticipated to contribute to a more sustainable application.

Evaluation Procedures

Research will document the installation for best practice and any construction concerns germane to the performance of the bridge deck friction course. Semi-annual inspections will document the deck condition, and any other measurable outcomes. Additional site inspections may supplement the semi-annual visits based on need. Monitor and report on long-term performance. The measure of effectiveness (MOE) prevalent with this project will focus on:

- Does the system adequately perform (durability) within Montana's climate?
- What are the initial skid numbers and subsequent skid numbers for each of the following 5 years?
- Observed reduction in accident rates – is this an additional treatment option for consideration?

Maintenance staff will be interviewed regularly to report on any activities which may pertain to the applications.

Construction Documentation: Will include information specific to the installation events of the Poly-Carb procedures. The Material Bureau will obtain one (1) gallon of each of component used in the seal and overlay phases and two (2) fifty (50) pound samples of aggregate material to identify physical properties to contribute to product performance. Findings will be provided to MDT Research for inclusion in the final report and non-proprietary specification language drafted to allow similar systems to compete.

Post Documentation: Will entail semi-annual inspections of the deck treatments. In addition the Materials Bureau bridge deck inspection crew will inspect the deck condition annually to supplement Research's annual report.

Technical Contact for the project is Jeff Olsen, jolsen@mt.gov or at 444.7610.

Evaluation Schedule

Research will monitor and report on performance for a minimum period of five years annually, with every year up to *ten years (informally). This is in accordance with the Department's "Experimental Project Procedures". Delivery of a construction/installation report, interim, annual or semi-annual reports is required as well as a final project report (responsibility of Research). A web page will be dedicated to display all reporting from the project.

- 2014: Installation/Construction Report
- 2015-2018: Semi-Annual Inspections/ Annual Evaluation Reports
- 2019: Final Evaluation/Final Report

*If considered the extra data collection and analysis will add value to the overall results of the project.

Project Map

