Montana Department of Transportation
Research Programs
March 2020

# EXPERIMENTAL CONSTRUCTION REPORT AND EVALUATION

# 3/8" ASPHALT CEMENT (AC) MIX PLACEMENT WITH NO CHIP SEAL (CS)

**Location:** Interstate 15 (C000015): Approximate reference point 282-283 (NB Lane Only), Cascade County; Great Falls District

**Project Name:** Emerson Junction - Manchester

**Project Number:** IM 15-5(124)282

**Project Type**: AC Pavement Evaluation

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

**Date of Installation:** October 2017

**Date of Inspections:** 10/2017, 05/2018, 01/2019 & 10/2019, 03/2020

## Objective

This project is to determine how a 3/8" AC mix design performs without a chip seal compared to a 3/4" AC with conventional chip seal.

## Evaluation Procedures

The purpose of an experimental features report is to document the phases and events of any given project to gain the reader an understanding of the general activities required to install or incorporate the research element into an active construction or maintenance project. This report also establishes a baseline for defining performance for any given feature under actual service conditions to determine its relative merits.

Two of the main measure of effectiveness (MOE's) of this project is to document potential visual distress of the pavement over time. Second is the texture characteristics of the pavement. The Departments Pavement Management section will conduct skid testing on both the 3/8" non-chipped and 3/4" chipped sections of the interstate for comparison annually. That data will be added to the report when available.

Unfortunately, Research was not on hand during the construction phase of the 3/8" section. The first site inspection was conducted in November 2017.

**Post Documentation:** Will entail a minimum of semi-annual inspections (late fall/early spring) of the 3/8" AC section and additional inspections as needed.

## Hamburg Wheel Tracking/ Rut Test Issue

The Great Falls District has reported the results of the Hamburg rut test were peripheral with several of the samples marginally passing and several with signs of rutting. Although test results did not initiate any rework on the project there may be potential for reduced service life of the AC pavement structure.

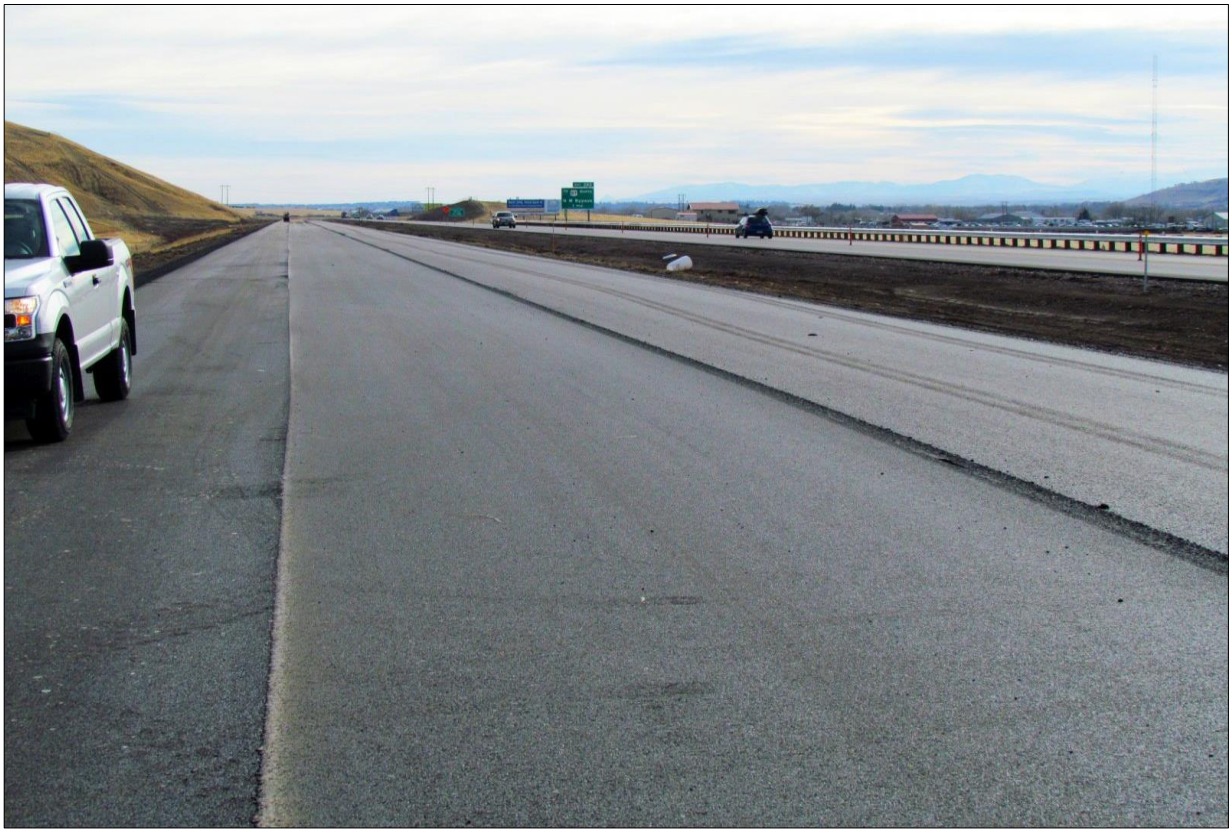
As a rule, the minimum timeframe for reporting on any given experimental feature is five years. Research will elect to continue semiannual inspections on the project as long as it is in service.

## Analysis to Date

Research has inspected the project five times since installation with last site visit on March 2020. No visible distress to report. Mat appears tight, rutting is not apparent at this time. See page 13 for close-ups of representative pavement texture. Next site evaluation will be in the spring of 2021.

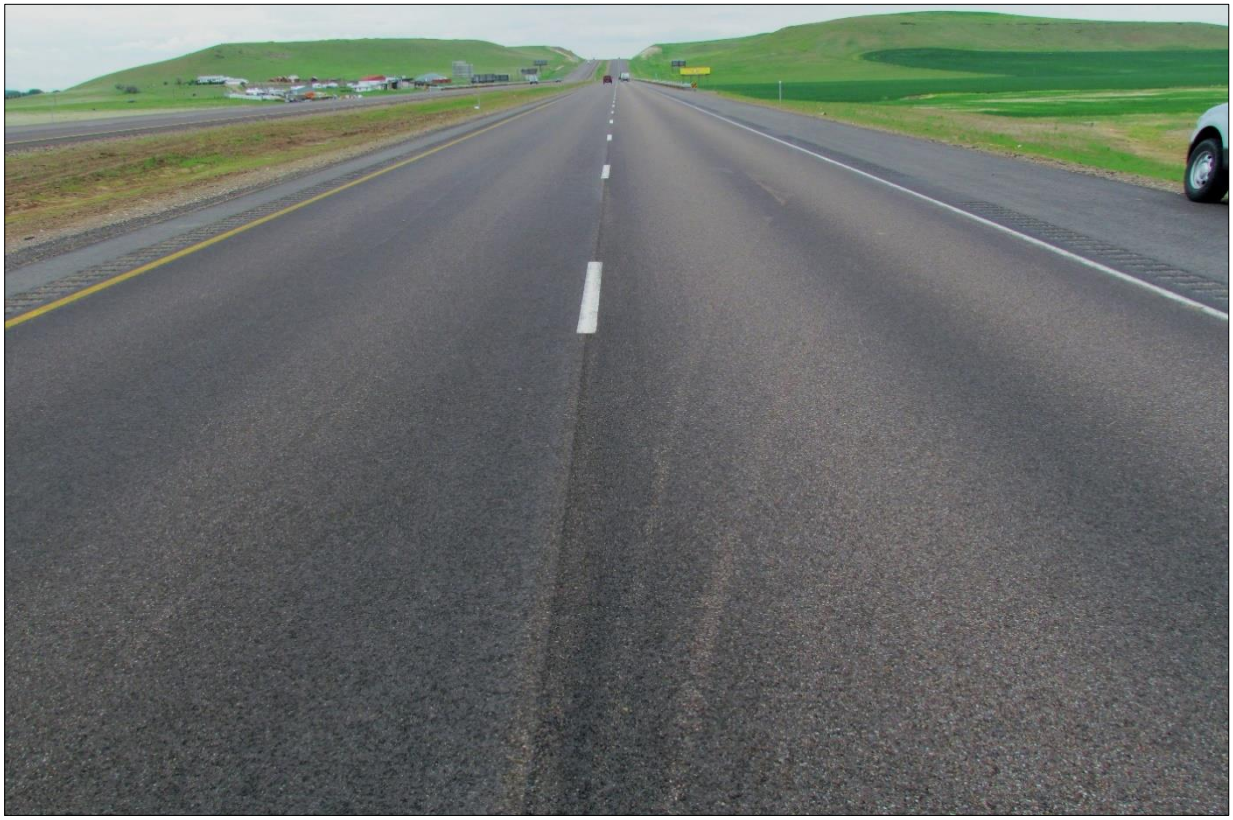
## October 2017 Site Inspection: Post Placement

Representative images of the 3/8" AC section at approximate reference point 282.5; upper view is northbound I-15 view north, lower image is northbound I-15 view south.



🡅🡇 Representative images of the 3/8" AC section pavement texture.

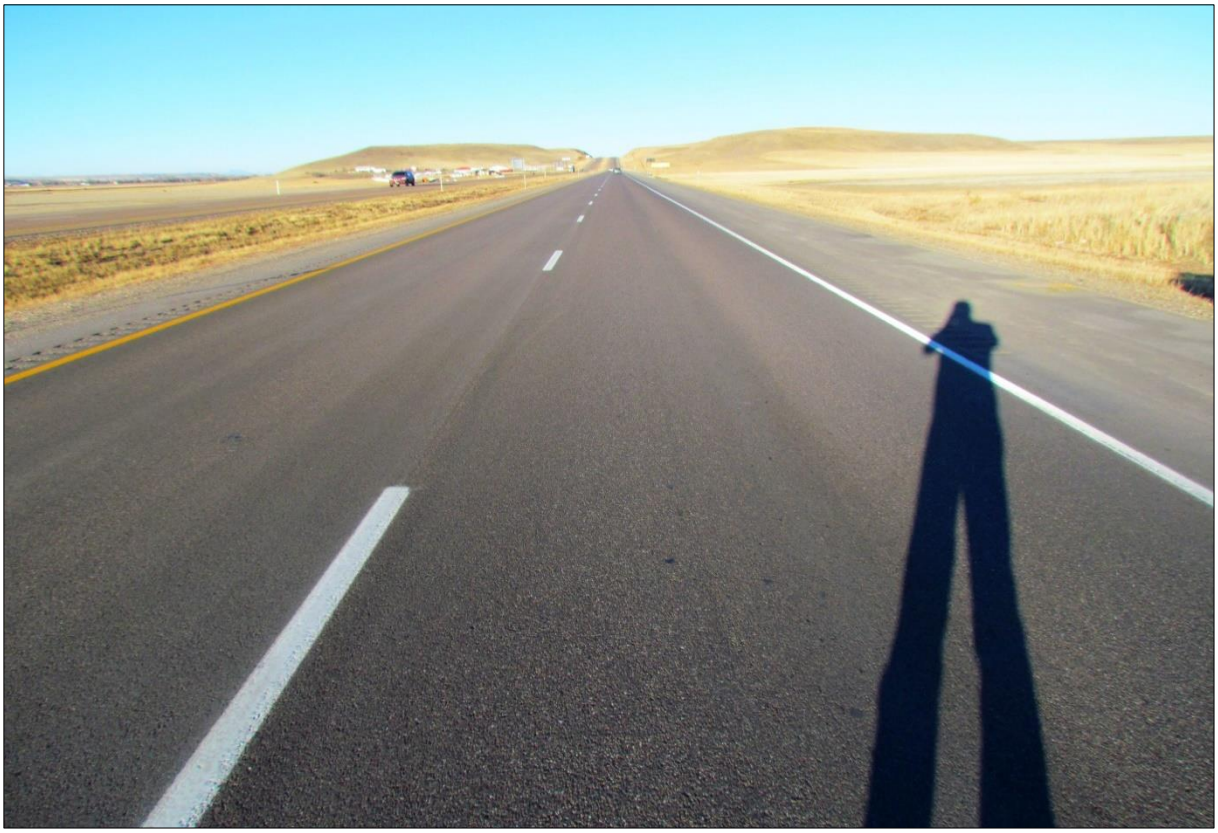
## May 2018 Site Inspection



Representative images of the 3/8" AC section at approximate reference point 282.5; upper view is northbound I-15 view north, lower image transverse view.

Representative images of the 3/8" AC section pavement texture (surface was slightly wet).

**January 2019 Site Inspection**



Representative images of the 3/8" AC section at approximate reference point 282.5; upper view is northbound I-15 view north, lower image transverse view.

↑ Representative image of the 3/8" AC section pavement texture.

**October 2019 Site Inspection**

← View north at transition of chip seal and 3/8" section; approximate reference point 282.

← View south at transition of chip seal and 3/8" section.

← Transverse view of 3/8" section (south end).

⬆ Representative image of the 3/8" AC section pavement texture.

**March 2020 Site Inspection**

⬆ Overview of project; south end view North.

⬇ Representative image of the 3/8" AC section pavement texture.

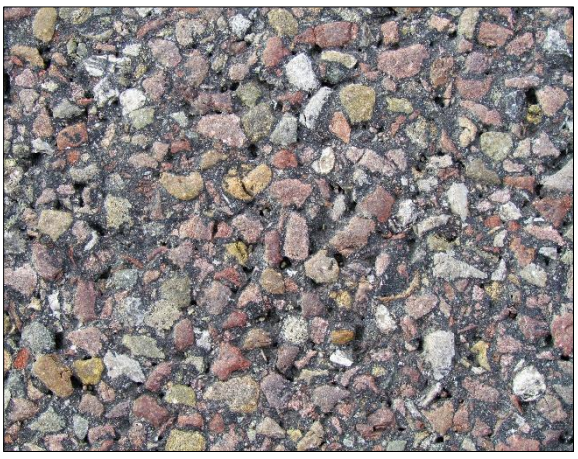
Closer view of pavement texture.

## Supplemental: Comparison of Aggregate Texture

← Close-up of the 3/8" AC section pavement texture on **November 2017**.

← Close-up of the 3/8" AC section pavement texture on **May 2018** (Note: pavement was damp when image was taken).

← Close-up of the 3/8" AC section pavement texture on **January 2019**.



← Close-up of the 3/8" AC section pavement texture on **October 2019**.

## Supplemental (continued): Comparison of Aggregate Texture

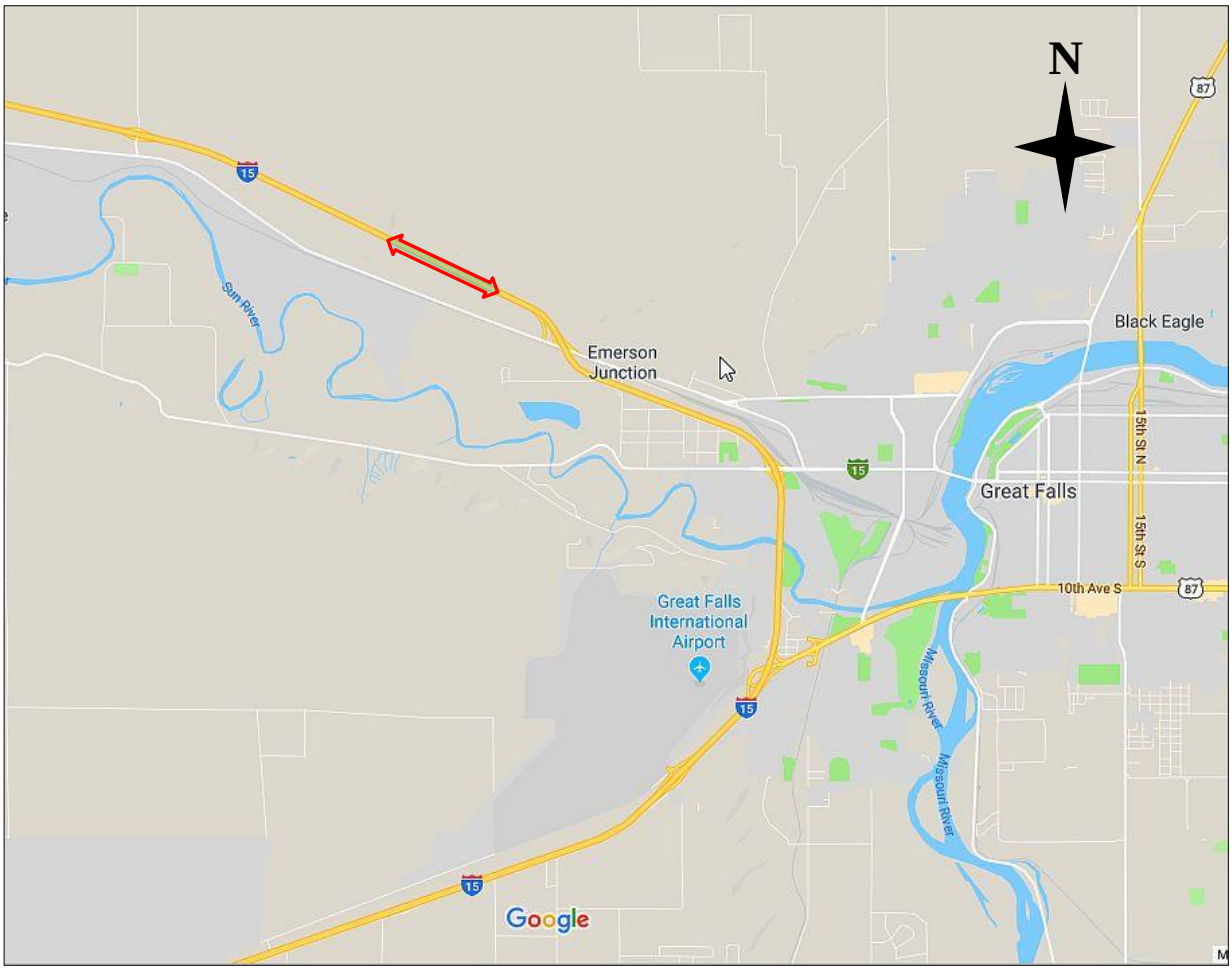
← Close-up of the 3/8" AC section pavement texture on **March 2020**.

## Supplemental: Project Markings

The entire section of the 3/8" AC project will be inspected for any surface distress or anomalies which may occur during the timeframe of analysis and will be included in the ongoing project report.

The marking seen above is the static point (approximate RF 282.5) where most of the representative images of pavement condition will take place. During the May inspection the 3/8" AC section of the project had yet to be sealed. The site visit in January of 2019 delineated the sealed and unsealed sections.

***Project Location: Montana Interstate 15 (C000015); Approximate RF 282-283 – Cascade County/Great Falls District**




⟺ Section Length of Project

*Not to scale; all values approximate

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