



Montana Department of Transportation  
PO Box 201001  
Helena, MT 59620-1001

**Memorandum**

To: Lisa Hurley  
Fiscal Programming Section Supervisor

From: Heidi Bruner, P.E.  
Environmental Engineering Section Supervisor

Date: March 28, 2016

Subject: Categorical Exclusion (c) (23)  
NH 50-2(82)56  
GUARDRAIL UPGRADE - GALLATIN  
Control Number: 8766000



Environmental Services Bureau has determined that this proposed project will not involve unusual circumstances as described under 23 CFR 771.117(b). As a result, the project qualifies as a Categorical Exclusion under the provisions of 23 CFR 771.117(c), part (23), which describes Federally-funded projects that receive less than \$5,000,000 of Federal funds. This proposed action also qualifies as a Categorical Exclusion under the provisions of ARM 18.2.261 (Sections 75-1-103 and 75-1-201, M.C.A.).

The proposed project is to replace existing guardrail sections with new w-beam guardrail. No additional right of way will be required. The total estimated cost of the project at this time including CN + CE w/INF + IDC = \$2,476,997.

In accordance with the Federal Highway Administration's (FHWA) letter of March 29, 1999, please notify FHWA that the proposed action is being processed in accordance with 23 CFR 771.117(c).

e-copies: Jeff Ebert - Butte District Administrator  
Lesly Tribelhorn, P.E. - Highways Engineer  
Robert Stapley - Right-of-Way Bureau Chief  
Tom Martin - Environmental Services Bureau Chief  
Heidi Bruner - Engineering Section Supervisor  
Jennifer Nelson - Butte District Area Engineer  
Chad Welborn - MDT MSU Design  
Jeff Patten - FHWA  
Barry Brosten - Environmental  
Nicole Pallister - Fiscal Programming Section Supervisor

copy: project file



**Memorandum**

To: Paul Ferry, PE  
 Highways Engineer

From: Damian Krings, PE  
 Road Design Engineer

Date: December 16, 2014

Subject: NH 50-2(82)56  
 GUARDRAIL UPGRADE - GALLATIN  
 UPN 8766000  
 310-ROADWAY & ROADSIDE IMPROVEMENTS

Please approve the attached Preliminary Field Review Report.

Approved Lesly Tribelhorn for Paul Ferry Date 12/22/2014  
 Paul Ferry, PE  
 Highways Engineer

We are requesting comments from those on the distribution list. We will assume their concurrence if we receive no comments within two weeks of the approval date.

**Distribution:**

- |   |  |
|---|--|
| Jeff Ebert, Butte District Administrator  | Tom Martin, Environmental Services Bureau Chief              |
| Kent Barnes, Bridge Engineer              | Lynn Zanto, Rail, Transit, & Planning Division Administrator |
| Paul Ferry, Highways Engineer             | Jake Goettle, Construction Engineering Services Bureau       |
| Roy Peterson, Traffic and Safety Engineer | Matt Strizich, Materials Engineer                            |
| Robert Stapley, Right-of-Way Bureau Chief | Jon Swartz, Maintenance Division Administrator               |

**cc:**

- Chad Welborn, Project Design Manager
- Damian Krings, Road Design Engineer
- Dawn Stratton, Fiscal Programming Section

**e-copies:**

- |  |   |
|--|---|
| Jim Walther, Engineering, Preconstruction Engineer       | Jake Goettle, Construction Bureau – VA Engineer     |
| Lesly Tribelhorn, Highways Design Engineer               | Dustin Rouse, District Preconstruction              |
| Mark Goodman, Hydraulics Engineer                        | Joe Walsh, District Projects Engineer               |
| Walt Ludlow, District Hydraulics Engineer                | Mike Walsh, District Materials Lab                  |
| Bryce Larsen, Supervisor, Photogrammetry & Survey        | Kyle DeMars, District Maintenance Chief             |
| Deb Wambach, District Biologist                          | Therese Iwaniak, District Right of Way Supervisor   |
| Barry Brosten, District Project Development Engineer     | Phillip Inman, Utilities Engineering Manager        |
| Danielle Bolan, Traffic Operations Engineer              | David Hoerning, Lands Section Supervisor            |
| Ivan Ulberg, Traffic Design Engineer                     | Greg Pizzini, Acquisition Section Supervisor        |
| Lee Alt, District Traffic Engineer                       | Joe Zody, R/W Access Management Section Manager     |
| Kraig McLeod, Safety Engineer                            | Matt Strizich, Materials Engineer                   |
| Nathan Haddick, Bridge Area Engineer                     | Jim Davies, Pavement Analysis Engineer              |
| John Pirre, Engineering Information Services             | Darin Reynolds, Surfacing Design Supervisor         |
| Paul Grant, Public Involvement Officer                   | Jeff Jackson, Geotechnical Engineer                 |
| Sue Sillick, Research Section Supervisor                 | Patrick McCann, Butte District Geotechnical Manager |
| Suzy Price, Contract Plans Bureau Chief                  | Paul Johnson, Project Analysis Bureau               |
| Alyce Fisher, Fiscal Programming Section                 | Jean Riley, Planner                                 |
| Matt Wagner, Engineering Division                        | Dawn Stratton, Fiscal Programming Section           |
| Doug McBroom, Maintenance Division Operations Mgr (RWIS) |   |

## Preliminary Field Review Report

NH 50-2(82)56, Guardrail Upgrade - Gallatin  
Project Manager: Chad Welborn

Page 1 of 5

### Introduction

The field review for the subject project was held Thursday, October 30, 2014 with the following personnel in attendance:

Joe Walsh	Butte District Preconstruction	MDT-Butte
Geno Liva	Butte District Construction	MDT-Butte
Deborah Wambach	Environmental Services Bureau	MDT-Helena
Phil Johnson	Environmental Services Bureau	MDT-Helena
Walter Ludlow	Hydraulics Section	MDT-Helena
Jennifer Nelson	Helena Road Design – Butte Dist.	MDT-Helena
Dan Noyes	Bozeman Maintenance	MDT-Bozeman
Bill Stecker	Bozeman Maintenance	MDT-Bozeman
Rodney Payne	MSU Design	MDT-Bozeman
Chad Welborn	MSU Design	MDT-Bozeman
Lotse Townsend	MSU Design	MDT-Bozeman
Devon Merriman	MSU Design	MDT-Bozeman

### Proposed Scope of Work

The proposed project has been nominated to replace existing guardrail sections with new w-beam guardrail. In addition, permanent erosion control measures will be installed to stabilize the slopes behind the guardrail and adjacent to the Gallatin River. The specific locations and types of permanent erosion control treatments will be determined later in the project development once the survey is complete.

### Needs and Objectives

The purpose of this project is to replace damaged guardrail and stabilize the slopes behind the guardrail along a substantial portion of the Gallatin Canyon corridor. The proposed project will improve the functionality of the guardrail to re-direct errant vehicles by bringing it up to height standards and providing stabilized fill behind the guardrail posts.

### Project Location and Limits

The project is located in Gallatin County, in the Gallatin National Forest, on NHS Non-Interstate N50/US-191, from RP 56.3 to RP 63.4 (project length approximately 7.1 miles). The functional class of this highway is a Principal Arterial. The project begins near the turnoff to Moose Creek Campground (RP 56.3) and ends near Hellroaring Trailhead (RP 63.4).

Applicable As-Built projects include:

<u>Project Number</u>	<u>Limits</u>	<u>Year</u>	<u>Work Type</u>
NH 50-1(28)42	RP 41.4 – RP 66.1	2012	Grade, Widen, Turn Lanes
NH 50-2(60)61	RP 61.4 – RP 65.2	2009	Seal & Cover
NH 50-1(17)45	RP 45.1 – RP 69.0	2008	Slope Flattening, Guardrail, Turn Lanes, Retaining Walls, Structures
NH 50-2(53)55	RP 61.1, 59.1, 54.6	2008	Spot Treatments of Erosion Protection and Guardrail
NH 50-2(50)48	RP 48.43 – RP 61.34	2005	PMS Overlay, S & C
FHP 42 3 1	RP 60.8 – RP 70.2	1967	Construction
FHP 42 C5	RP 47.9 – RP 60.8	1955	Construction

### Work Zone Safety and Mobility

At this time, Level 1 construction zone impacts are anticipated for this project as defined in the Work Zone Safety and Mobility (WZSM) guidance. The plans package will include a Transportation Management Plan (TMP) consisting mainly of a Traffic Control Plan (TCP). A limited Transportation

## Preliminary Field Review Report

NH 50-2(82)56, Guardrail Upgrade - Gallatin

Project Manager: Chad Welborn

Page 2 of 5

Operations (TO) component and a limited Public Information (PI) component will also be included in the plan package. These issues are discussed in more detail under the Traffic Control and Public Involvement sections.

### Physical Characteristics

The applicable physical characteristics of the project site are described below:

- a. **Existing Geometry.** This rural, two-lane principal arterial is located in the Gallatin Canyon in mountainous terrain. The horizontal and vertical alignments generally follow the course of the Gallatin River and will be perpetuated for this project.
- b. **Existing Width.** The existing roadway width of 28 feet consists of two 12 foot travel lanes with 2 foot shoulders. Exceptions to the 28 feet width are described below:
  1. Swan Creek Area (RP 57.2 to RP 57.6): 44 foot total width consisting of two 12 foot travel lanes, one 12 foot center turn lane, and 4 foot shoulders.
  2. Greek Creek Area (RP 57.9 to RP 58.6): 48 foot total width consisting of two 12 foot travel lanes, one 12 foot center turn lane, and 6 foot shoulders.
- c. **Other Existing Features.** Throughout the project there are multiple paved turnouts that will be perpetuated with the installation of new guardrail. There are two bridges located within the project limits.

### Traffic Data

The traffic data for this location is as follows:

2014 AADT = 4,520 (Present)  
2018 AADT = 5,050 (Letting Year)  
2038 AADT = 8,780 (Design Year)  
DHV = 1,100  
T = 11.8%  
EAL = 407  
AGR = 2.8%

### Crash Analysis

A crash analysis report has been requested and will be presented in a future Scope of Work report.

### Major Design Features

- a. **Design Speed.** The design speed for principal arterials in mountainous terrain is 50 mph and will be used to design roadside safety features. The posted speed limit is 60 mph with multiple reduced speed advisory plaques at curve locations.
- b. **Horizontal Alignment.** No changes will be made to the horizontal alignment.
- c. **Vertical Alignment.** No changes will be made to the vertical alignment.
- d. **Typical Sections and Surfacing.** No changes will be made to the typical sections and surfacing.
- e. **Geotechnical Considerations.** There is a possibility that 2:1 slopes will not be achievable between the guardrail posts and the ordinary high water of the Gallatin River. Special geotechnical treatments, such as retaining wall systems, may be necessary if areas are identified. Completion of the survey will allow for the identification of these areas.
- f. **Hydraulics.** Current erosion behind the guardrail will be mitigated by constructing permanent erosion and sediment control features (PESC). For erosion caused by road-surface drainage, earth fill, topsoil, seeding, and rolled erosion control products may be used to re-establish vegetation and stabilize the embankment. For erosion caused by concentrated flows or high-water, riprap, riprap re-vegetation, rolled erosion control products, and drainage chutes may be used.
- g. **Miscellaneous Features.** Guardrail will be replaced with new w-beam guardrail and 9 foot steel posts. The use of the 9 foot post system is proposed because it is anticipated that a

## Preliminary Field Review Report

NH 50-2(82)56, Guardrail Upgrade - Gallatin

Project Manager: Chad Welborn

Page 3 of 5

guardrail widening section will not be practical without impacting the Gallatin River. The use of steel posts was specifically requested by MDT Maintenance because the system does not accumulate as much sanding material due to its narrower profile.

- h. **Context Sensitive Design Issues.** No context sensitive design issues have been identified.

### **Other Projects**

Currently there are no other projects under construction or will be in the near future that may affect this project.

### **Design Exceptions**

Design exceptions are not anticipated for this project at this time.

### **Right-of-Way**

No new right-of-way is anticipated for this project at this time.

### **Access Control**

No changes to access control are proposed for this project at this time.

### **Utilities/Railroads**

No railroads are affected by this project. Underground and overhead utilities exist within the project limits, and there is an existing remote weather information sensor at approximately MP 55. A utility locate request will be necessary as part of the survey to identify all existing underground utilities.

### **Maintenance Items**

Turnouts will be maintained throughout the project, as they serve an essential function for snow removal efforts in the canyon.

### **Intelligent Transportation Systems (ITS) Features**

An RWIS feature is located on this project and will be maintained.

### **Survey**

A Survey Request will be submitted to the district to include a GPS control survey, a DTM survey, and a Utilities Survey. DTM features will include the road surface, existing guardrail locations, and slope conditions beyond the guardrail.

### **Public Involvement**

It is anticipated that this project will require level "B" involvement and may include the following:

- A news release explaining the project, including a Department point of contact.
- Construction notification and information during construction.

The project should require advance notice to the public of lane closures and expected delays along with progress updates throughout the duration of the project. The "Public Advisory Program" standard special provision will be included in the plans package.

### **Environmental Considerations**

This project involves treatments to eroded riverbank/fill slopes along the Gallatin River.

It is anticipated that this project qualifies for a Categorical Exclusion. If any of the above listed proposed activities change in any way, Environmental Services will be notified for reevaluation of the potential impacts associated with the project. SPA 124 and CWA 404 permitting is anticipated.

## Preliminary Field Review Report

NH 50-2(82)56, Guardrail Upgrade - Gallatin

Project Manager: Chad Welborn

Page 4 of 5

### Traffic Control

A Transportation Management Plan (TMP) consisting of a Traffic Control Plan (TCP), along with a limited Transportation Operations (TO) component and a limited Public Information (PI) component is appropriate for this project.

Traffic will be maintained throughout construction using single lane closures for the installation of guardrail and permanent erosion control features. It may be necessary to limit work zone lengths to reduce the delay times for lane closures.

### Preliminary Construction Cost Estimate

The project was nominated with a construction cost estimate of \$1,065,873 (with no IDC or inflation). Following is the updated cost estimate:

	Estimated cost	Inflation (INF) (from PPMS)	TOTAL costs w/INF + IDC (from PPMS)
Road Work	\$ 1,035,150.00		
Traffic Control	\$ 250,000.00		
<b>Subtotal</b>	<b>\$ 1,285,150.00</b>		
Mobilization (10%)	\$ 128,515.00		
<b>Subtotal</b>	<b>\$ 1,413,665.00</b>		
Contingencies (15%)	\$ 212,049.75		
<b>Total CN</b>	<b>\$ 1,625,714.75</b>	<b>\$ 273,424</b>	<b>\$ 2,251,815</b>
<b>CE (10%)</b>	<b>\$ 162,571.48</b>	<b>\$ 27,342</b>	<b>\$ 225,182</b>
<b>TOTAL CN+CE</b>	<b>\$ 1,788,286.23</b>	<b>\$ 300,766</b>	<b>\$ 2,476,997</b>

Note: Inflation is calculated in PPMS to the letting date. If there is no letting date, the project is assumed to be inside the current TCP and is given a maximum of 5 years until letting. IDC is calculated at 9.13% as of FY 2015.

### Preliminary Engineering

\$119,127 was nominated for PE for this project. After the completion of overrides an increase in this will be likely.

### Project and Risk Management

Chad Welborn will be the Project Design Manager. The MSU Design Unit will be responsible for the plans development for this project. This is not a Project of Division Interest for the FHWA.

The risk associated with this project is minimal. The specific type and extent of permanent erosion control behind the guardrail is unknown at this time and poses minimal risk to the project's timeline. The risk associated with this portion of the project can be mitigated by ensuring the appropriate level of survey is obtained and also coordinating decisions with all applicable sections including Hydraulics and Environmental.

### Ready Date

The Ready Date will be established after the OPX-2 over-rides have been completed. The anticipated project letting date is March 2018.

# Preliminary Field Review Report

NH 50-2(82)56, Guardrail Upgrade - Gallatin  
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## Site Map

The project site map is attached.

