MDT
Montana Department of Transportation
2701 Prospect Avenue
PO Box 201001
Helena MT 59620-1001
Jim Lynch, Director
Brian Schweitzer, Governor

November 16, 2010

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ENVIRONMENTAL

Kevin McLaury
Division Administrator
Federal Highway Administration
585 Shepard Way
Helena MT 59601

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Subject: **Programmatic Categorical Exclusion (PCE) Concurrence Request**
STPHS 7(50)
Safety Impr-S Centerville
Control Number: 6697001

Dear Kevin McLaury:

This submittal requests approval of the above-mentioned proposed project as a Categorical Exclusion under the provisions of 23 CFR 771.117(d) and the Programmatic Agreement as signed by MDT and FHWA on April 12, 2001. This proposed action also qualifies as a Categorical Exclusion under ARM 18.2.261 (MCA 75-1-103 and MCA 75-1-201).

The following form provides documentation required to demonstrate that all of the conditions are satisfied to qualify for a Programmatic Categorical Exclusion. A copy of the Preliminary Field Review Report, dated August 17, 2009, Project Split Report, dated September 30, 2009, and a project location map are attached. In the following form, "N/A" indicates not applicable; "UNK" indicates unknown.

NOTE: A response in a large box will require additional documentation for a Categorical Exclusion request in accordance with 23 CFR 771.117(d).

	Yes	No	N/A	UNK
1. This proposed project would have (a) significant environmental impact(s) as defined under 23 CFR 771.117(a).	☐	☒	☐	☐
2. This proposed project involves (an) unusual circumstance(s) as described under 23 CFR 771.117(b).	☐	☒	☐	☐
3. This proposed project involves one (or more) of the following situations where				
A. Right-of-way, easements and/or construction permits would be required.	☐	☒	☐	☐
1. The context or degree of the right-of-way action would have (a) substantial social, economic, or environmental effect(s).	☐	☐	☒	☐
2. A high rate of residential growth exists in the area of the proposed project.	☐	☒	☐	☐
3. A high rate of commercial growth exists in the area of the proposed project.	☐	☒	☐	☐
4. Work would be on and/or within approximately 1.6 kilometers (1± mile) of an Indian Reservation.	☐	☒	☐	☐

	Yes	No	N/A	UNK
5. Parks, recreational, or other properties acquired/improved under Section 6(f) of the 1965 National Land & Water Conservation Fund Act (16 USC 460L, *et seq.*) are on or adjacent to the proposed project area.	☐	☒	☐	☐
The use of such Section 6(f) sites would be documented and compensated with the appropriate agencies (MDFWP, local entities, etc.).	☐	☐	☒	☐
6. Sites either on, or eligible for the National Register of Historic Places with concurrence in determination of eligibility or effect under Section 106 of the National Historic Preservation Act (16 USC 470, *et seq.*) by the State Historic Preservation Office (SHPO) would be affected by this proposed project.	☐	☒	☐	☐
7. Parks, recreation sites, school grounds, wildlife refuges, historic sites, historic bridges, or irrigation that might be considered under Section 4(f) of the 1966 US Department Of Transportation Act (49 USC 303) are on or adjacent to the project area.	☒	☐	☐	☐
a. The proposed project would not impact the site(s), so a 4(f) evaluation is not necessary.	☒	☐	☐	☐
b. A de minimis finding has been secured for this project.	☐	☐	☒	☐
c. Nationwide Programmatic Section 4(f) Evaluation forms for those sites are attached.	☐	☐	☒	☐
d. This proposed project requires a full Section 4(f) Evaluation.	☐	☐	☒	☐
B. The activity would involve work in a streambed, wetland, and/or other water body (ies) considered as "waters of the United States" or similar (e.g., "state waters").	☐	☒	☐	☐
1. Conditions set forth in Section 10 of the Rivers and Harbors Act (33 USC 403) and/or Section 404 of the Clean Water Act (33 USC 1251-1376) codified at 33 CFR 320-330 would be met.	☐	☐	☒	☐
2. Impacts in wetlands, including but not limited to those referenced under Executive Order (EO) #11990, and proposed mitigation would be coordinated with the US Army Corps of Engineers and other Resource Agencies (Federal, State, and Tribal) as required for permitting.	☐	☐	☒	☐
3. A 124SPA would be obtained from the MDFWP.	☐	☒	☐	☐
4. A delineated floodplain exists in the proposed project area under FEMA's Floodplain Management criteria.	☐	☒	☐	☐
The water surface at the 100-year flood limit elevation would exceed floodplain management criteria due to an encroachment by the proposed project.	☐	☐	☒	☐
5. A Tribal Water Permit would be required.	☐	☒	☐	☐
6. Work would be required in, across, and/or adjacent to a river that is a component of, or proposed for inclusion in Montana's Wild and/or Scenic Rivers system as published by the US Department of Agriculture, or the US Department of the Interior.	☐	☒	☐	☐

	Yes	No	N/A	UNK
The designated National Wild and/or Scenic River systems in Montana are:				
a. Middle Fork of the Flathead River (headwaters to South Fork confluence).	☐	☐	☒	☐
b. North Fork of the Flathead River (Canadian Border to Middle Fork confluence).	☐	☐	☒	☐
c. South Fork of the Flathead River (headwaters to Hungry Horse Reservoir).	☐	☐	☒	☐
d. Missouri River (Fort Benton to Charles M. Russell National Wildlife Refuge).	☐	☐	☒	☐
In accordance with Section 7 of the Wild and Scenic Rivers Act (16 USC 1271 – 1287), this work would be coordinated and documented with either the Flathead National Forest (Flathead River), or US Bureau of Land Management (Missouri River).	☐		☒	☐
C. This is a "Type I" action as defined under 23 CFR 772.5(h), which typically consists of highway construction on a new location or the physical alteration of an existing route which substantially changes its horizontal or vertical alignments or increases the number of through-traffic lanes.	☐	☒	☐	☐
1. If yes, are there potential noise impacts?	☐	☐	☒	☐
2. A Noise Analysis would be completed.	☐		☒	☐
3. There would be compliance with the provisions of both 23 CFR 772 for FHWA's Noise Impact analyses and MDT's Noise Policy.	☒		☐	☐
D. Substantial changes in access control would be associated with the proposed project.	☐	☒	☐	☐
If yes, would they result in extensive economic and/or social impacts on the affected locations?		☐	☒	☐
E. The use of a temporary road, detour, or ramp closure having the following conditions when the action(s) associated with such facilities:				
1. Provisions would be made for access by local traffic, and be posted for same.	☒		☐	☐
2. Adverse effects to through-traffic dependant businesses would be avoided or minimized.	☒		☐	☐
3. Interference to local events would be minimized to all possible extent.	☒		☐	☐
4. Substantial controversy associated with this pending action would be avoided.	☒		☐	☐
F. Hazardous wastes /substances, as defined by the US Environmental Protection Agency (EPA) and/or the Montana Department of Environmental Quality (MDEQ), and/or (a) listed "Superfund" (under CERCLA or CECRA) site(s) are currently on and/or adjacent to this proposed project.	☐	☒	☐	☐

	Yes	No	N/A	UNK
All reasonable measures would be taken to avoid and/or minimize substantial impacts from same.	☐	☐	☒	☐
G. The Stormwater Discharge conditions (ARM 17.30.1101-1117), including temporary erosion control features for construction would be met.	☒	☐	☐	☐
H. Permanent desirable vegetation with an approved seeding mixture would be established on exposed areas.	☒	☐	☐	☐
I. Documentation of an invasive species review to comply with both EO #13112 and the County Noxious Weed Control Act (7-22-2152, MCA), including directions as specified by the county(ies) wherein its intended work would be done would be conducted.	☒	☐	☐	☐
J. There are "Prime" or "Prime if Irrigated" Farmlands designated by the Natural Resources Conservation Service on or adjacent to the proposed project area.	☐	☒	☐	☐
If the proposed work would affect Important Farmlands, then an AD 1006 Farmland Conversion Impact Rating form would be completed in accordance with the Farmland Protection Policy Act (7 USC 4201, *et seq.*).	☐	☐	☒	☐
K. Features for the Americans with Disabilities Act (PL 101 336) compliance would be included.	☐	☐	☒	☐
L. A written Public Involvement Plan would be completed in accordance with MDT's Public Involvement Handbook.	☒	☐	☐	☐
4. This proposed project complies with the Clean Air Act's Section 176(c) (42 USC 7521(a), as amended) under the provisions of 40 CFR 81.327 as it is either in a Montana air quality:				
A. "Unclassifiable"/attainment area. This proposed project is not covered under the EPA's September 15, 1997 Final Rule on air quality conformity.	☒	☐	☐	☐
and/or				
B. "Nonattainment" area. However, this type of proposed project is either exempted from the conformity determination requirements (under EPA's September 15, 1997 Final Rule), or a conformity determination would be documented in coordination with the responsible agencies (Metropolitan Planning Organizations, MDEQ Air Quality Division, etc.).	☐	☐	☒	☐
C. Is this proposed project in a "Class I Air Shed" under 40 CFR 52.1382(c)(3)?	☐	☒	☐	☐
5. Federally listed Threatened or Endangered (T/E) Species:				
A. Recorded occurrences, and/or critical habitat are in the vicinity of the proposed project.	☐	☒	☐	☐
B. Would this proposed project result in a "jeopardy" opinion (under 50 CFR 402) from the Fish and Wildlife Service on any Federally listed T/E Species?	☐	☒	☐	☐

The proposed project would not induce significant land use changes, nor promote unplanned growth. No significant effects on access to adjacent property or to present traffic patterns would occur.

This proposed project would not create disproportionately high and/or adverse impacts on the health or environment of minority and/or low-income populations (EO #12898). The project also complies with the provisions of Title VI of the Civil Rights Act of 1964 (42 USC 2000d) under FHWA regulations (23 CFR 200).

In accordance with the provisions of 23 CFR 771.117(a), this pending action would not cause significant individual, secondary, or cumulative environmental impacts. FHWA concurrence that this proposed project is properly classified as a Categorical Exclusion is requested.

Eric Thunstrom Date: 11/16/10
Eric Thunstrom
Environmental Services Bureau
Great Falls District Project Development Engineer

Concur Eric Thunstrom Date: 11/16/10
FOR: Heidy Bruner, P.E.
Environmental Services Bureau
Engineering Section Supervisor

Concur [signature] Date: 17 NOV 2010
Federal Highway Administration

Attachment

e-copies without attachment:

Tom Martin, P.E.	Environmental Services Bureau Chief
Heidy Bruner, P.E.	Environmental Services Bureau Engineering Section Supervisor
Michael P. Johnson	Great Falls District Administrator
Kent Barnes, P.E.	Bridge Engineer
Paul Ferry, P.E.	Highways Engineer
Robert Stapley	Right-of-Way Bureau Chief
David W. Jensen	Fiscal Programming Section Supervisor
Kraig McLeod, P.E.	Consultant Project Engineer
Suzy Price	Contract Plans Bureau Chief
Steve Prinzing, P.E.	Great Falls District Engineering Services Supervisor
Stacy Hill, P.E.	Great Falls District Environmental Engineering Specialist
Walt Scott	Right-of-Way Bureau Utilities Section

copies with attachment:

File	Environmental Services Bureau

Montana Legislative Branch Environmental Quality Council (EQC)

MDT attempts to provide accommodation for any known disability that may interfere with a person participating in any service, program or activity of the Department. Alternative accessible formats of this information will be provided upon request. For further information, call 406.444.7228 or TTY (800.335.7592) or call Montana Relay at 711.

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

Memorandum

To: Duane E. Williams, P.E.
Traffic and Safety Engineer

From: Roy A. Peterson, P.E.
Consultant Plans Engineer

Date: August 17, 2009

Subject: HSIP 7(51)
SF 089 Vaughn Frontage – Guardrail, Slope Flattening
UPN 6697000
Work Type 310: Roadway and Roadside Safety Improvements

Please approve the attached Preliminary Field Review Report.

Approved D. W. Williams Date August 18, 2009
Duane E. Williams, P.E.
Traffic and 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:
Mick Johnson, Great Falls District Administrator
Kent Barnes, Bridge Engineer
Tom Martin, Environmental Services Bureau Chief
Duane Williams, Traffic and Safety Engineer
John Horton, Right-of-Way Bureau Chief
Lynn Zanto, Rail, Transit, & Planning Division Administrator
Jake Goettle, Construction Engineering Services Bureau
Matt Strizich, Materials Engineer
Jon Swartz, Maintenance Administrator
Paul Ferry, Highways Engineer

cc:
Dave Jensen, Fiscal Programming Section Supervisor
Kraig McLeod, Consultant Project Engineer
Ivan B. Ulberg, Traffic Project Engineer
Lotse Chow Townsend, Helena Road Design - Great Falls
Consultant Design Bureau Project File
Gary D. Larson, Chief, Project Analysis Bureau

e-copies:
Jim Walther, Preconstruction Engineer
Lesly Tribelhorn, Highways Design Engineer
Mark Goodman, Hydraulics Engineer
Kurt Marcoux, District Hydraulics Engineer
Bonnie Gundrum, Env. Bureau Resources Sec. Sup.
Paul Sturm, District Biologist
Eric Thunstrom, District Project Development Engineer
Danielle Bolan, Traffic Engineer
Ivan Ulberg, District Traffic Project Engineer
Pierre Jomini, Safety Management Engineer
Jason Sorenson, Engineering Cost Analyst
Marty Beatty, Engineering Information Services
Paul Grant, Public Involvement Officer
Jake Goettle, Construction Bureau – VA Engineer
Steve Prinzing, District Preconstruction Engineer
Christie McOmber, District Projects Engineer
Stanley Kuntz, District Materials Lab
Kam Wrigg, Butte District Maintenance Chief
Walt Scott, R/W Utilities Section Supervisor
Jim Mullins, R/W Design Manager
Greg Pizzini, Acquisition Manager
Joe Zody, R/W Access Management Section Manager
Gary Larson, Project Analysis Bureau Chief
Sue Sillick, Research Section Supervisor
Jean Riley, Planner

Introduction

This report was developed from information taken from the preliminary field review conducted on June 10, 2009 and subsequent meetings held to discuss the scope of the improvements along the Vaughn Frontage Road. The following people attended the June 10 field review:

Name	Representing
Kraig McLeod	Consultant Design
Jim Combs	Great Falls District Traffic Engineer
Steve Prinzing	District Preconstruction Engineer
Lotse Townsend	Helena Road Design
Robert Snyder	Traffic Safety
Paul Sturm	District Biologist

Proposed Scope of Work

The proposed project was originally nominated through the Safety Engineering Improvement Program to construct roadside safety enhancements. The locations and proposed scope of work for each site are as follows:

Site #1: The first site is on the Vaughn Frontage Road (X-Route 07611) from RP 4.2 +/- to RP 8.0 +/-. Reconstruction of the roadway to correct geometric deficiencies is proposed from the beginning of the project at RP 4.2 +/- to 4.6 +/-. Slope flattening of the roadway will be completed along both sides of the corridor from RP 4.6 +/- to the intersection of the southbound off ramp at the Emerson Junction interchange at RP 8.0 +/-.

Please note the original programming for this project assumed the slope flattening and guardrail installation would occur between RP 4.2 and 4.6. During the June 10 review, only this portion of the project was investigated. The remaining slope flattening from RP 4.6 to 8.0 was added to the project subsequent to the preliminary field review. Information contained within this report for this slope flattening area is based on a desk review of existing data.

Site #2: The second site is on State Secondary Route 227 RP 6.8+/- to RP 7.5+/- just south of Centerville. A combination of slope flattening and guardrail installation are proposed at this location.

This project may be split into two projects because of the significant difference in work types and the anticipated plan development time for each site.

Purpose and Need

The pattern of addressable crashes along these sections of roadway is single vehicle off road. The purpose of this project is to reduce the severity of these crashes by stopping or redirecting vehicles before they leave the roadway surface or providing additional recoverable area for errant vehicles.

Project Location and Limits

Both sites for this project are located in Cascade County. Site #1 is on the Vaughn Frontage Road (X-Route 07611) from RP 4.2 +/- to RP 8.0+/- (3.8 miles). The project site is northwest of Great Falls. Site #2 is on State Secondary Route 227 from RP 6.8+/- to RP 7.5+/-. The project begins at the southern edge of Centerville and extends to the south approximately 0.7 miles. Both routes are classified as major collectors.

Work Zone Safety and Mobility

At this time, Level 2 construction zone impacts are anticipated for the Vaughn Site as defined in the Work Zone Safety and Mobility (WZSM) guidance. The plans package will include a Traffic Management Plan (TMP) consisting mainly of a Traffic Control Plan (TCP). A limited Traffic Operations (TO) component and/or a Public Information (PI) component may also be included.

Level 3 construction zone impacts are anticipated at the Centerville Site. The plans package will include a Traffic Management Plan (TMP) consisting mainly of a Traffic Control Plan (TCP). A Traffic Operations (TO) component or a Public Information (PI) component will not be included.

Physical Characteristics

As-built information was not available for the Vaughn Frontage Road (X-Route 07611). In the area of the project, the roadway consists of two 11-foot travel lanes and one foot shoulders with asphalt surfacing. Terrain in the area is generally level; however, the crash trend is in an area traversing a rolling portion of roadway which is proposed for reconstruction. This reconstruction area is bounded by long, level tangent sections with two crest vertical curves located at the beginning and end of the project. The reconstruction area is also located on a horizontal curve for the majority of the length. Minimal sight distance is provided on the vertical curves. Fill and cutslopes in the reconstruction area are generally very steep with several areas of large fill heights.

The remainder of the Vaughn Frontage Road corridor is located on level terrain. Fill and cutslopes on this rural roadway are generally very steep with little recoverable area. Several public, private and farm field approaches are located within the corridor and will be perpetuated with the project.

Secondary 227 was originally constructed in 1948 under project FAS S-91 (1). According to the MDT road log, the project was reconstructed in 1975 and improved in 1995 under project RS 227-1(7). The roadway has an asphalt surface consisting to two 12-foot travel lanes and no shoulders. Asphalt surfacing is approximately 4.8 inches thick and overlays approximately 15 inches of base. Terrain on this rural roadway is generally level. Fill and cutslopes on this rural roadway are very steep with several areas of large fill heights. Two residential approaches are located within the project limits and will be perpetuated.

Traffic Data

The traffic data for the location at Vaughn Frontage Road, RP 4.2± to RP 4.6± is as follows. Please note the traffic data was obtained for the original project limits; however, no significant traffic breaks or intersections exist for the remainder of the corridor:

2009 ADT = 3,430 (Present)
2011 ADT = 3,510 (Letting)
2031 ADT = 4,530 (Future)
DHV = 490
T = 2.8%
AGR = 1.3%
EAL = 59

The traffic data for the location at State Secondary 227, RP 6.8± to RP 7.5± is as follows:

2009 ADT = 1,310 (Present)
2011 ADT = 1,360 (Letting)
2031 ADT = 2,010 (Future)
DHV = 220
T = 1.7%
AGR = 2.0%
EAL = 12

Crash Analysis

A total of 28 crashes occurred on the Vaughn Frontage Road, RP 4.2 to RP 4.6, from January 1, 1997 through December 31, 2006. Of the 28 crashes, 13 were determined to be addressable crashes. All of the addressable crashes involved a single vehicle off road crash. Ten of the 13 crashes involved a single vehicle leaving the roadway and overturning, 4 on curves and 6 on tangent sections. The main direction of travel of these single vehicle off road crashes was westbound (9 crashes) and 4 crashes eastbound. The addressable crashes included 2 fatal crashes, with 2 fatalities, 6 injury crashes, with 14 persons injured and 5 property damage only crashes. Reconstruction of the roadway in this area will correct the geometric deficiencies and bring the roadway to current design standards.

Crash analysis has been requested for the section of the project from RP 4.6 +/- to 8.0 +/-. This updated analysis will be included in future reports.

A total of 23 crashes occurred on State Secondary 227, RP 6.8 to RP 7.5, from June 1, 2001 through December 31, 2006. Of the 23 crashes, 4 were determined to be addressable crashes. All of the addressable crashes involved a single vehicle off road crash. Three of the addressable crashes involved a single vehicle leaving the roadway and overturning. All of the correctable crashes involved vehicles losing control while negotiating curves in the roadway (2 northbound/2 southbound). The addressable crashes included 3 injury crashes, with 3 persons injured and 1 property damage only crash. Installation of guardrail and/or slope flattening will redirect errant vehicles back onto the roadway or provide additional recovery area for run off the road vehicles.

Major Design Features

The following sections summarize the pertinent design features on the project.

a. **Design Speed.** The design speed for major collectors in level terrain is 60 miles per hour. The posted speed limit on the Vaughn Frontage Road is 70 miles per hour.

   The posted speed limit within the project limits on Secondary 227 varies depending on the direction of travel. From the beginning of the project to the south the posted speed limit is 50 miles per hour turning to 70 miles per hour at the end of the project. Northbound from the end of the project into Centerville, the posted speed limit changes from 70 miles per hour to 40 miles per hour approaching Centerville.

b. **Horizontal Alignment**. Modifications to the horizontal alignment may be made within the reconstruction area of the Vaughn Frontage Road to correct any geometric deficiencies and address the crash trend (RP 4.2 to 4.6). Modifications to the horizontal alignment are not proposed for the remainder of the slope flattening along the Vaughn Frontage Road (RP 4.6 to 8.0).

Modifications to the horizontal alignment are not proposed for the installation of guardrail or slope flattening at the Centerville site.

c. **Vertical Alignment**. Modifications to the vertical alignment will be made within the reconstruction area of the Vaughn Frontage Road to correct any geometric deficiencies and address the crash trend (RP 4.2 to 4.6). Modifications to the vertical alignment are not proposed for the remainder of the slope flattening along the Vaughn Frontage Road (RP 4.6 to 8.0).

   Modifications to the vertical alignment are not proposed for the installation of guardrail or slope flattening at the Centerville site.

d. **Typical Sections and Surfacing**. The surfacing type and thickness in the reconstruction area will be determined during the design process. For the reconstruction area, the typical section width will be determined following the roadway width decision process. For the slope flattening along the remainder of the Vaughn Frontage Road, a 2-3 foot gravel shoulder and standard fill slopes are proposed.

   No changes to the typical section or surfacing are proposed for any slope flattening areas at the Centerville site.

e. **Geotechnical Considerations**. Standard cut and fill slopes are currently proposed for this project. Geotechnical investigations or recommendations will be needed for the reconstruction area.

   Geotechnical investigations are not anticipated for the slope flattening and guardrail areas at either site.

f. **Hydraulics**. A Location Hydraulics Study Report has not been completed. Reinforced concrete culverts were identified at both project sites. One 24" RCP culvert was identified in the reconstruction area of the Vaughn site. This culvert will likely be replaced as part of the project. Depending on the location and extent of the proposed slope flattening, extension of the culvert structures may be necessary. Approach pipes may also require replacement.

g. **Bridges.** Not applicable for this project.

h. **Traffic.** New delineation, signing and shoulder striping will be necessary in the areas of reconstruction, guardrail widening or slope flattening. No other traffic involvement is anticipated.

i. **Pedestrian/Bicycle/ADA**. No modifications to pedestrian, bicycle or ADA will be made with this project.

j. **Miscellaneous Features**. No miscellaneous features are proposed on this project.

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

Other Projects
No other projects have been identified which would affect the delivery of this project.

Location Hydraulics Study Report
A Location Hydraulics Study Report has not been completed. Reinforced concrete pipe (RCP) culverts were identified at both project sites. One 24" RCP was identified crossing the Vaughn Frontage Road at RP 4.4 +/-. This culvert is well below the mainline grade and was plugged with silt and debris. Depending on the final limits of reconstruction, this culvert will require an extension or replacement. A field review of the Vaughn Frontage Road from RP 4.6 +/- to 8.0 +/- was not completed.

Two 24" RCP culverts were also identified at the Secondary 227 site. Depending on the location and extent of the proposed slope flattening, extension of the culvert structures may be necessary. Approach pipes may also require replacement at both project sites.

Design Exceptions
No design exceptions are currently identified for this project.

Right-of-Way
Depending on the limits of the reconstruction and slope flattening, new right-of-way may be necessary along the Vaughn frontage road corridor.

A CTEP path exists on the east side of Secondary 227 for most of the project length. This path will not be impacted by the project. No right-of-way anticipated at this site for construction of the slope flattening.

Access Control
No modifications to access control are proposed with this project.

Intelligent Transportation Systems (ITS) Features
No ITS features will be implemented with this project.

Utilities/Railroads
Overhead power and telephone were identified adjacent to the Vaughn Frontage Road. The utilities may be impacted with the proposed slope flattening and reconstruction. A Burlington Northern Santa Fe (BNSF) line parallels the south side of the Vaughn Frontage Road. Reconstruction and slope flattening may require coordination with BNSF.

Overhead power is located adjacent to Secondary 227 for the length of the project. No impacts to the power line are anticipated with the project.

Survey
Control, engineering, cadastral and SUE field surveys will be required at both project sites. The survey request is attached to this report.

Public Involvement
Level A public involvement will be completed for this project. A news release explaining the project including a Department point of contact will be provided.

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

Energy Savings/Eco-Friendly Considerations
No energy savings or eco-friendly considerations were identified with this project.

Traffic Control
The slope flattening and guardrail installation can be completed under traffic by closing a portion of the adjacent traffic lane and alternating one-way traffic through the construction area by the use of flaggers and/or temporary traffic signals. All signing and/or flagging operations will be in accordance with the Manual on Uniform Traffic Control Devices.

The reconstruction area will require more extensive traffic control. Depending on the final geometric configuration, consideration may be given to detouring vehicles onto I-15 and closing the frontage road for appropriate phases of the reconstruction.

Project Management
Plans and any special provisions will be developed by the Helena Road Design Bureau. The project design manger will be Kraig McLeod (444-6256). This project is not under full FHWA oversight.

Preliminary Cost Estimate
As discussed previously, the slope flattening and guardrail on the Vaughn Frontage Road was originally proposed and programmed through the safety program between RP 4.2 and 4.6. Following the PFR, the District requested the reconstruction of the roadway in the crash cluster area. Additionally, the District requested the project limits be expanded to include slope flattening on both sides of the roadway from RP 4.6 to 8.0. Funding for the additional improvements will be provided from primary funds. Safety funds for construction (CN & CE) will be capped at $860,000 (w/ IDC) and will be used for the reconstruction area; however, safety monies will be utilized to fund the preliminary engineering costs for the entire project. The following is a summary of the construction costs associated with the reconstruction of the Vaughn Frontage Road from RP 4.2 to RP 4.6.

Vaughn Frontage - Guardrail Slope Flattening HSIP 7(51); UPN 6697000 Estimate for Reconstruction from RP 4.2 to RP 4.6 HSIP Capped at $860,000, Remainder STPP		
	w/o IDC	w/ IDC 17.48%
Roadwork	$337,000	
Earthwork	$136,000	
Signing/Pavement Markings	$8,000	
Traffic Control	$40,000	
Miscellaneous	$30,000	
Subtotal	$551,000	
Mobilization - 10%	$55,100	
Subtotal	$606,100	
Contingency - 15%	$90,915	
Subtotal	$697,015	
Inflation - 3.5% for 5 Years	$130,820	
Total CN	$827,835	$972,541
CE - 15%	$124,175	$145,881
Total	**$952,010**	**$1,118,422**

The following is a summary of the costs associated with the slope flattening along the Vaughn Frontage Road from RP 4.6 to RP 8.0. Construction of these improvements will utilize state primary funds.

Vaughn Frontage - Guardrail Slope Flattening HSIP 7(51); UPN 6697000 Estimate for Slope Flattening from RP 4.6 to RP 8.0 STPP Funding		
	w/o IDC	w/ IDC 17.48%
Earthwork	$120,000	
Gravel Shoulders	$450,000	
Signing/Pavement Markings	$8,000	
Traffic Control	$10,000	
Miscellaneous	$10,000	
Subtotal	$598,000	
Mobilization - 10%	$59,800	
Subtotal	$657,800	
Contingency - 15%	$98,670	
Subtotal	$756,470	
Inflation - 3.5% for 5 Years	$141,979	
Total CN	$898,449	$1,055,498
CE - 15%	$134,767	$158,325
Total	**$1,033,216**	**$1,213,823**

The following is a summary of the costs associated with the slope flattening and guardrail along Secondary 227 from RP 6.8 to RP 7.5. Construction of these improvements will utilize safety funds.

Vaughn Frontage - Guardrail Slope Flattening HSIP 7(51); UPN 6697000 Estimate for Slope Flattening Secondary 227 from RP 6.8 to RP 7.5 - HSIP Funding		
	w/o IDC	w/ IDC 17.48%
Earthwork	$20,000	
Guardrail	$48,000	
Signing/Pavement Markings	$2,000	
Traffic Control	$10,000	
Miscellaneous	$5,000	
Subtotal	$85,000	
Mobilization - 10%	$8,500	
Subtotal	$93,500	
Contingency - 15%	$14,025	
Subtotal	$107,525	
Inflation - 3.5% for 4 Years	$15,862	
Total CN	$123,387	$144,956
CE - 15%	$18,508	$21,743
Total	**$141,896**	**$166,699**

The following table provides a final summary of the projected construction costs and funding sources for the project.

Vaughn Frontage - Guardrail Slope Flattening HSIP 7(51); UPN 6697000 Summary Table			
Description	CN & CE (With IDC)	Safety Funds	Primary Funds
Vaughn Frontage Road - Reconstruction (RP 4.2 to 4.6)	$1,118,422	$860,000	$258,422
Vaughn Frontage Road - Slope Flattening (RP 4.6 to 8.0)	$1,213,823		$1,213,823
Secondary 227 - Slope Flattening (RP 6.8 to RP 7.5)	$166,699	$166,699	
Total	**$2,498,943**	**$1,026,699**	**$1,472,245**

Ready Date
A ready date will be established after over-rides have been completed.

Site Map
The project site maps are attached.

SURVEY REQUEST

Project No.: HSIP 7(51)
Project Name: Vaughn Frontage–Guardrail Slope Flattening
Date of Review: June 10, 2009 Design Assignment: Consulting/Road Design
Proposed Letting Date: _____ Work Type: Work Type 310: Roadway and Roadside Safety Improvements
Control No.: 6697

Aerial Survey Considerations

AERIAL SURVEY ☐ yes ☒ no
Comments: _____

PHOTOGRAMMETRY TO PROVIDE:

☒ **1)** **Digital Terrain Model** (Strip map containing planimetric features, spot elevations, break lines, etc. for use in Geopak)
Comments: _____

☐ **2)** **Contour Mapping** (Special request independent of DTM)
Comments: _____
Specify contour intervals: _____

☐ **3)** **Cross Sections** (Special request independent of DTM)
Comments: _____

☐ **4)** **Orthophotos** Proposed scale _____
Comments: _____

☐ **5)** **Hydraulic Requirements** (To be completed during or after PFR)
(Designate limits of aerial photo and mapping coverage required as well as location of any cross sections on a quad map or existing photo.)
Comments: _____

NOTE: As standard practice, Photogrammetry will provide mapping 150 meters on each side of all alignments or alternate alignments described in the Preliminary Field Review. For rural projects, standard mapping will be developed with two-meter contour intervals or in the case of DTM mapping, for generation of two-meter contours. For projects entirely within urban limits or for bridge-specific projects, mapping will be developed with a one-half meter contour interval or for generation of one-half meter contours with DTM mapping. Mapping limits, photo coverage, and/or contour intervals outside the standards will be accommodated provided they are noted in the comments above.

Field Survey Considerations

Contact Person (Helena): Kraig McLeod (444-6256, krmcleod@mt.gov)
Lead Agency (Br., Rd., etc.): Consultant Design

FIELD SURVEY TO PROVIDE:
The proposed project was originally nominated through the Safety Engineering Improvement Program to construct roadside safety enhancements. The locations and proposed scope of work for each site are as follows:

Site #1: The first site is on the Vaughn Frontage Road (X-Route 07611) from RP 4.2 +/- to RP 8.0 +/-. Reconstruction of the roadway to correct geometric deficiencies is proposed from the beginning of the project at RP 4.2 +/- to 4.6 +/-. Slope flattening of the roadway will be completed along both sides of the corridor from RP 4.6 +/- to the intersection of the southbound off ramp at the Emerson Junction interchange at RP 8.0 +/-.

Please note the original programming for this project assumed the slope flattening and guardrail installation would occur between RP 4.2 and 4.6. During the June 10 review, only this portion of the project was investigated. The remaining slope flattening from RP 4.6 to 8.0 was added to the project subsequent to the preliminary field review. Information contained within this report for this slope flattening area is based on a desk review of existing data.

Site #2: The second site is on State Secondary Route 227 RP 6.8+/- to RP 7.5+/- just south of Centerville. A combination of slope flattening and guardrail installation are proposed at this location.

CONTROL SURVEY

Level Datum Selection:
- ☐ Assumed
- ☐ As-built
- ☒ NAVD 1988

Horizontal Datum (x,y)
- ☒ 1) State Plane Coordinates (requires GPS control survey)
- ☐ 2) Local Datum (i.e., 10,000 10,000)
  Basis of Bearing: ☐ Solar ☐ As-built ☐ Other _____

Comments: _____

☒ **1) Digital Terrain Model/XYZ Survey** (Includes Geopak mapping requirements: ground shots, spot elevs., break lines, planimetric features, strip map, inverts, etc.)
☒ **Specify corridor width:** 150 feet each side of centerline
Comments: _____

☐ **2) Alignment/Cross Sections** (Special request; independent of DTM, staked, cross section interval and offsets, etc.)
Comments: _____

☒ **3) Utilities**
☒ **Locate all utilities by: Dept. Forces** ☒ **S.U.E. Forces** ☐
Comments/Exceptions: _____

☐ **Other non-utility underground information that should be provided by S.U.E.**
Comments: _____

☐ **Strip map with closed traverse and vertical control information will be available for S.U.E. by** _____

Utility/Other	Location	Survey Requirements (depth/height)
Gas		
Water		
Power	X	
Sanitary Sewer		
Fiber Optics	X	

NOTE: Please obtain any other utility not specifically identified above.

Control No.: UPN 6697

☒ **4) Existing Culvert Survey** (xyz, size, length, invert, type, end section, cleaning requirements, etc. for all culverts.)

☐ **5) Supplement to Photo Mapping** (Field check photogrammetric mapping, check cross sections, map editing, underground utilities, etc. pick up items.)
Pg. 5-24, Survey Manual

RIGHT-OF-WAY TIES:

Extent of existing R/W monumentation visible, comments: _____

☒ Tie Project BOP & EOP (With as-built stations)

☒ ROW, Property & Section Corners (Identified by R/W after PFR)
(R/W will supply the specific requests for which entities to tie; this will take approximately 30-45 days after PFR.)

Comments: _____

☐ **SOIL SURVEY** (Includes corrosive soil report, pipe condition, R-values.)

☐ Topsoil Report

Special Hydraulic Considerations

(Refer to Chapter 10, Survey Manual)

Contact Person: Kraig McLeod

I. WATERWAYS

Existing Bridge Site Survey ☐ yes ☒ no

Location: _____

Hyd-1: Section required - ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐all

River Cross-Sections - location & width: _____

DTM Mapping [extent, intervals]: (Strip map containing planimetric features, spot elevations, break lines, etc. for use in Geopak)

☐ Include topog. of existing (piers, abutments, low beam elev., etc.) _____

Comments: _____

Existing Large Culvert Site Survey ☐ yes ☒ no

(Hyd-1 not required when photo mapping is available.)

Location: _____

☐ length ☐ invert elevations

Hyd-1: Section required - ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐all

Comments: _____

Control No.: UPN 6697

II. IRRIGATION SURVEY: ☐ yes ☒ no

Location: _____

☐ length ☐ invert elevations

Hyd-1: Section required ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐all

Comments: _____

III. URBAN SURVEY: ☐ yes ☒ no

Location: _____

☐ **Supplemental DTM Mapping** (Strip map containing planimetric features, spot elevations, break lines, threshold elevs., width of corridor, etc. for use in Geopak.)

Comments: _____

Storm Drain Outfall/Location: _____

Comments: _____

IV. ADDITIONAL HYDRAULIC SURVEY REQUIREMENTS:

_____

Standard Disclaimer: Not all portions required on a typical survey can be included in this document. Typical users of this form should use judgement in determining any additional or extraordinary information required to fulfill the intent of this document. The Survey Manual should be used in conjunction with work types, project types and this form to portray a complete survey.

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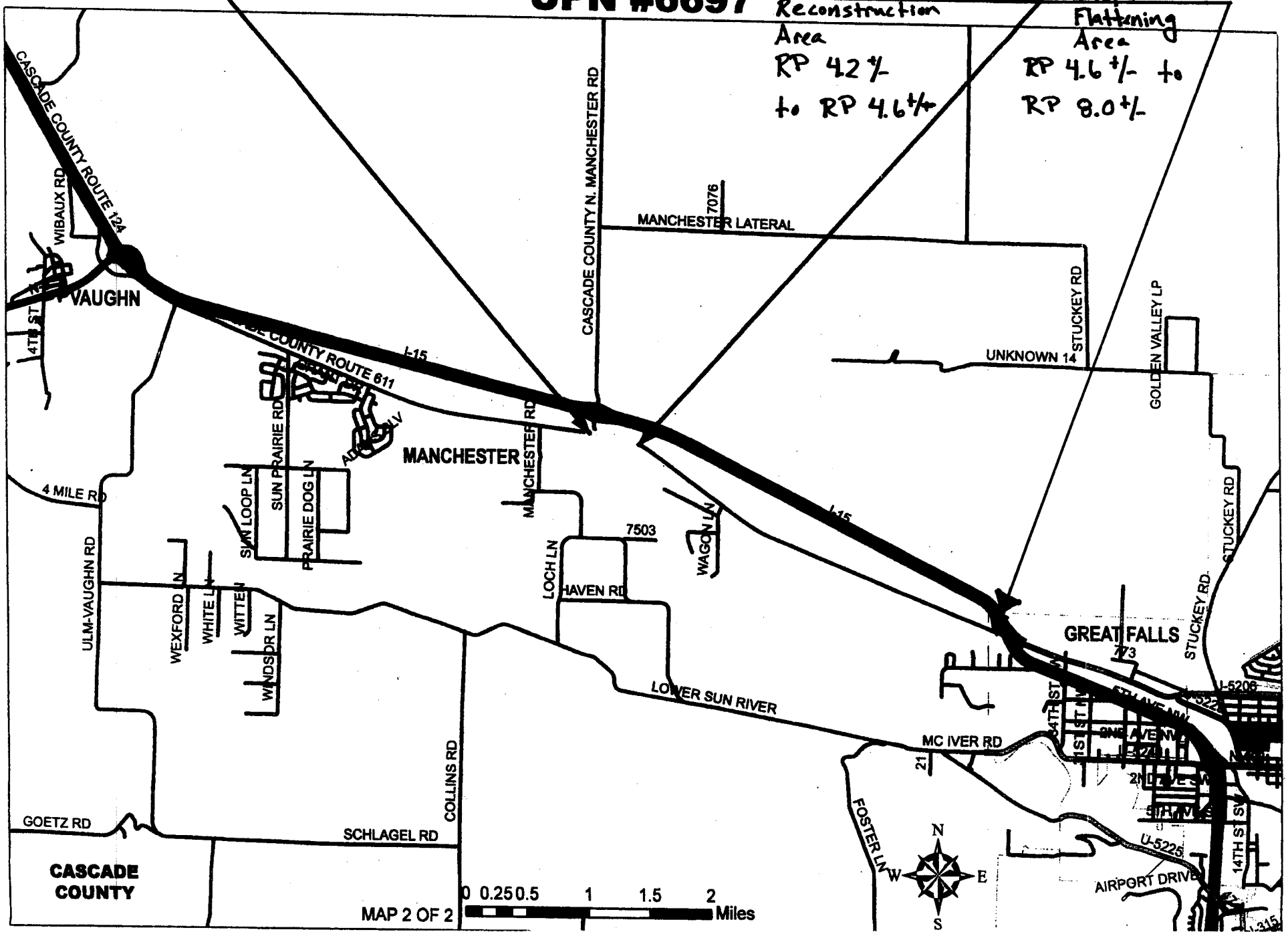
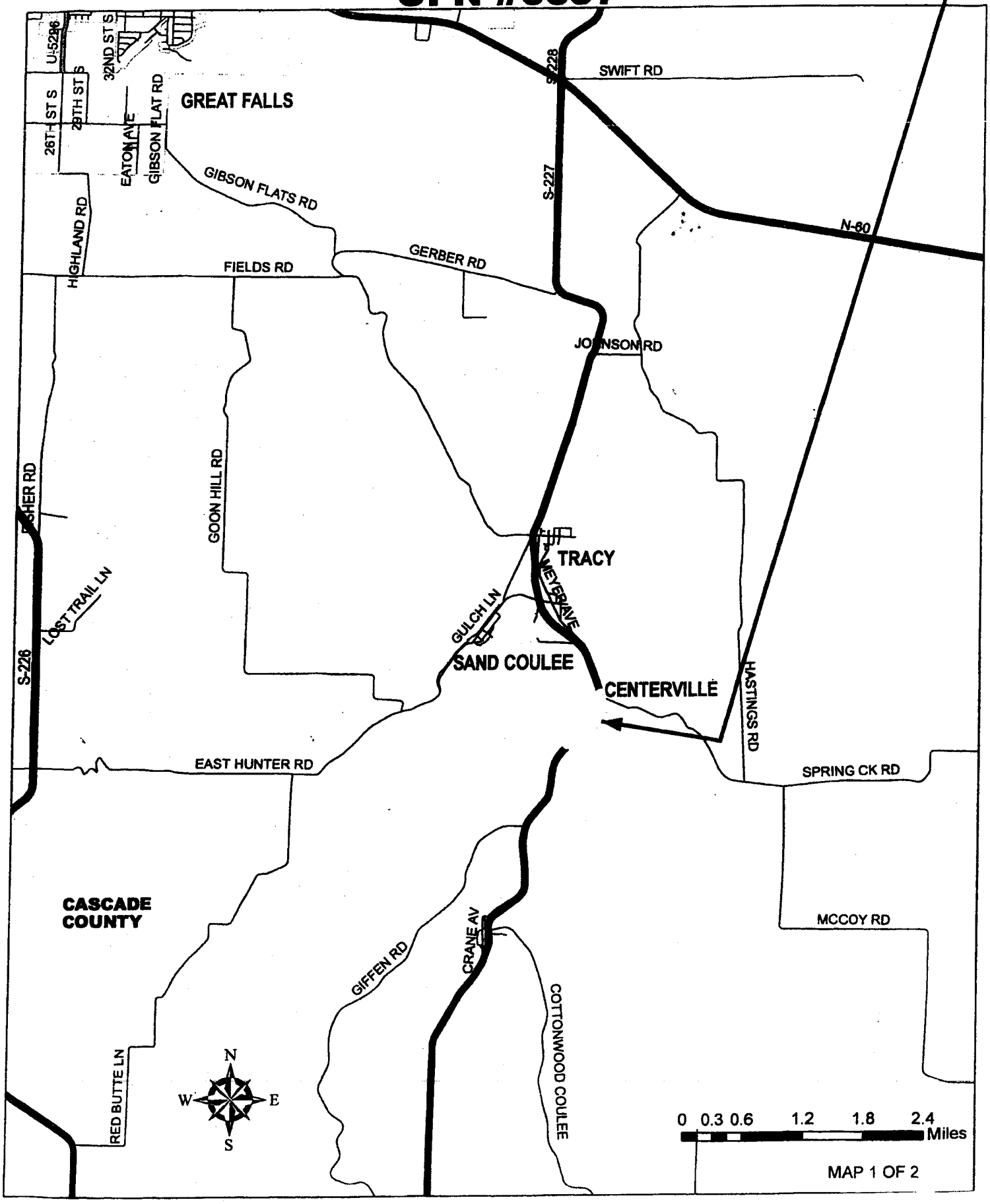
UPN #6697



SF089 VAUGHN FRTG GRDL SLP FLT
UPN #6697



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

Memorandum

To: James A. Walther, P.E.
Preconstruction Engineer

From: Duane E. Williams, P.E. 10-6-09
Traffic and Safety Engineer

Date: September 30, 2009

Subject: STPX-HSIP 7(51)
SF 089 Vaughn Frtg Grdl Slp Flt
UPN 6697000
Work Type 310: Roadway and Roadside Safety Improvements

We request that you approve this Project Split Report for this project.

Approved James A. Walther Date 10/9/09
Preconstruction Engineer

Distribution:
Mick Johnson, District Administrator
Kent Barnes, Bridge Engineer
Tom Martin, Environmental Services Bureau Chief
Duane Williams, Traffic and Safety Engineer
John Horton, Right-of-Way Bureau Chief
Lynn Zanto, Rail, Transit, & Planning Division Administrator
Jake Goettle, Construction Engineering Services Bureau
Matt Strizich, Materials Engineer
Jon Swartz, Maintenance Administrator
Paul Ferry, Highways Engineer

cc:
Dave Jensen, Fiscal Programming Section Supervisor
Kraig McLeod, Consultant Project Engineer
Lotse Chow Townsend, Helena Road Design - Great Falls
Consultant Design Bureau Project File

e-copies:
Jim Walther, Preconstruction Engineer
Lesly Tribelhorn, Highways Design Engineer
Mark Goodman, Hydraulics Engineer
Kurt Marcoux, District Hydraulics Engineer
Bonnie Gundrum, Env. Bureau Resources Sec. Sup.
Paul Sturm, District Biologist
Eric Thunstrom, District Project Development Engineer
Danielle Bolan, Traffic Engineer
Ivan Ulberg, District Traffic Project Engineer
Pierre Jomini, Safety Management Engineer
Jason Sorenson, Engineering Cost Analyst
Marty Beatty, Engineering Information Services
Paul Grant, Public Involvement Officer
Robert Vosen, Great Falls District Operations Engineer
Jake Goettle, Construction Bureau – VA Engineer
Steve Prinzing, District Preconstruction Engineer
Christie McOmber, District Projects Engineer
Stanley Kuntz, District Materials Lab
Dave Hand, Great Falls District Maintenance Chief
Walt Scott, R/W Utilities Section Supervisor
Jim Mullins, R/W Design Manager
Greg Pizzini, Acquisition Manager
Joe Zody, R/W Access Management Section Manager
Gary Larson, Project Analysis Bureau Chief
Sue Sillick, Research Section Supervisor
Jean Riley, Planner
Doug Wilmot, Great Falls District Construction Engineer

Introduction

The proposed project was originally nominated through the Safety Engineering Improvement Program to construct roadside safety enhancements at two sites. The initial programming of this project included slope flattening and guardrail improvements at both the Vaughn Frontage Road (RP 4.2 to 4.6) and Secondary 227 (RP 6.8 to 7.5) locations. During the PFR and subsequent meetings, the decision was made to reconstruct the Vaughn Frontage Road from RP 4.2 to 4.6 and flatten the slopes for the remainder of the corridor into the Emerson Junction (RP 8.0). Guardrail and/or slope flattening are proposed along Secondary 227.

Development of the project documents for the Vaughn Frontage Road is significantly different than the proposed improvements along Secondary 227. Splitting the sites into separate projects will allow individual schedules and should allow the development of the bid documents for the Secondary 227 to be completed much sooner than if the project sites remain tied together.

The following summarizes the locations of the project splits and the new project information:

- Vaughn Frontage Road - RP 4.2 to RP 8.0
  STPX-HSIP 7(51)
  SF 089 Vaughn Frtg Grdl Slp Flt
  UPN 6697000

- Secondary 227 - RP 6.8 to RP 7.5
  HSIP 227-1(16)7
  Safety Impr – S Centerville
  UPN 6697001

Preliminary engineering, right-of-way, and incidental construction costs will be funded with the UPN 6697000 project and HSIP funding. As discussed in following sections, safety funds (HSIP) will be utilized for the portion of the Vaughn Frontage road project from RP 4.2 to 4.6 and are capped at $860,000 (CN), including IDC. Primary funds will be utilized for the remainder of the project. Safety funds will be utilized to construct the improvements at the Centerville project site.

Proposed Scope of Work

The locations and proposed scope of work for each site are as follows:

Site #1: The first site is on the Vaughn Frontage Road (X-Route 07611) from RP 4.2 +/- to RP 8.0 +/-. Reconstruction of the roadway to correct geometric deficiencies is proposed from the beginning of the project at RP 4.2 +/- to 4.6 +/-. Slope flattening of the roadway will be completed along both sides of the corridor from RP 4.6 +/- to

the intersection of the southbound off ramp at the Emerson Junction interchange at RP 8.0 +/-. Safety funds and primary funds will be utilized for the portion of the project from RP 4.2 to 4.6 and are capped at $860,000, including IDC. Primary funds will be utilized for the funding shortfall in the reconstruction area. Primary funds will be utilized for construction of the slope flattening improvements from RP 4.6 to 8.0.

Site #2: The second site is on State Secondary Route 227 RP 6.8+/- to RP 7.5+/- just south of Centerville. A combination of slope flattening and guardrail installation are proposed at this location. Safety funds will be utilized to construct the improvements at this site.

The PFR for the project was recently completed. Development of the plans has not commenced. Figures depicting the locations of each site are attached.

Project Limits

Site #1: The first site is on the Vaughn Frontage Road (X-Route 07611) from RP 4.2 +/- to RP 8.0 +/-. Reconstruction of the roadway to correct geometric deficiencies is proposed from the beginning of the project at RP 4.2 +/- to 4.6 +/-. Slope flattening of the roadway will be completed along both sides of the corridor from RP 4.6 +/- to the intersection of the southbound off ramp at the Emerson Junction interchange at RP 8.0 +/-.

Site #2: The second site is on State Secondary Route 227 RP 6.8+/- to RP 7.5+/- just south of Centerville. A combination of slope flattening and guardrail installation are proposed at this location.

Major Design Features

Splitting the sites into two projects will not affect any of the major design features described in the PFR report.

Work Zone Safety and Mobility

Site #1: At this time, Level 2 construction zone impacts are anticipated for the Vaughn Site as defined in the Work Zone Safety and Mobility (WZSM) guidance. The plans package will include a Traffic Management Plan (TMP) consisting mainly of a Traffic Control Plan (TCP). A limited Traffic Operations (TO) component and/or a Public Information (PI) component may also be included. The reconstruction area will require more extensive traffic control. Depending on the final geometric configuration, consideration may be given to detouring vehicles onto I-15 and closing the frontage road for appropriate phases of the reconstruction.

Site #2: Level 3 construction zone impacts are anticipated at the Centerville Site. The plans package will include a Traffic Management Plan (TMP) consisting mainly of a Traffic Control Plan (TCP). A Traffic Operations (TO) component or a Public Information (PI) component will not be included.

Intelligent Transportation Systems (ITS) Features

No ITS features will be affected by the project split.

Materials

No additional Materials involvement will be necessary as a result of the project split.

Geotechnical

No additional Geotechnical involvement will be necessary as a result of the project split.

Grading

No impacts to the project grading will result from the project split.

Hydraulics

No additional Hydraulic involvement will be necessary as a result of the project split.

Bridge

No Bridge involvement is anticipated at either site.

Traffic

No additional Traffic involvement will be necessary as a result of the project split.

Special Provisions

No special provisions have been developed for this project to-date. It is anticipated a number of provisions will apply to both phases; however, two independent plan sets and special provisions will be developed.

Environmental

The anticipated level of environmental documentation is a Categorical Exclusion (CatEx). A separate environmental document will be prepared for each project site.

Right of Way

Site #1: Depending on the limits of the reconstruction and slope flattening, new right-of-way may be necessary along the Vaughn frontage road corridor.

Site #2: A CTEP path exists on the east side of Secondary 227 for most of the project length. This path will not be impacted by the project. No right-of-way is anticipated at this site for construction of the slope flattening.

Utilities/Railroads

No additional Utilities/Railroad involvement will be necessary as a result of the project split.

Survey

No additional Survey will be necessary as a result of the project split.

Design Exceptions

No design exceptions have been identified or are anticipated as a result of the project split.

Public Involvement

Level A public involvement will be completed for this project. A separate news release explaining both projects including a Department point of contact will be provided.

Cost Estimate

The following table summarizes the projected construction costs for the Vaughn Frontage Road corridor (Site #1).

Vaughn Frontage - Guardrail Slope Flattening STPX-HSIP 7(51); UPN 6697000 Estimate for Reconstruction from RP 4.2 to RP 4.6, Slope Flattening from RP 4.6 to 8.0 HSIP Capped at $860,000, Remainder STPP		
	w/o IDC	w/ IDC 17.48%
Roadwork	$337,000	
Earthwork	$256,000	
Gravel Shoulders	$450,000	
Signing/Pavement Markings	$16,000	
Traffic Control	$50,000	
Miscellaneous	$40,000	
Subtotal	$1,149,000	
Mobilization - 10%	$114,900	
Subtotal	$1,263,900	
Contingency - 15%	$189,585	
Subtotal	$1,453,485	
Inflation - 3.5% for 3 Years	$158,020	
Total CN	$1,611,505	$1,893,196
CE - 15%	$241,726	$283,979
Total	**$1,853,231**	**$2,177,175**

The following table summarizes the projected construction costs for the slope flattening along Secondary 227 (Site #2).

Safety Improvements - S Centerville HSIP 227-1(16)7; UPN 6697001 Estimate for Slope Flattening Secondary 227 from RP 6.8 to RP 7.5 - HSIP Funding		
	w/o IDC	w/ IDC 17.48%
Earthwork	$20,000	
Guardrail	$48,000	
Signing/Pavement Markings	$2,000	
Traffic Control	$10,000	
Miscellaneous	$5,000	
Subtotal	$85,000	
Mobilization - 10%	$8,500	
Subtotal	$93,500	
Contingency - 15%	$14,025	
Subtotal	$107,525	
Inflation - 3.5% for 3 Years	$11,690	
Total CN	$119,215	$140,054
CE - 15%	$17,882	$21,008
Total	**$137,097**	**$161,062**

Ready Date

The current ready date for the combined project is April 2012. Following the approval of this split report, new schedules will be developed or verified for each site. It is anticipated the planned finish for the Secondary 227 slope flattening (Site #2) will be sooner than the current ready date.

Agreement/MOU's

No modifications to project specific agreements or MOU's will be necessary because of the project split.

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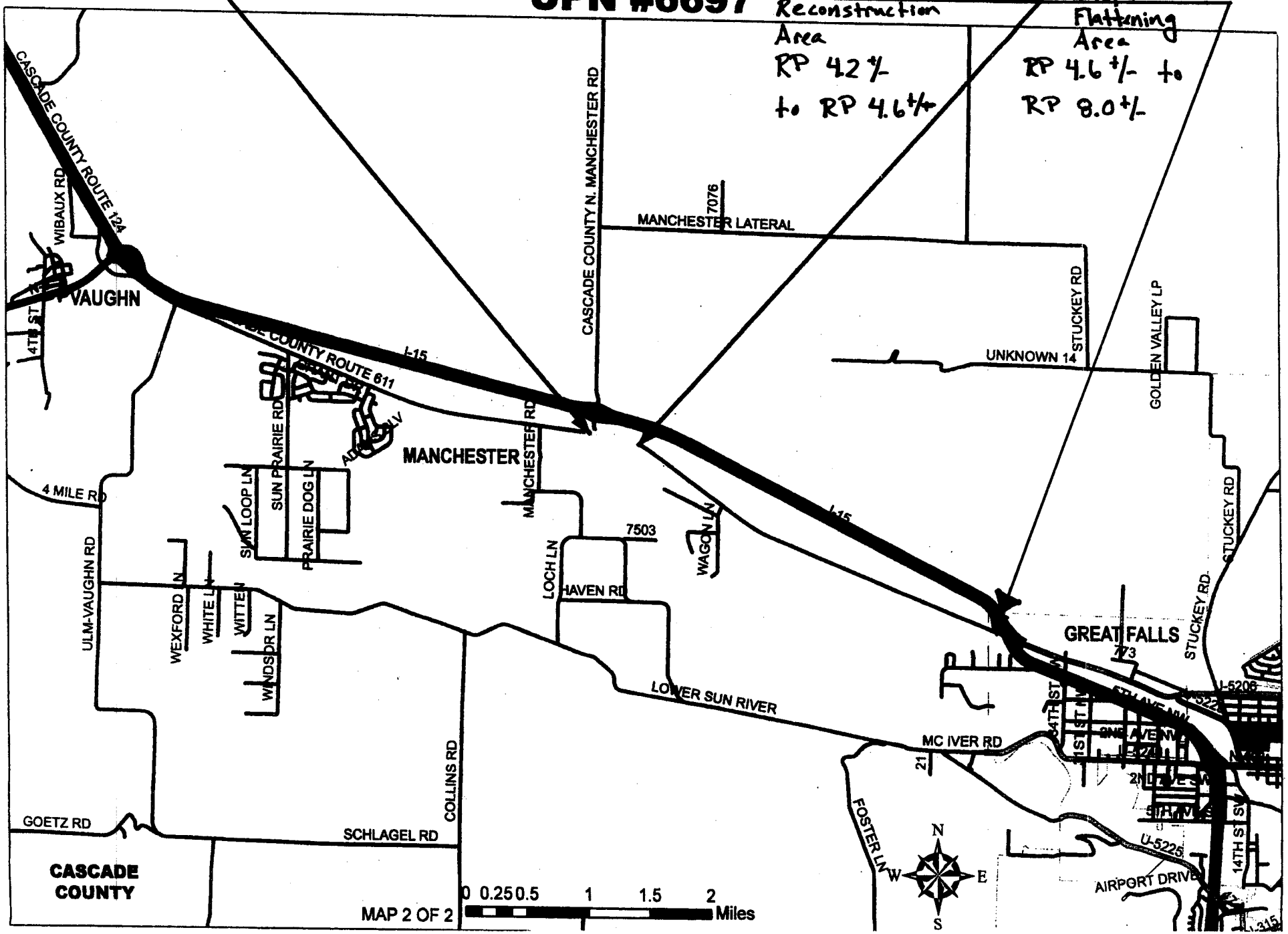
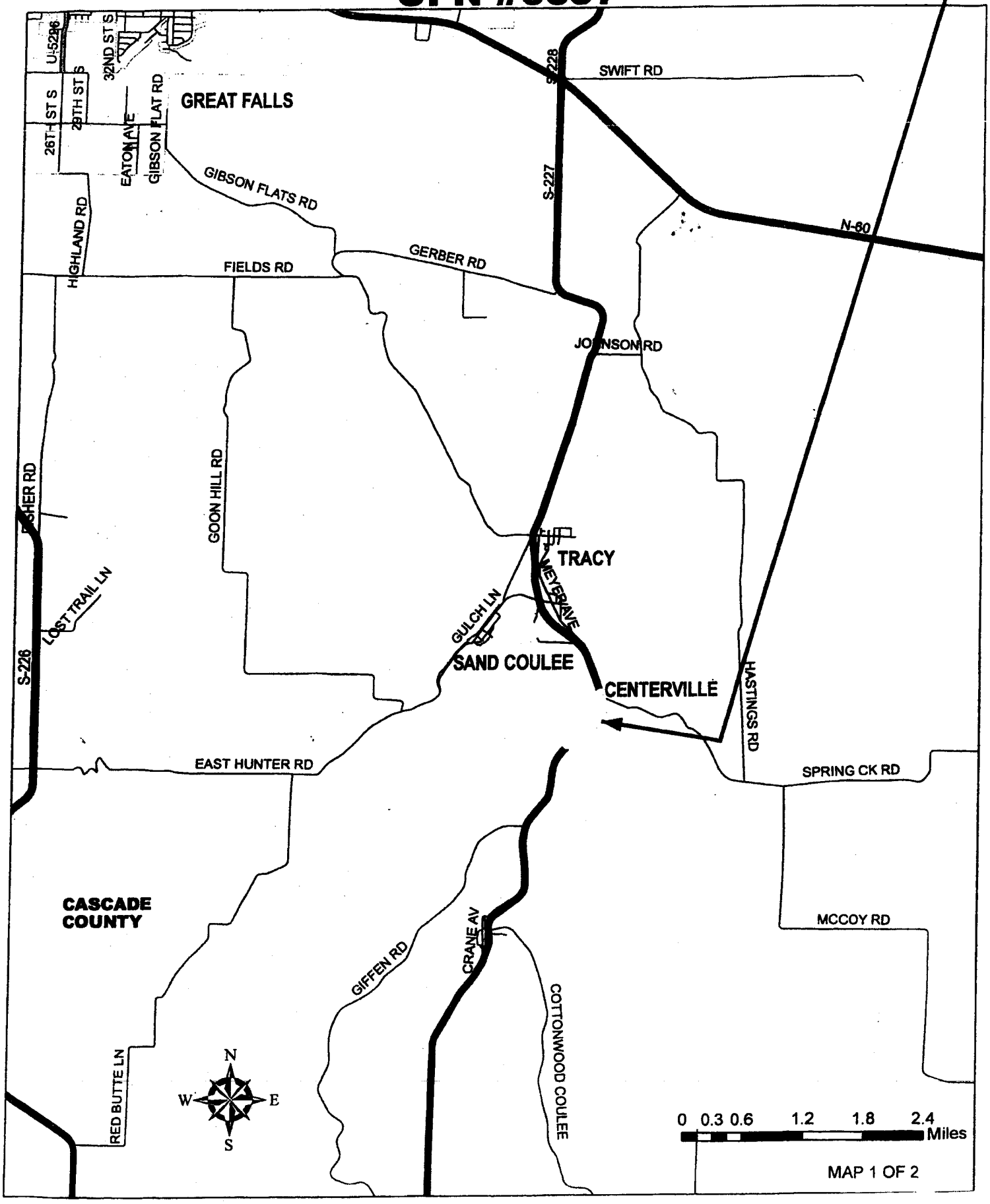
UPN #6697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UPN #6697