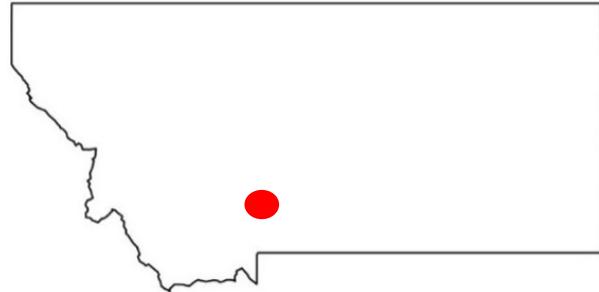
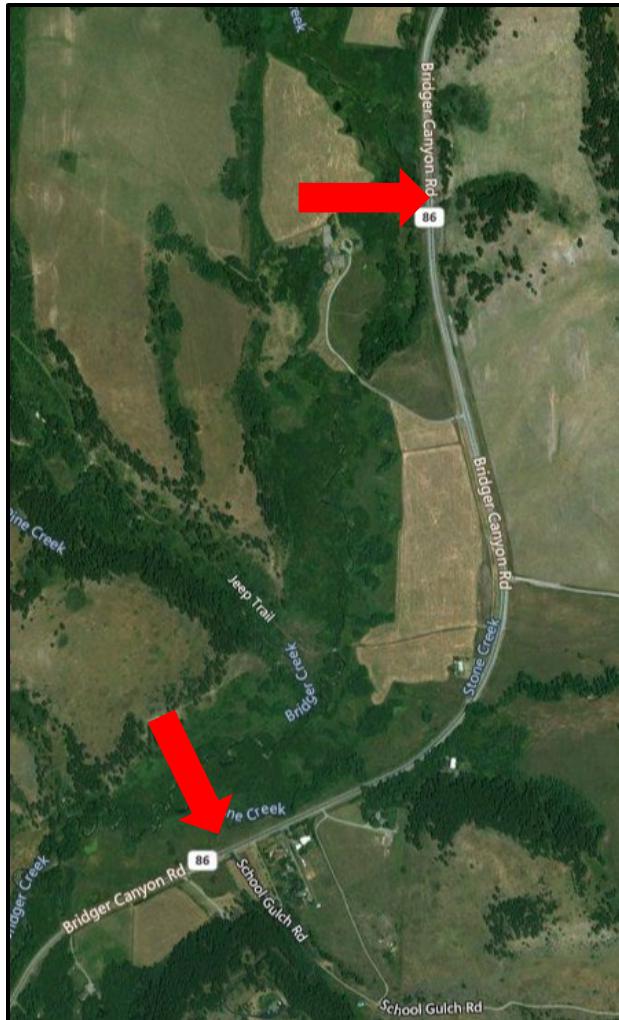


**Experimental Feature Evaluation**  
**July 2023**

|                                     |  |
|-------------------------------------|--|
| <b>Experimental Feature:</b>        | Jointbond – Asphalt Cement Joint Stabilizer                  |
| <b>Location:</b>                    | Butte District, Gallatin County, MT Hwy 86, RP 11.0 – 12.8   |
| <b>MDT Project Name:</b>            | Bridger Canyon   |
| <b>MDT Project Number:</b>          | STPP 86-1(55)10[8112]  |
| <b>Experimental Project Number:</b> | MT-19-5  |
| <b>Principle Investigator:</b>      | Chad DeAustin, Experimental Project Manager (ExPM)           |
| <b>Technical Contact:</b>           | Paul Cogley, Bozeman Construction                            |
| <b>Construction Date:</b>           | June 2019  |
| <b>Date of Inspections:</b>         | August 2019, March 2020, October 2021, April 2022, June 2023 |

**Map**



## **Feature Description & Outline**

Concern has been expressed that MDT's expanding practice of installing centerline rumble strips on many of Montana's two-lane roads has exacerbated joint weakening by exposing more of the longitudinal internal joint to the intrusion of moisture and other environmental factors. Based on this concern, the MDT Butte District has elected to test a joint stabilizer in attempt to mitigate meet-line deterioration. The chosen product is the Jointbond (JB) longitudinal joint stabilizer.

Per the manufacturer's information, Jointbond was developed to inhibit the premature deterioration of construction joints by penetrating the asphalt pavement and combining with the existing asphalt binder. As a polymerized maltene-based emulsion, this stabilizer may extend the service life of longitudinal joints and adjacent areas in two ways:

- Improving the chemistry of the in-place asphalt binder
- Adding a physical in-depth seal to the construction joint, thereby sealing the joint and surrounding area against intrusion by air, water and deicers, and detrimental effects of freeze-thaw.

Once topically sprayed, the stabilizer migrates 1-2" into the asphalt joint and surrounding mat (applied one and one-half foot on either side of the joint) and may take several hours to fully cure based on ambient air temperature. It is typically used on pavements less than two years old. This project has one added element. Before its use on the Bridger Canyon project, JB had only been applied on unsealed pavements; because of time constraints, the application of JB was delayed a season. The pavement received a seal & cover (chip seal) prior to the JB installation. This will be the first trial in the country using this stabilizer on a chip-sealed asphalt pavement and it is noted that distress may take several seasons to appear

## **Evaluation Procedures & Schedule**

The measure of effectiveness prevalent with this feature are:

- Construction practices (constructability, construction time, cost effectiveness, etc.),
- Visual inspection of the chip seal retention and paving joint condition.

In accordance with MDT's Experimental Features Procedures, the Experimental Project Manager will monitor and report on performance for a minimum of five years annually. This includes delivery of a work plan, construction report, annual reports, and final project report.

2019: Installation/Construction Report  
2020-2023: Annual Inspections/Evaluation Reports  
2024: Final Evaluation/Final Report

A dedicated [webpage](#) provides all reporting for the experimental feature.

**2023 – June**

During the 2023 inspection, neither the Jointbond experimental material nor the centerline joint showed change in condition. The chip retention and joint are in good condition even with the high plow activity in Bridger Canyon.



↑ RP 11.0, view north. Jointbond applied to this section. The pavement joint and CLRS show no change condition. There has been some chip loss in the wheel paths, but the centerline is holding well.



↑ RP 12.0, view north. No change in longitudinal joint condition.

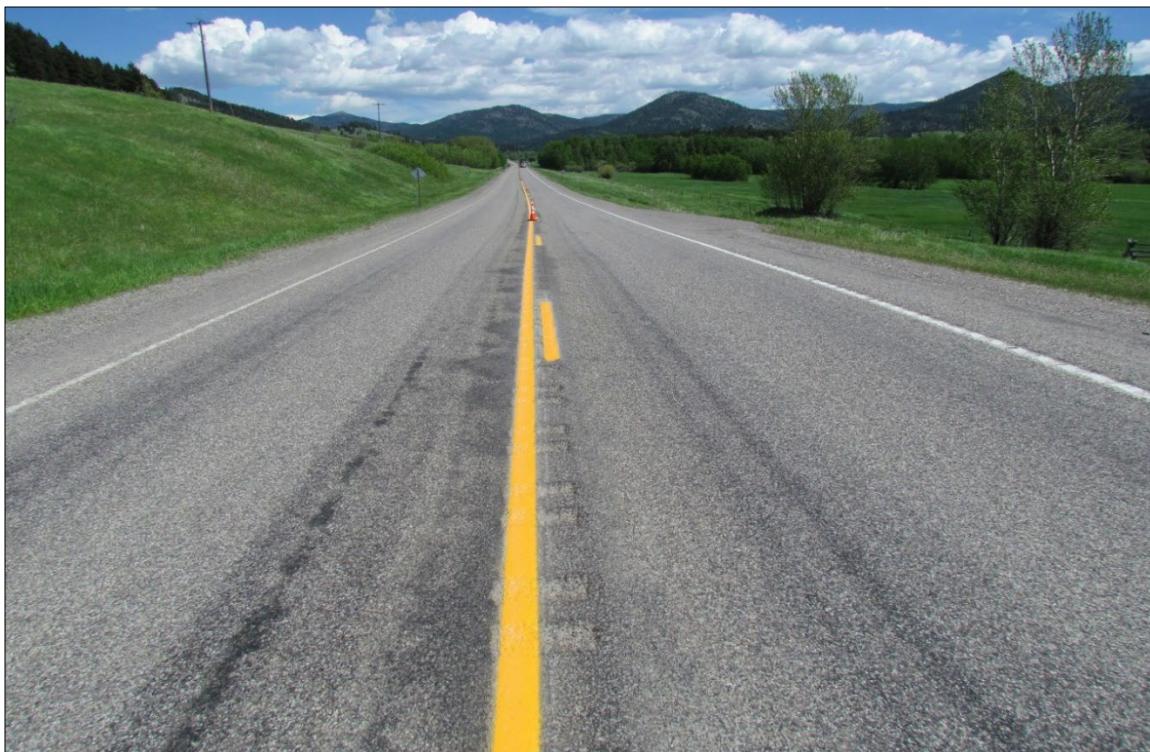


↑ Close-up of the centerline near RP 11.0.

**Construction Documentation – June 2019**



↑ Representative image of project centerline prior to permeant striping.



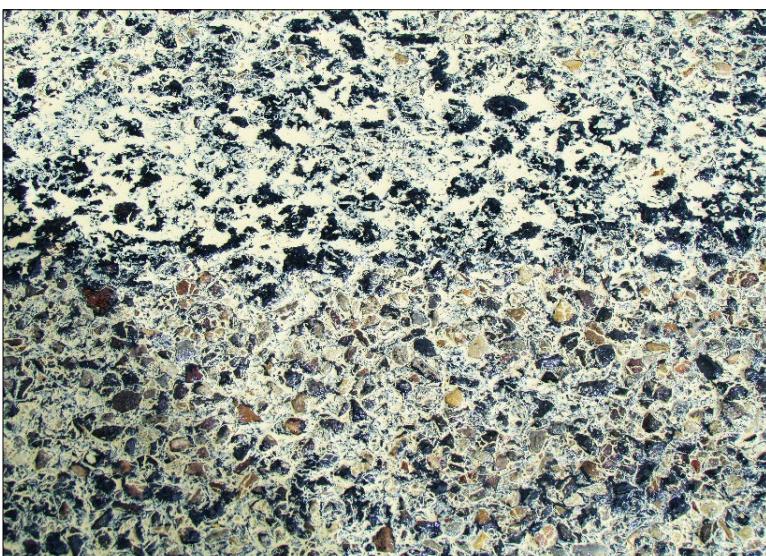
↑ Fresh striping placed approximately a week prior to Jointbond application.



◀ Jointbond application starting at RP 11.0, view north.



◀ Close-up of Jointbond showing uniform distribution along the longitudinal paving joint and an approximate width of 1 to 1.5 feet on each side of the joint.



◀ Closer view of Jointbond after application.



↑ Condition of Jointbond approximately 30 minutes after application.



↑ Condition of Jointbond approximately 90 minutes after application.



↑ Condition of Jointbond 2 weeks after application.



↑ Condition of Jointbond 6 weeks after application.



↑ During application there was a concern that the Jointbond created a very slick surface on the exposed chip seal emulsion. The main concern was for safety of motorcycles however within 60 minutes the material began the curing process and by 90 minutes the material had firmed and was no longer considered an issue.

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