MDT

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

Memorandum

MASTER FILE COPY

To: Lisa Hurley
Fiscal Programming Section Supervisor

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

Date: March 28, 2016

Subject: Categorical Exclusion (c) (23)
HSIP 205-1(45)23
SF 129 -SLOPE FLTTNNG BELGRADE
Control Number: 8031000

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 will flatten slopes, widen roadway, and provide turn lanes into the Mountain View subdivision. The centerline would need to shift four to seven feet away from the tracks. The total estimated cost of the project at this time including CN + CE w/INF + IDC = $1,433,241.

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
Heidy Bruner – Engineering Section Supervisor
Therese Iwaniak – Butte Right of Way
Jeff Patten – FHWA
Barry Brosten – Environmental
Nicole Pallister - Fiscal Programming Section Supervisor

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

Memorandum

To: Paul Ferry, PE
Highways Engineer

From: Damian Krings, PE DMK
Road Design, Engineer

Date: November 13, 2014

Subject: HSIP 205-1(45)23
SF 129 – Slope Flttnng Belgrade
8031000
Work Type: 310 – Roadway & Roadside Improvements

Please approve the attached Preliminary Field Review Report.

Approved Paul Ferry Date 11/21/14
Paul Ferry
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, District Administrator
Kent Barnes, Bridge Engineer
Paul Ferry, Highways Engineer
Roy Peterson, Traffic and Safety 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
Jon Swartz, Maintenance Division Administrator

cc:
Jennifer Nelson, Project Design Manager, Butte District
Master file
Dawn Stratton, Fiscal Programming Section
Damian Krings, Road Design Engineer

e-copies:
Jim Walther, Engineering, Preconstruction Engineer
Lesly Tribelhorn, Highways Design Engineer
Mark Goodman, Hydraulics Engineer
Walt Ludlow, District Hydraulics Engineer
Bryce Larsen, Supervisor, Photogrammetry & Survey
Deb Wambach, District Biologist
Barry Brosten, District Project Development Engineer
Danielle Bolan, Traffic Operations Engineer
Ivan Ulberg, Traffic Design Engineer
LeRoy Wosoba, District Traffic Project Engineer
Kraig McLeod, Safety Engineer
Nathan Haddick, Bridge Area Engineer, Butte District
Engineering Cost Analyst
Marty Beatty, Engineering Information Services
Paul Grant, Public Involvement Officer
Sue Sillick, Research Section Supervisor
Suzy Price, Contract Plans Bureau Chief
Alyce Fisher, Fiscal Programming Section
Angela Zanin, Bicycle/Pedestrian Coordinator
Jake Goettle, Construction Bureau – VA Engineer
Dustin Rouse, District Preconstruction
Joe Walsh, District Projects Engineer
Mike Walsh, District Materials Lab
Kyle DeMars, District Maintenance Chief
Therese Iwaniak, District Right of Way Supervisor
Phillip Inman, Utilities Engineering Manager
David Hoerning, Lands Section Supervisor
Greg Pizzini, Acquisition Section Supervisor
Joe Zody, R/W Access Management Section Manager
Matt Strizich, Materials Engineer
Jim Davies, Pavement Analysis Engineer
Jeff Jackson, Geotechnical Engineer
Pa McCann, District Geotechnical Manager
Paul Johnson, Project Analysis Bureau
Jean Riley, Planner
Dawn Stratton, Fiscal Programming Section

Introduction

The Preliminary Field Review for this project was held on August 11, 2014. The following personnel were in attendance:

LeRoy Wosoba	MDT Traffic
Michael Grover	MDT Traffic
Hans Hoelstad	MDT Traffic
Deb Wambach	MDT Environmental
Joe Walsh	MDT Butte
Joe Hauck	MDT MSU Design
Rob Bukvich	MDT Bozeman
Dave Fowler	Gallatin County Roads
Chad Welborn	MDT MSU Design
Dustin Rouse	MDT Butte
Steve Rogne	MDT Traffic

Subsequent to this review, due to an increase in scope of the project, Road Design assumed project management responsibilities, so another field review was conducted to familiarize the new project staff with the project. The following personnel attended this review on September 4, 2014:

Jennifer Nelson, Project Design Mgr. - Helena
Mark French, Road Design Supervisor - Helena
Scott Gerken, Road Design - Helena

Proposed Scope of Work

This safety project was nominated to flatten the slopes along P-205 (formerly S-205). During the PFR the District recommended widening the roadway to provide shoulders, to match what was completed under STPHS 205-1(16)23, 2 Miles East of Belgrade, CN 2444 in 1997.Subsequent to the PFR, the need for turn lanes into the Mountain View subdivision was evaluated and confirmed by the traffic section. The railroad, BNSF owned (MRL leased), has stated they do not want the edge of pavement to move any closer to the tracks, so the centerline would need to shift four to seven feet away from the tracks to accommodate the wider shoulders, turn lanes, and associated tapers.

After the PFR the increased scope of work was discussed, and it was agreed that Primary funding would be included. The project will now be completely reconstructed to current standards, with the addition of turn lanes into the Mountain View subdivision.

Needs and Objectives

This project will attempt to mitigate the severity of roadway departure crashes by providing a recoverable clear zone. Providing shoulders will also likely help reduce the number and severity of roadway departure crashes by providing additional recovery area prior to roadway departure, and providing room for the installation of rumble strips.

Project Location and Limits

- Location: P-205/MT205 in Gallatin County, east of Belgrade
- Begin: RP 23.0±, Project begins east of the Hyalite Creek crossing
- End: RP 24.6±, Project ends just east of the Mountain View subdivision
- As-built plans: FAP 82 year 1922

Turn lanes for the three approaches into Mountain View subdivision will be provided, and it is intended that the project will end where the turn lane tapers tie into the existing PTW. Further to the east are more approaches (which could be within the turn lane taper), but it was noted that extending the project could potentially impact an irrigation ditch.

Stationing runs west to east, in accordance with the reference posts. The functional classification is rural minor arterial.

Work Zone Safety and Mobility

At this time, Level 2 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 Operations (TO) component and a limited Public Information (PI) component to address lane closures 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

Surfacing information for this two-lane rural highway in level terrain is as follows:

From	To	Top Thickness Bituminous (in)	Bottom Thickness Crushed Agg. (in)	Top Width (ft)
RP 22.59	RP 23.04	3.6	11.4	32
RP 23.04	RP 23.43	1.5	3.0	24
RP 23.43	RP 24.60	1.5	5.0	24

Original construction: FAP 82 year 1922

Section	Ride	Rut	ACI	MCI	Construction	Maintenance
RP 23.0 to RP 24.60	73.3	55.2	97.4	98.7	AC Minor Rehab-Rut	Rut Fill

The entire roadway is within the BNSF (MRL leased) railroad right-of-way.

The existing horizontal alignment is on a tangent that is parallel to the BNSF railroad tracks. As-built plans are not complete for this section of road; however, the existing ground is level. Visual observation shows that the grade follows the existing ground, and that all grades appear to be within standard.

The existing fill slopes vary considerably. The slopes were observed to be between approximately 6:1 to steeper than 1:1.

There are no bridges on the project. There are drainage crossings under the roadway, and some are badly deteriorated.

Traffic Data

2013 AADT (Present): 11,020
2014 AADT (Letting Year): 11,410
2034 AADT (Design Year): 22,700
DHV: 2500
T: 2.8%
EAL: 208
AGR: 3.5%

Crash Analysis

Summarized below is the crash analysis for the subject project, as requested by memorandum dated July 18, 2014. The analysis is for State Primary Route 205 from reference point 22.5 to reference point 24.3.

The Montana Highway Patrol records show thirty-three crashes on this section of roadway between January 1, 2007 and December 31, 2011. The main crash trend in this area is road departure crashes.

Sixteen of the crashes were considered addressable by flattening the slopes. The safety improvements in this area yielded a benefit-to-cost ratio of 3.44, assuming a $952,665 project cost.

For the time period of January 1, 2012 and December 31, 2013 there have been seven reported crashes. Four crashes would be addressable by flattening the slopes.

Major Design Features

a. **Design Speed.** The design speed for rural minor arterials is 60mph for level terrain. The posted speed limit is 60mph.
b. **Horizontal Alignment**. The proposed alignment will be on a tangent. This alignment will parallel the existing, but shift away from the railroad tracks so that the new shoulder line will not move any closer to the tracks. It is anticipated that this alignment shift will be accomplished through reverse curves with large enough radii to not require superelevation.
c. **Vertical Alignment**. The existing ground is level. Substantial grade raises are not expected, and all of the proposed curves will meet current design standards.
d. **Typical Sections and Surfacing**. P-205 is a relatively new addition to the state primary system, and does not have a width designated in the current Route Segment Plan. In order to ensure corridor consistency and provide the most effective design, this project will proceed through the route width decision process to determine finished top width.

   The two-lane section will have two 12-foot travel lanes and shoulders (width to be determined). The turn lane section will have an additional 14' turn lane. Surfacing Section will provide the recommendation for the surfacing type and thickness.
e. **Geotechnical Considerations**. This is a reconstruction project and will likely require participation from Geotech. It is anticipated that the proposed alignment will have a minor grade raise to minimize disturbance to the subgrade. The drainage and irrigation crossings may also require Geotech involvement.
f. **Hydraulics**. There are drainage and irrigation crossings on the project. Hydraulics will be involved with the replacement of these structures, and it is anticipated that coordination with the railroad about the size and type of the new drainage structures will be a critical path item.
g. **Bridges.** There are no bridges on the project.
h. **Traffic.** Turn lanes in the Mountain View subdivision will be installed. Pavement markings and signs will be included with this project.
i. **Pedestrian/Bicycle/ADA**. There are no existing pedestrian or bicycle features on this project. The wider shoulders will help facilitate bicycle traffic; bicycle traffic was observed during every field visit and drive-through of the project.
j. **Miscellaneous Features**. Shoulder rumble strips will be installed. Depending on the width of the shoulders (determined during the width decision process), reduced-width rumble strips could be considered to facilitate bicycle usage of the corridor.
k. **Context Sensitive Design Issues**. This project is on a relatively high-volume road, serving as a major commuter route between Belgrade and Bozeman. It has recently been changed from a secondary to a primary route, P-205. New turn lanes will be added to provide safer access into the Mountain View subdivision. The road is entirely within the BNSF (MRL leased) right-of-way.

Other Projects
A traffic study is ongoing for the intersections of Valley Center Road, P-205, and Valley Center Spur Road just to the east of this project. The Valley Center Spur project is evaluating ways to address an observed crash trend at that intersection. It is not anticipated that these projects will have schedule or construction impacts on each other.

Location Hydraulics Study Report
The Location Hydraulics Study Report will be prepared by Hydraulics.

Design Exceptions
Design exceptions are not anticipated on this project.

Right-of-Way
The existing roadway is entirely within the BNSF (MRL leased) railroad right-of-way. It is expected that all of the work for the reconstruction will also be within the railroad right-of-way.

Access Control
There is no existing access control resolution for this facility, and no access control changes will be enacted as part of this project.

Utilities/Railroads
Utilities on this project will be identified and located as part of the field survey. Overhead electric and underground telephone and fiber optic were noted during the field review.

The BNSF owned (MRL leased) railroad is parallel to this project, and the entire width of the proposed roadway will be within railroad right-of-way. Per previous direction from the railroad, the existing horizontal distance from the tracks to the road will not be reduced, so all widening of the proposed roadway will need to be to the north. The approximate distance from construction work to the tracks is 50-75'.

Maintenance Items
At this time, Maintenance involvement is not anticipated.

Intelligent Transportation Systems (ITS) Features
There are no ITS solutions known at this time.

Experimental Features
None are identified at this time.

Survey
A full DTM and utility survey will be required. Survey will be collected using GPS, and a request will be distributed. A soil survey will also be necessary. The LHSR will be prepared at a later date and will include additional survey requests.

Public Involvement
This project will have Level A public involvement with a news release explaining the project and including a department point of contact.

Environmental Considerations
A Categorical Exclusion will be prepared for this project. McDonald (also called Baxter and Aajker) Creek crosses S-205 near RP 23.2. Affected irrigation ditches that return flow to a Water of the US and the creek crossing will likely require CWA 404 and/or SPA 124 permitting. There do not appear to be wetlands adjacent to the roadway within the project limits, with the exception of in association with some of the drainages and irrigation ditches. Minor wetland impacts may occur and would also likely require CWA 404 permitting. A cultural resource survey is anticipated for this project.

Energy Savings/Eco-Friendly Considerations
It is anticipated that existing embankment and surfacing will be reused as fill on this project.

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

Two-way traffic will be maintained throughout construction. Access for emergency vehicles and adjacent approaches will be provided at all times. It is anticipated that wide loads will be accommodated on the adjacent interstate.

Project Management
The Helena Road Design section will develop the plans and Jennifer Nelson will be the Project Design Manager. This is not a Project of Division Interest for FHWA.

Preliminary Construction Cost Estimate

PFR Estimate	Estimated Cost	Inflation (INF) (from PPMS)	TOTAL Costs w/INF + IDC (from PPMS)
Road Work	$608,825		
Traffic Control	$125,000		
Subtotal	**$733,825**		
Mobilization (15%)	$110,000		
Subtotal	**$843,825**		
Contingencies (10%)	$84,000		
Total CN	**$927,825**	**$147,487**	**$1,173,380.00**
CE (22%)	**$205,480**	**$32,663**	**$259,861.00**
TOTAL CN + CE	**$1,133,305**	**$180,150.06**	**$1,433,241.00**

Preliminary Engineering
Preliminary Engineering effort will be consistent with a typical reconstruction project. Approximately $124,000 in PE budget has been allocated to the project. Based on field review and anticipated levels of survey, geotechnical, hydraulics and railroad involvement, initial indications are that this budget may not be sufficient. This will be further assessed based upon hours input during the override process.

Project and Risk Management
The Helena Road Design section will develop the plans and Jennifer Nelson will be the Project Design Manager. This is not a Project of Division Interest for FHWA.

It is anticipated that there are two primary risks for project development: railroad coordination and public involvement. Because the facility is situated entirely within the railroad right of way, obtaining railroad approval for design concepts will be critical. In addition to the previously-discussed prohibition on moving the edge of pavement closer to the tracks, it was noted during the field review that some roadway drainage conveyances do not have elevations or openings commensurate with those underneath the railroad tracks. Therefore, early emphasis will be placed on developing a conceptual layout and drainage design for railroad review and comment.

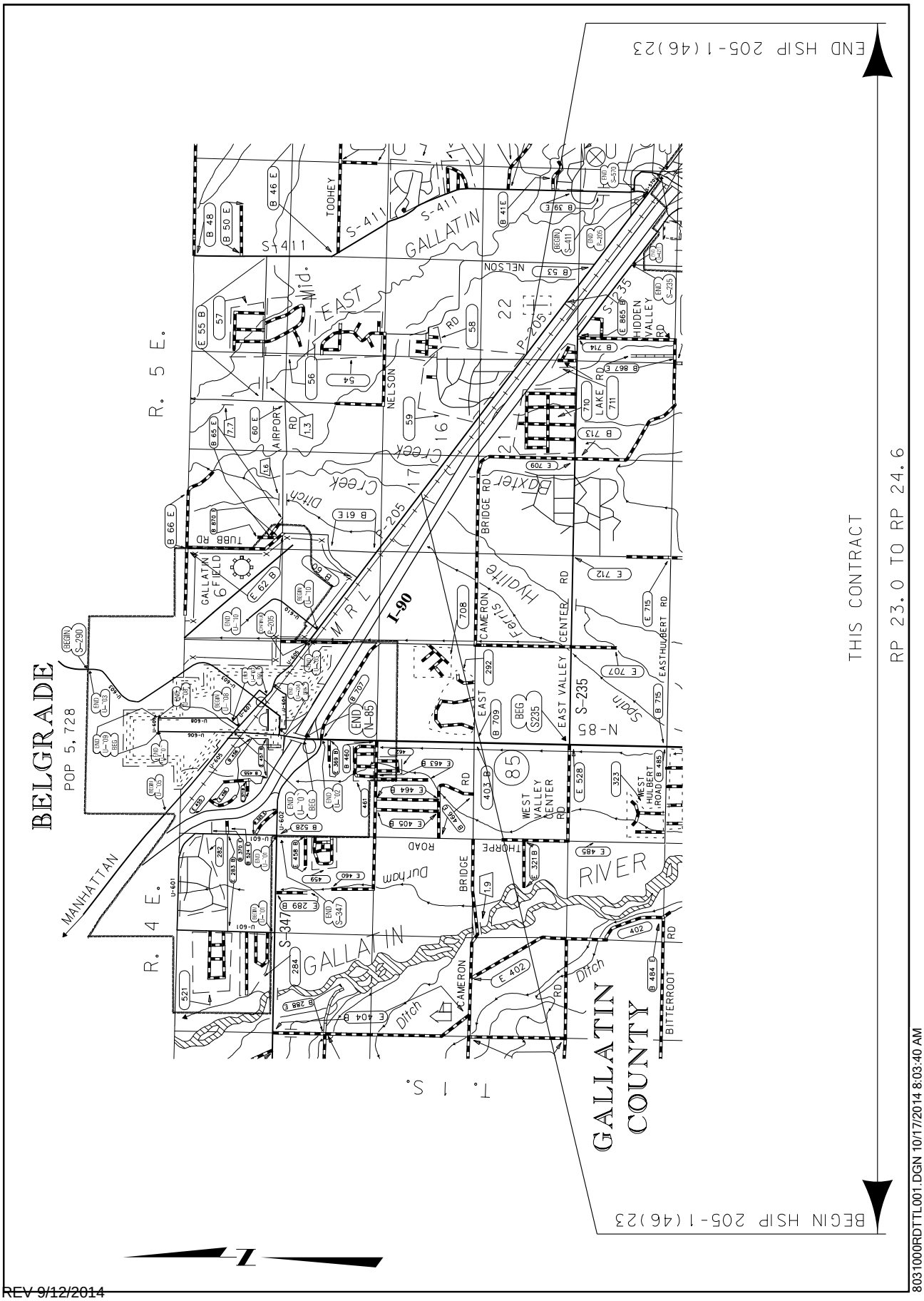
While it is not anticipated that this project by itself would have a high degree of public interest, because of the relatively intense interest in the nearby Valley Center Spur study, it could be anticipated that this project will receive a higher than usual degree of public input. The news release will be coordinated with staff familiar with all of the projects in the area, and based on the level of public interest and input generated by the news release, the need for a public meeting will be assessed.

Ready Date

A ready date will be assigned once the override process is completed. This project is currently outside the tentative construction program.

Site Map

The project site map is attached.



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