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

Memorandum

To: Lisa Hurley
Fiscal Programming Section Supervisor

MASTER FILE COPY

From: Tom Gocksch, P.E.
Engineering Services Supervisor-Acting
Environmental Services

Date: September 14, 2016

Subject: Categorical Exclusion (C) Determination
SF 149 S OF HOT SPRINGS SLP FL
HSIP 382-1(16)13
UPN 8915000

Environmental Services has reviewed the proposed project and concluded that it 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. The proposed action also qualifies as a Categorical Exclusion under the provisions of ARM 18.2.261 (Sections 75-1-103 and 75-1-201, MCA).

The proposed project has been nominated to provide roadside safety enhancements by slope flattening and installing guardrail. The project will also include modifying any necessary drainage features to facilitate slope flattening and guardrail widening. The project is located on Secondary 382 between reference post 13.1 and reference post 14.4. The project is in Sanders County on the Confederated Salish Kootenai Tribe (CSKT) reservation and falls within Sections 25 and 36 of Township 21 North, Range 24 West. No additional right of way will be required. The total estimated cost of the project at this time including CN + CE w/INF + IDC = $389,000.

electronic copies:
Ed Toavs, District Administrator- Missoula
Roy Peterson, P.E., Traffic and Safety Engineer
Gabe Priebe, P.E., Traffic Project Engineer
Robert Stapley, Right-of-Way Bureau Chief
Suzy Price, P.E., Contract Plans Bureau Chief
Tom Martin, P.E., Environmental Services Bureau Chief
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Gene Kaufman, P.E., FHWA Operations Engineer
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Environmental Services Bureau File

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

Memorandum

To: Roy Peterson, P.E.
Traffic & Safety Engineer

From: Gabe Priebe, P.E. [GBP]
Traffic Project Engineer

Thru: Ivan Ulberg, P.E. [IBU]
Traffic Design Engineer

Date: December 8, 2015

Subject: SF 149 S OF HOT SPRINGS SLP FL
HSIP 382-1(16)13
UPN 8915000
Work Type 310 – Roadway & Roadside Safety Improvements

Please approve the attached Preliminary Field Review Report.

Approved [Signed by RAP] Date [12/10/2015]
Roy Peterson, P.E.
Traffic & Safety 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:
Ed Toavs, Missoula District Administrator
Kent Barnes, Bridge Engineer
Lesly Tribelhorn, Highways Engineer
Robert Stapley, Right-of-Way Bureau Chief
Tom Martin, Environmental Services Bureau Chief
Lynn Zanto, Rail, Transit, & Planning Division Administrator
Jake Goettle, Construction Engineering Services Bureau
Matt Strizich, Materials Engineer

cc:
Gabe Priebe, Project Design Engineer
Traffic and Safety file
Dawn Stratton, Fiscal Programming Section

e-copies:
Located at the end of this document

Introduction

A preliminary field review (PFR) was held on July 28, 2015 for this project in conjunction with other Safety projects in the Kalispell area. The following attended.

Shane Stack, Missoula District Preconstruction Engineer (via phone – office only)
James Freyholtz, Traffic Engineer – Kalispell
Gabe Priebe, Traffic Project Engineer, Traffic & Safety – Helena
Daniel Birlut, Traffic Safety Designer, Traffic & Safety - Helena
Dan Cunningham, Electrical, Traffic & Safety – Helena
Eric Matye, Traffic Signing – Helena
Dan Truesdell, Traffic Geometrics – Helena
Gary Engman, Kalispell Maintenance
Dennis Oliver, Kalispell Maintenance

Proposed Scope of Work

The proposed project has been nominated to provide roadside safety enhancements by slope flattening and installing guardrail. The project will also include modifying any necessary drainage features to facilitate slope flattening and guardrail widening. The Safety Management Section identified the location as a crash cluster, and recommended the proposed work as a cost-effective countermeasure.

Purpose and Need

The purpose of the project is to address road departure crashes on curves by installing guardrail and slope flattening. The project is needed to enhance roadside safety for the traveling public.

Project Location and Limits

The project is located on Secondary 382 between reference post 13.1 and reference post 14.4. The project is in Sanders County on the Confederated Salish Kootenai Tribe (CSKT) reservation and falls within Sections 25 and 36 of Township 21 North, Range 24 West.

Work Zone Safety and Mobility

At this time, Level 3 construction zone impacts are anticipated for this project as defined in the Work Zone Safety and Mobility (WZSM) guidance. Short-term lane closures with flaggers are anticipated to facilitate construction of the guardrail and slope flattening on this low-volume secondary road. The plans package will include a Transportation Management Plan (TMP) consisting mainly of a Traffic Control Plan (TCP). These issues are discussed in more detail under the Traffic Control and Public Involvement sections.

Physical Characteristics

The MDT as-built system indicates Secondary 382 was reconstructed in 1950 with project S-58(1) and last improved in 1996 with project RTS 382-1(6). The roadlog indicates a 24 foot top width consisting of two 10 foot lanes and two 2 foot gravel shoulders. The pavement consists of 0.2 feet of plant mix and 0.7 feet of base course.

The roadside contains high and steep (2:1 or steeper) cut and fill slopes interspersed throughout the project limits. The terrain along the project is mountainous and the setting is rural.

The Secondary 382 horizontal alignment contains reverse horizontal curves separated by 300 foot tangent. The first curve is a compound curve (r1 = 2,865 feet and r2 = 1,910 feet and total deflection approximately 90 degrees) with a PC located south of the project limits at approximately RP 12.9. The second curve is a simple circular curve with a radius of 1,146 feet and deflection angle of approximately 94 degrees; the PC resides at approximately RP 14.0.

The Secondary 382 profile has a maximum grade of +7.00% at the southern end of the project and -7.00%

at the northern end of the project with three crest and two sag vertical curves in between. The vertical curve with the lowest stopping sight distance is an 800 foot crest vertical curve with K=68 located at the northern end of the project.

Traffic Data

The traffic data listed below is for Secondary 382 from RP 13.1 to 14.4:

2015 AADT	=	420 (Present)
2017 AADT	=	430 (Letting Year)
2037 AADT	=	530 (Design Year)
DHV	=	70
T	=	12.6%
EAL	=	28
Growth Rate (Annual)	=	1.0%

Crash Analysis

The Montana Highway Patrol records indicate a total of 9 crashes along this section of roadway for the dates January 1, 2003 through December 31, 2012. The main crash trend is road departure crashes on curves (8 crashes). Of these crashes, four resulted in a vehicle leaving the roadway and overturning and four vehicles leaving the roadway and striking a fixed object (i.e. guardrail, ditch and/or embankment). The remaining crash was also a road departure crash in which a vehicle left the roadway and overturned. The crashes were evenly distributed between eastbound and westbound travel directions. Seven of the crashes were considered to be addressable with the installation of guardrail on the south side of the roadway from RP 13.004-13.887 and from RP 13.903-14.114 as well as slope flattening on both the north and south side of roadway through the S-curve.

The areas where slope flattening is to be performed are from RP 13.140-13.355, RP13.365-13.480 and RP 13.611-13.691, respectively. Please be aware since the completion of the B/C calculation an additional addressable property damage only crash was identified due to the limits of the project being expanded to include from RP 13.1-14.4. This crash is not reflected in the B/C information summarized below.

During the PFR the design team agreed to adjust the project limits to avoid ending the project in large/steep fill slopes. The seven addressable crashes resulted in a fatal crash with 1 fatality, an incapacitating injury crash resulting in an injury, two non-incapacitating injury crashes resulting in 3 total injuries, and a possible injury crash resulting in 2 total injuries and 2 property damage only crashes. The safety improvements in this area yielded a benefit-to-cost ratio of 5.18, assuming a project cost of $369,000. There have been 3 additional crashes within the study area since January 1, 2013. All three of the crashes were road departure crashes involving westbound vehicles. Of these crashes, two involved vehicles leaving the roadway while negotiating a curve and overturning. The other crash involved a commercial motor vehicle losing control on an icy road surface and jackknifing in a roadside ditch. Two of the crashes were considered to be addressable with the proposed improvements. The severity of the addressable crashes resulted in property damage only.

This project is eligible for High Risk Rural Program funding.

Major Design Features

a. **Design Speed.** The geometric design criteria for Rural Collector Roads (Secondary System) indicate that the design speed should be 45 mph based on the mountainous terrain. The posted speed limit is 70 mph.
b. **Horizontal Alignment**. The horizontal alignment will not change with this project.
c. **Vertical Alignment**. The vertical alignment will not change with this project.
d. **Typical Sections and Surfacing**. The typical section and surfacing will not change with this project.

e. **Geotechnical Considerations**. There do not appear to be any major geotechnical issues. The review team did not notice any signs of instability in the roadway or adjacent slopes. Geotechnical staff will be included in the plan distribution to facilitate the review of slope flattening and guardrail widening areas.
f. **Hydraulics**. Modification of cross drains may be required at one or more areas where slope flattening is proposed.
g. **Bridges.** There are no bridges within the project limits.
h. **Traffic.** Traffic will be responsible for roadway plans depicting new guardrail, slope flattening, drainage features and any necessary signing plans. The majority of signing will be handled by replacing sign faces only as the Missoula horizontal curve signing project (UPN 7493000) recently upgraded curve-related signing.
i. **Pedestrian/Bicycle/ADA**. There are no dedicated pedestrian/bicycle or ADA facilities within the project and none are proposed.
j. **Miscellaneous Features**. No miscellaneous features are anticipated.
k. **Context Sensitive Design Issues**. There are no context sensitive design issues identified for this project.
l. **Permanent Erosion and Sediment Control (PESC) Features.** Certain areas with existing steep fill slopes have sparse vegetative cover; however no areas of major erosion were noted. Standard PESC measures are anticipated.

Other Projects
There do not appear to be any projects that will be under construction that could affect this project. During nomination it was discussed that this project could be tied with UPN 8776, which is a pavement preservation project in the same area originally slated for letting in 2017; however 8776 was moved into fiscal year 2016 and will be let before this project can be designed.

Location Hydraulics Study Report
A Location Hydraulics Study Report is not anticipated for this project.

Design Exceptions
No design exceptions are anticipated for this project.

Right-of-Way
No new right-of-way is anticipated with this project.

Access Control
No changes to access control are proposed.

Utilities/Railroads
Underground fiber optic lines were noted near the east side of the roadway. Other utilities may be present. At a minimum, a Phase I SUE will be conducted. There are no railroads affected by this project.

Maintenance Items
No maintenance involvement.

Intelligent Transportation Systems (ITS) Features
No ITS features are anticipated.

Experimental Features
No experimental features will be used on this project.

Survey
An engineering and cadastral survey will be required. A survey request will be sent out during overrides.

A phase I SUE will be required.

Public Involvement
The project will include a 'Level A' standard of public involvement. This is proposed to include a letter of intent and News Release explaining the project and including a department point of contact.

Environmental Considerations
No significant environmental impacts or issues were identified. A Categorical Exclusion is anticipated for this project.

Energy Savings/Eco-Friendly Considerations
None have been identified at this time.

Traffic Control
A Transportation Management Plan (TMP) consisting of a Traffic Control Plan (TCP) is appropriate for this project. Any necessary signing and/or flagging operations will be conducted in accordance with the Manual on Uniform Traffic Control Devices.

Preliminary Construction Cost Estimate
The estimate below is based on information provided during nomination and will be refined as design progresses.

	Estimated cost	Inflation (INF) (from PPMS)	TOTAL costs w/INF + IDC (from PPMS)
Road Work	$209,848		
Traffic Control	$25,000		
Subtotal	$234,848		
Mobilization (10%)	$23,485		
Subtotal	$258,333		
Contingencies (8%)	$20,667		
Total CN	**$279,000**	**$44,604**	**$353,149**
CE (10%)	**$27,900**	**$4,460**	**$35,715**
TOTAL CN+CE	**$306,900**	**$49,064**	**$388,864**

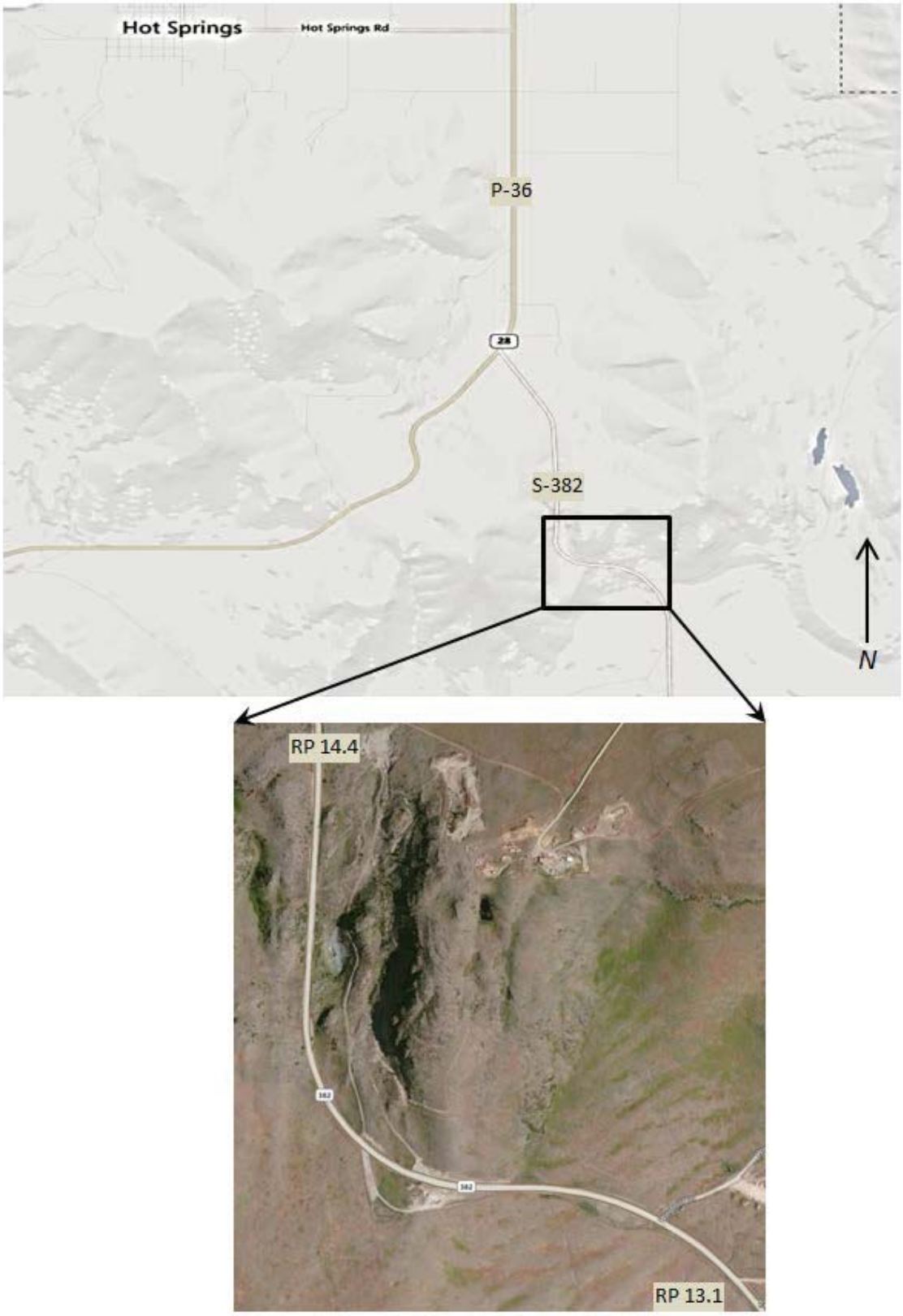
Note: Inflation is calculated in PPMS to the letting date. If there is no letting date, the project is assumed to be inside the current TCP and is given a maximum of 5 years until letting. IDC is calculated at 9.13% as of FY 2015.

Preliminary Engineering
It is anticipated the project will require a significant addition to the nominated PE amount. During the PFR it was noted the project will require survey and will be extended in length from the nominated limits. A more accurate assessment can be completed following overrides.

Project and Risk Management
Gabe Priebe will be the Project Design Engineer. This project is not a PoDI project by FHWA. It is expected the overall level of risk is low to project costs and schedule.

Ready Date
Ready and letting dates will be established after OPX-2 over-rides have been completed.

Site Map
A project Site Map is attached.


Hot Springs
Hot Springs Rd
P-36
28
S-382
N
RP 14.4
RP 13.1

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