Montana Department of Transportation
2701 Prospect Avenue
PO Box 201001
Helena MT 59620-1001

Jim Lynch, Director
Brian Schweitzer, Governor

September 29, 2010

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FHWA
MONTANA DIVISION

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

Subject: **Programmatic Categorical Exclusion (PCE) Concurrence Request**
STPU 5201(18)
Smelter Ave-3rd St.-Div Rd-GTF
Control Number: 6442000

MASTER FILE COPY

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 Alignment and Grade Review Report, dated May 13, 2010, 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: 9/29/10
Eric Thunstrom
Environmental Services Bureau
Great Falls District Project Development Engineer

Concur Heidy Bruner Date: 9/29/10
Heidy Bruner, P.E.
Environmental Services Bureau
Engineering Section Supervisor

Concur Date: 30 SEP 10
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
Rob Stapley	Right-of-Way Bureau Chief
David W. Jensen	Fiscal Programming Section Supervisor
Christie McOmber, P.E.	Great Falls District Projects 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: Paul R. Ferry, P.E.
Highways Engineer

From: Christie W. McOmber, P.E. CWM
Great Falls District Project Manager

Date: May 13, 2010

Subject: STPU 5201(18)
Smelter Ave - 3rd St - Div Rd - GTF
UPN: 6442000
Work Type: 140 Reconstruction – without added capacity

Please Approve the Alignment and Grade Review for this project.

Approved *Signed by Lesly Tribelhorn for* Paul R. Ferry, P.E.
Highways Engineer

Date *5/13/2010*

We are requesting comments from the below distribution. If no comments are received within two weeks of the release date we will assume concurrence.

Distribution:
Michael Johnson, District Administrator
Tom Martin, Environmental Services Bureau Chief
Duane Williams, Traffic and Safety Engineer
Lynn Zanto, Rail, Transit, & Planning Division Administrator
Jake Goettle, Construction Engineering Services Bureau
Matt Strizich, Materials Engineer
Rob Stapley, Right-of-Way Bureau Chief

cc:
Damian Krings, Road Design Engineer
Dustin Rouse, Road Design Area Eng. – GTF
Dave W. Jensen, Fiscal Programming Section Supervisor
Andrew Finch, City-County Planning Department, P.O. Box 5021, Great Falls MT 59403
Dave Dobbs, City of Great Falls, PO Box 5021, Great Falls, MT 59403
Jim Rearden, City of Great Falls, P.O. Box 5021, Great Falls MT 59403

e-copies:
Jim Walther, Preconstruction Engineer
Lesly Tribelhorn, Highways Design Engineer
Mark Goodman, Hydraulics Engineer
Kurt Marcoux, District Hydraulics Engineer
Bonnie Gundrum, Env. Res. Section Supervisor
Paul Sturm, District Biologist
Eric Thunstrom, G.F. District Environmental Eng.
Danielle Bolan, Traffic Engineer
Ivan Ulberg, G.F. District Traffic Project Engineer
Pierre Jomini, Safety Management Engineer
Jon Watson, Pavement Engineer
Dan Hill, Pavement Design Engineer
Lee Grosch, District Geotechnical Manager
Bryce Larsen, Supervisor, Photogrammetry & Survey
Marty Beatty, Engineering Information Services
Paul Grant, Public Involvement Officer
Jason Sorenson, Engineering Cost Analyst
Jake Goettle, Construction Bureau – VA Engineer
Walt Scott, R/W Utilities Section Supervisor
Amanda Brown, Acting R/W Design Manager
Greg Pizzini, Acquisition Manager
Joe Zody, R/W Access Management Section Manager
Gary Larson, Project Analysis Bureau Chief
Susan Sillick, Research Section Supervisor
Alice Flesch, ADA Coordinator
Mark Keeffe, Bicycle/Pedestrian Coordinator
Steve Prinzing, District Preconstruction Engineer
Jerilee Weibel, District R/W Supervisor
Christie McOmber, District Projects Engineer
Doug Wilmot, G.F. District Construction Engineer
Dennis Ghekiere, District Utility Agent
Jean Riley, Planner
Stan Kuntz, G.F. District Materials Lab

Introduction

This report developed from information taken from the alignment and grade field review conducted on March 12, 2010 with the following personnel in attendance:

Mick Johnson	District Administrator	MDT- Great Falls
Dave Hand	Maintenance Chief	MDT- Great Falls
Steve Prinzing	District Preconstruction Engineer	MDT- Great Falls
Jerilee Weibel	District Right-of-Way Supervisor	MDT- Great Falls
Christie McOmber	District Projects Engineer	MDT- Great Falls
James Combs	District Traffic & Safety Engineer	MDT- Great Falls
Jeania Cereck	District Design Supervisor	MDT- Great Falls
Brendan Scott	Project Designer	MDT- Great Falls
Dennis Ghekiere	District Utilities Agent	MDT- Great Falls
Kas Manderle	District Construction	MDT- Great Falls
Kurt Marcoux	Great Falls District Hydraulics Engineer	MDT- Helena
Doug Compton	Environmental	MDT- Helena
Dustin Rouse	Great Falls Road Design Area Engineer	MDT- Helena
Darcy O'Dell	Traffic Geometrics	MDT- Helena
Bob Weber	Butte Construction Reviewer	MDT- Helena
Dave Dobbs	Engineering	City of Great Falls
Jim Rearden	Public Works	City of Great Falls
Andrew Finch	Planning	City of Great Falls

Scope of Work

The proposed project has been nominated for reconstruction. The intent of the project is to improve traffic operations and safety by the addition of a roundabout and turn lanes. The proposed work includes new asphalt surfacing, new sidewalk and ADA ramps, and improved intersection geometry. The project will require acquisition of new right-of-way and relocation of utilities.

Project Location and Limits

A. The project is located within the Great Falls City Limits in Cascade County on Urban Route 5201 along Smelter Avenue between Division Rd. and 3rd St. NW. The functional classification of U-5201 is Urban Minor Arterial and the project has been designed to the geometric design criteria of an Urban Minor Arterial (Non-NHS). The project begins at RP 2.98 (Sta. 11+27.09) at the intersection with 1st St. NW and proceeds East along Smelter Ave. for approximately 0.47 miles ending at RP 3.43 (Sta. 34+81.60) at the intersection with 3rd St. NW.

B. This project will also include funding from the City of Great Falls MACI set aside for intersection improvements at the Division and Smelter intersection. It includes the Division Rd. and Smelter Ave. intersection and approximately ½ block to 1 block in each direction as required for intersection improvements. The dual-funded (MACI and URBAN) project was reviewed as a single project and will be designed conjointly.

C. This project primarily lies in Township 21 North, Range 3 East, Section 35.

D. As-builts are not available for this project.

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 Operations (TO) component and a limited Public Information (PI)

component to address closures and wide load detours 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

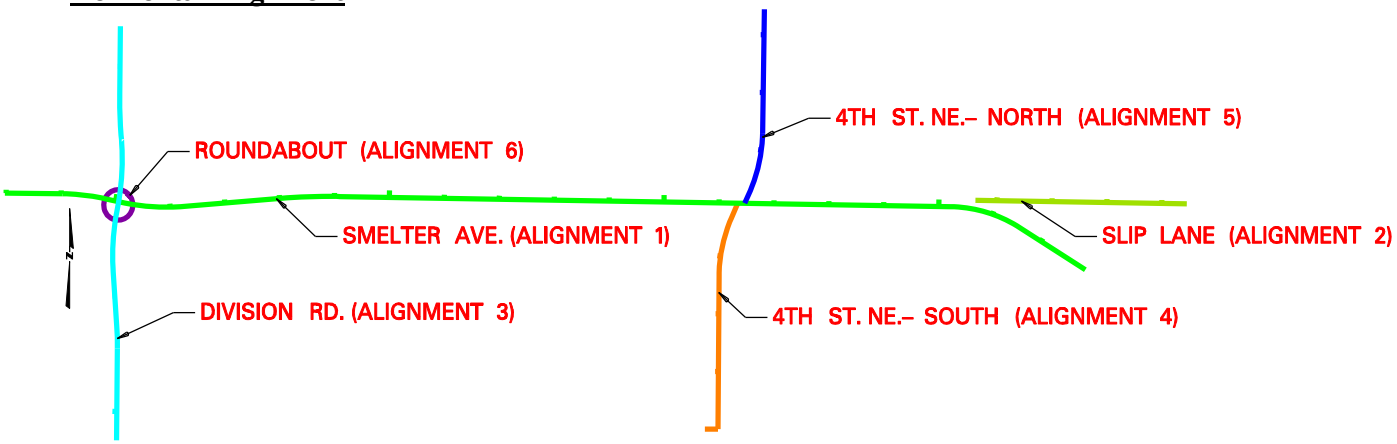
A. This project is located in level terrain within an urban area. The adjacent land is used for both commercial and residential property.

B. This project consists of a two-lane roadway running west and east along Smelter Ave. from just east of the intersection with 1st St. NW to the intersection with 3rd St. NW. According to the road log, between RP 2.98 and RP 3.43 the finished top width is 25' with 12' driving lanes and 0.5' shoulders. Also included in this project is the intersection of Smelter Ave. and Division Rd. where a roundabout is proposed.

C. A signal warrant study for the Smelter Ave. and Division Rd. intersection has been completed and it recommends geometric improvements in conjunction with a signal or roundabout. The Department feels a roundabout is the best option at this time due to the uneven volumes, the proximity to existing signals, business access, right of way constraints, construction costs, long-term maintenance costs, and aesthetics. Additionally, a roundabout has improved capacity over a signal and accident potential is reduced by eliminating conflict points.

D. The City of Great Falls updated the Overall Condition Index and Rating data for this area on December 15, 2004. The information in this report was limited to only an overall condition index rating of 60.64. However, it was noted in discussion with the City of Great Falls that this segment of Smelter Ave. has deteriorated significantly since this inspection was done.

Horizontal Alignment



A. The proposed horizontal alignment along Smelter Ave. closely follows the existing horizontal alignment since this project is located in an urban area with limited right-of-way in the City of Great Falls. However, the proposed alignment will deviate slightly from the existing alignment where Smelter Ave. intersects Division Rd. to allow for new intersection geometry.

B. This project contains six horizontal alignments: Smelter Ave. (alignment 1), Slip Lane (alignment 2), Division Rd. (alignment 3), 4th St. NE. - South (alignment 4), 4th St. NE. - North (alignment 5), and the roundabout (alignment 6). Alignments one through six are detailed below. According to the design manual, if the project design speed is $\leq$ 35 mph and conditions warrant, low-speed urban conditions may be used. The minimum curve radius and superelevation rate for low-speed urban areas with a design speed of 35 mph is 371' and 4% respectively.

1. There are four horizontal curves and two angle points in Alignment 1 (Smelter Ave.) as detailed below; all four curves are designed to Low-Speed Urban Streets Criteria.

    a. Angle point one is located at station 9+99.98 and has a 0.4° deflection angle.

    b. Angle point two is located at station 13+50.03 and has a 0.5° deflection angle.

    c. Curve one is a 400' simple curve to the right. The PI for curve one is located at station 14+42.19. Using 35 mph Low-Speed Urban Streets criteria, curve one will have a normal crown superelevation rate. Most of curve one exists inside of the proposed roundabout and is used to shift the center of the roundabout South to avoid excessive impacts to developed properties on the North side of the proposed roundabout.

    d. Curve two is a 400' simple curve to the left. The PI for curve two is located at station 15+68.45. Using 35 mph Low-Speed Urban Streets criteria, curve two will have a normal crown superelevation rate. Most of curve two exists inside of the proposed roundabout and is used to shift the main alignment back north as it exits the proposed roundabout to avoid excessive impacts to developed properties on the North and South side of the proposed alignment since the overall width of the roadway is increasing from 25' to 43'.

    e. Curve three is a 1,200' simple curve to the right. The PI for curve three is located at station 18+52.31. Using 35 mph Low-Speed Urban Streets criteria, curve three will have a normal crown superelevation rate.

    f. Curve four is a 250' simple curve to the right. The PI for curve four is located at station 30+89.91. Using 35 mph Low-Speed Urban Streets criteria, curve four will have a 2% superelevation rate. Curve four will connect Smelter Ave. to 3rd St. NW. The radius for curve four doesn't meet the minimum standards at 35 mph, but does at 30 mph. Since this curve is used to tie Smelter Ave. into 3rd St. NW it cannot be increased without increasing the skew angle from 3rd St. NW. A design exception may be necessary, even though this is a signal-controlled intersection with low speed vehicles

2. There are no horizontal curves in Alignment 2 (Slip Lane). Alignment 2 consists of one tangent section that will tie 3rd St. NW. with Smelter Ave.

3. There are four horizontal curves in Alignment 3 (Division Rd.); all four are designed to Low-Speed Urban Streets Criteria. The four curves are detailed below:

    a. Curve one is a 500' simple curve to the left. The PI for curve one is located at station 51+28.51. Using 35 mph Low-Speed Urban Streets criteria, curve one will have a normal crown superelevation rate. Curve one is used to shift the alignment along Division Rd. to the west as it enters into the proposed roundabout.

    b. Curve two is a 400' simple curve to the right. The PI for curve two is located at station 52+93.54. Using 35 mph Low-Speed Urban Streets criteria, curve one will have a normal crown superelevation rate. Most of curve two exists inside of the proposed roundabout and is used to shift the center of the roundabout East to avoid excessive impacts to developed properties on the north side of the proposed roundabout.

    c. Curve three is a 400' simple curve to the left. The PI for curve three is located at station 54+18.22. Using 35 mph Low-Speed Urban Streets criteria, curve three will have a normal

crown superelevation rate. Most of curve three exists inside of the proposed roundabout and is used to shift the alignment east as this alignment exits the roundabout to avoid excessive impacts to developed properties on the east and west side of the proposed alignment.

d. Curve four is an 800' reverse curve to the right. The PI for curve four is located at station 55+12.32. Using 35 mph Low-Speed Urban Streets criteria, curve four will have a normal crown superelevation rate.

4. There is one horizontal curve in Alignment 4 (4th St. NE.- South); and it will be designed to Low-Speed Urban Streets Criteria. Curve one is detailed below:

   a. Curve one is a 250' simple curve to the right. The PI for curve one is located at station 63+17.04. Using 35 mph Low-Speed Urban Streets criteria, curve one will have a normal crown superelevation rate. Curve one will shift the south side of the intersection at 4th St. NE. east and will alleviate the angled crossing between the south side of 4th St. NE. and the north. This short curve aligns the north and south legs of the intersection with the least impact to the adjacent properties. A design exception may be necessary even though this curve is on a connection and is in a low-speed stop-controlled intersection on a city street.

5. There is one horizontal curve in Alignment 5 (4th St. NE.- North); and it will be designed to Low-Speed Urban Streets Criteria. Curve one is detailed below:

   a. Curve one is a 250' simple curve to the left. The PI for curve one is located at station 64+78.98. Using 35 mph Low-Speed Urban Streets criteria, curve one will have a normal crown superelevation rate. Curve one will shift the north side of the intersection at 4th St. NE. west and will alleviate the angled crossing between the north side of 4th St. NE. and the south. A design exception may also be required.

6. Alignment 6 (Roundabout) is a circular chain and controls the alignment of the roundabout itself. The alignment runs along the top back of the curb and gutter located in the middle of the proposed roundabout. The circular alignment has a 24' radius and will have a 2% super elevation from the middle out, thus draining the water to the outer edges of the roundabout.

Vertical Alignment

A. The proposed vertical alignment will follow the existing ground profile as closely as possible with the intent to reduce the amount of impacts to existing right-of-way. The Smelter Ave. and Division Rd. intersection will receive improved intersection geometry by adding a roundabout. In order to tie in the four legs of the roundabout without major impacts to the surrounding developments on the north side of the intersection the proposed vertical alignment at the roundabout has been dropped, thus lowering the elevation of the intersection slightly. In effect, the roundabout will be the grade control for the two Smelter Ave. approach legs and two Division Rd. approach legs into and out of the proposed roundabout.

   A grade control issue currently exists at the intersection of Smelter Ave. and 4th St. NE. This intersection is also receiving improved intersection geometry by realigning the north and south legs so that they intersect Smelter Ave. at a better angle and line up across from each other. Re - aligning the North and South legs of 4th St. NE. will make the intersection safer and more efficient.

B. Using Urban Minor Arterial 2-lane criteria in a level area, the maximum grade going into or coming out of a vertical curve with a design speed of 40 mph is 7%. The minimum k – value for crest and sag curves are 44 and 64 respectively.

C. Some geotechnical involvement is anticipated since moisture sensitive soils exist throughout the project which may require some special subgrade treatments.

D. The proposed vertical alignments have gradients that vary throughout the project. As is the case with the horizontal alignment, there are six separate vertical alignments: Smelter Ave. (alignment 1), Slip Lane (alignment 2), Division Rd. (alignment 3), 4th St. NE. – South (alignment 4), 4th St. NE. – North (alignment 5), and the roundabout (alignment 6). These vertical alignments and their proposed shifts are detailed below.

1. The minimum and maximum grades along alignment 1 are -0.4% and -2.872%.

   Alignment 1(Smelter Ave.) consists of two sections, an approach leg entering the roundabout from the West and an extended approach leg exiting the roundabout to the East. The approach leg that enters the roundabout begins with a -0.4% grade and transitions to a -0.8273% in a 150' vertical curve. The approach leg that exits the roundabout has a gradient of -2.872%. The low point of the asymmetrical sag curve at station 20+40.40 is located at station 22+87.72 with a -2.872% coming in and a 0.4% going out. The two K - values of 131.0 and 256.7 meet standards for 40 mph criteria. A second crest curve is located at station 25+40.40 with a 0.4% coming in and a -0.447% going out. The K- value of 354.2 meets standards for 40 mph criteria. The -0.447% gradient continues East along Smelter Ave. until it ties into 3rd St. NW. This rolling profile was added based on A&G comments to assist in improving drainage flow.

2. Alignment 2 (Slip Lane) consists of single tangent section with a gradient of 0.255%.

   The 0.255% gradient does not meet minimum hydraulic standards required for drainage in an urban section. However, since the east end of this tangent section ties into 3rd St. NW. at a specific elevation and the west end also ties into Smelter Ave. at a specific elevation, steepening this grade without causing significant impacts to the developed properties along the North side of Smelter Ave. will prove to be very difficult. Every attempt during the design process will be made to reach the minimum curb & gutter grade of 0.4% along this alignment, whether by rolling the curb & gutter profiles or modifying the Slip Lane's profile itself.

   Drainage from properties to the north of this alignment will flow south onto the Slip Lane's alignment at which point the two will combine and flow either east or west to a designed low point. Final recommendations will be provided by the Hydraulics section for drop inlet locations.

3. The minimum and maximum grades along alignment 3(Division Rd.) are 1.281% and 5.973%.

   Alignment 3 consists of two sections, an approach leg entering the roundabout from the South and an approach leg exiting the roundabout to the North. The approach leg that enters the roundabout has a gradient of 2.868% and the approach leg that exits the roundabout has a gradient of 2.237%. The low point of the sag curve at station 49+35.40 is located at station 47+85.40 with a 1.444% coming in and a 5.973% going out. The K – value of 66.2 meets standards for 40 mph criteria.

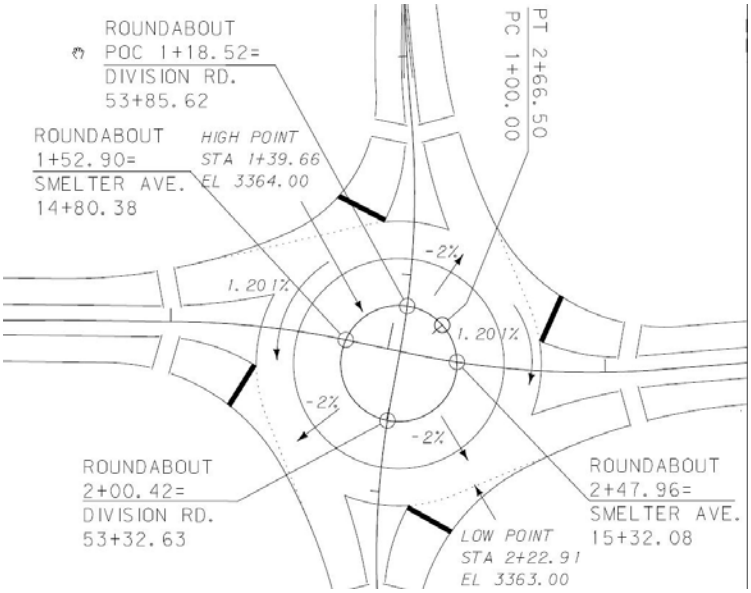
4. The minimum and maximum grades along alignment 4 (4th St. NE. – South) are 2.978% and 3.571%.

   Alignment 4 is an approach leg that runs north along 4th St. NE. where it will tie into Smelter Ave. (alignment 1). Alignment 4 contains two vertical curves. Curve one is located at station

61+10.20 with a 2.978% gradient coming in and a 3.571% gradient going out. The K-value of 253.0 meets standards for 40 mph criteria. Curve two is located at station 62+67.00 with a 3.571% gradient coming in and a 2.987% gradient going out at which point alignment 4 will tie into Smelter Ave. The tie in will be designed to standard criteria for public approaches according to the road design manual. The manual states that public approaches shall have 75' landings with +/- 3% gradients.

5. Alignment 5 (4th St. NE. – North) consists of single tangent section that will tie into Smelter Ave. on a gradient of 2.564%.

6. Alignment 6 (Roundabout) controls the vertical profile of the roundabout itself. The alignment runs along the top back of the curb and gutter located in the middle of the proposed roundabout. Since the roundabout is a perfect circle, there will be a single high point along the alignment so that all water that enters the roundabout will drain to the low point at which a new drop inlet will be placed. Currently, the high point of alignment 6 is located at station 1+39.66 where the water will flow on a -1.201% gradient in both directions to the proposed low point at station 2+22.91. The vertical grades on the roundabout are designed to facilitate hydraulic needs with a designed low point. In an extreme event, some drainage may shed down the south leg. Hydraulic recommendations will be finalized prior to Plan-in Hand.



Surfacing and Typical Section

A. The final surfacing design sections are based on 2008 traffic data projecting 55 ESALs. Recommendation design life is 20 years in accordance with MDT and AASHTO design procedures. The surfacing section's recommendations are detailed below.

Surfacing Section No. 1
0.40' Plant Mix Surfacing
1.05' Crushed Aggregate Course
1.45'

Surfacing Section No. 2
0.75' Portland Cement Concrete Pavement
0.50' Crushed Aggregate Course
1.25'

B. PG binder was determined as per April 7, 2005 Materials Bureau policy memorandum. 64-28 PG binder and ¾" aggregate were recommended. R- Values representing sub-grade soils were used to

determine surfacing thicknesses.

C. Based on the estimated quantity of asphalt, Commercial Grade Plant Mix will be used on this project.

D. There are moisture sensitive soils (A-7) with moderate to high natural moisture contents present throughout the subgrade. Special provisions and construction details will likely be included into the plans package.

E. Typical section widths vary according to which alignment they are associated. In general, lanes are 12' wide, median widths vary from 4' to 12', and shoulders vary from 2' to 14'.

F. A traffic study was completed in December of 2008 and recommends a 14' two way left turn lane (TWLTL) be added to Smelter Ave. based on AADT counts, design year AADT information, and a heavy concentration of approaches along the project. The TWLTL has been designed into the project as well as dedicated turn lanes at the intersections.

G. New curb & gutter and sidewalk with ADA facilities are proposed throughout the project. A 10' wide separated shared use Bike/PED path will be provided along Smelter Ave. from the intersection of Smelter Ave. and Division RD. to where Smelter Ave. ties into 3rd St. NW. The City of Great Falls has recommended that the separated shared use path be located on the South side of Smelter Ave. A 10' wide sidewalk with a 5'-10' wide boulevard will run along the north and south side of Smelter Ave. from the intersection of Smelter Ave. and Division Rd. to where Smelter Ave. ties into 3rd St. NW. The connection legs of Division Rd. and 4th St. NE. will also have new curb & gutter and 5' sidewalk. The southwest and southeast quadrants of the roundabout will have 10' wide sidewalk with an 8'-10' wide landscaped Boulevard.

H. According to the Geometric Design Criteria for urban minor arterials, 6:1 fill slopes and 5:1 back slopes will be utilized on this project.. Every attempt will be made to construct the new slopes to standard criteria.

Grading

A. Preliminary earthwork runs have revealed 5,505 CUYD of excavation and 5,341 CUYD of fill. According to these figures, grading on this project will be paid for as street excavation. Street excavation is the preferred option and will be used even if the balance shifts and the embankment quantities exceed the excavation quantities.

B. Geotech needs to explore the condition of the existing subgrade and make recommendations regarding digouts or edge drains.

Hydraulics

A. The Location Hydraulics Study Report was developed in July of 2008. The existing storm drain trunk line has been verified by the City of Great Falls to be in good condition and the increase in peak flow rate over existing conditions is not expected to affect the capacity of the existing storm drain trunk line. The intent with this project will be to utilize the existing storm drain trunk line in place and connect new, adjusted, and relocated inlets to the existing trunk line. Utilizing the existing storm drain trunk line will be included in the MOU between MDT and the City of Great Falls. Hydraulics approved rolling the profile to reach minimum 0.4 % grades for drainage.

B. This project is not located within a delineated floodplain and a floodplain permit will not be required.

C. There are no irrigation crossings along this project. The addition of landscaping or other urban amenities such as grass boulevard areas may require sprinkler systems.

Bridges

No bridges exist within the project limits. No bridge issues will be addressed with this project.

Traffic

A. The Traffic section has evaluated possible design alternatives along Smelter Ave. The intersection of Smelter Ave. and Division Rd. as well as the intersection of Smelter Ave. and 4th St. NE. were evaluated. Lane configuration and intersection treatments were recommended in the traffic study and are detailed below.

1. According to the Traffic Engineering Manual, existing roadways that have 2 lane configurations should have a TWLTL added if the AADT is greater than 5,000 vehicles per day and when they have a high number of approaches per mile. The traffic study notes that Smelter Ave. between Division Rd. and 4th St. NE. has 15 approaches over approximately 0.3 miles, which equates to 50 approaches per mile. Due to high peak hour volumes and a high density of approaches, a 14' wide TWLTL has been designed into the project, based on Traffic's recommendations.

2. A signal warrant study was done by MDT to determine whether the eight hour traffic volume criteria is being met at the intersection of Smelter and Division Ave. It was concluded that the eight-hour traffic warrant was being met, but only during the season that school is in session. A roundabout has been design at this location based on Traffic's recommendation. The roundabout design has the least delay of any intersection traffic control analyzed. All four legs at this intersection could operate at a LOS A during any of the periods analyzed. A roundabout design would also make this intersection safer by reducing the number of conflict points between circulating and merging traffic.

3. At the intersection of Smelter Ave. and 4th St. NE., the North and South approaches are offset approximately 90'. 4th St. NE. is also at a skewed angle from Smelter Ave., making left hand turning maneuvers difficult. This intersection has been re-aligned so that the North and South approaches line up across from one another based on Traffic's recommendations. Due to the high level of service, Traffic does not recommend a signal at this time.

   The WB and EB right turn bays on Smelter Ave. at 4th St. NE. have been designed as right turn slip lanes, based on Traffic's recommendation.

4. The intersection of Smelter Ave. and 3rd St. NW. operates well at this time. However, since the left turning maneuver will be approaching 300 – vph in the design year for this project, Traffic has recommended that the single left turn lane at this intersection be changed to a dual left turn lane. The dual left turn lane has been designed into the project.

5. Electrical plans for the signal at 3rd Street, lighting for the roundabout, and new striping and signing throughout the project as well as the geometric details will be provided by the Traffic Section.

Intelligent Transportation Systems (ITS) Features

There are no opportunities identified at this time for ITS solutions with this project. As the design process moves forward, possible ITS opportunities will be explored.

Miscellaneous

A. The northwest and northeast quadrants of the roundabout may require minor retaining walls behind the back edges of the sidewalk. Issues may arise with construction of the new slopes at current standards and their impact on right-of-way in these areas. The walls will be less than 2' tall with decorative stone/blocks.

   Retaining walls will also be used from station 21+05.50 to station 23+89.85 on the right to avoid impacting a parking lot. These walls average about 1' in height and also built with decorative stone/blocks.

   Some short retaining walls may also be needed along 4th St. NE. – South (alignment 4) right and left due to the minor grade raise though this area.

   The District has considered Alignment and Grade comments related to lowering the profile and/or using unsymmetrical roadway cross slopes at specific locations. The profile was lowered for the roundabout. However, The District prefers to design new construction projects with standard cross slopes for a number of reasons. It is easier to construct, design future projects on and to maintain. Unless it is necessary to match some existing elements, we prefer to roll the alignment and maintain standard cross slopes and gutter grades. Note: we do adjust the cross slopes crossing the 4th St intersection for a better tie to existing.

B. The Riverview Elementary Bike/PED Path has been approved and will provide the public with a shared use Bike/PED path separated from Smelter Ave. Comments on the preferred configuration of the proposed path have been received from both the City of Great Falls and the Great Falls Bicycle Club. The new shared-use path will begin outside of project limits at Riverview "B" and approach the project from the west on the north side of Smelter Ave. Once the path meets the roundabout at the intersection with Division Rd. the path will cross to the south side of Smelter Ave. The southwest and southeast quadrants of the roundabout will have an 8'-10'wide boulevard area to separate the shared use path from the travel way and also provide snow storage for plows during the winter months. After crossing to the south side of Smelter Ave. the shared use path will continue east until it meets 3rd St. NW.

C. The shared use Bike/PED path will be separated from Smelter Ave. with a landscaped boulevard area where feasible. The city-preferred boulevard width is 7.5' or larger. The boulevards vary throughout the project but the separation has been added where possible. Maintenance of the boulevard areas and roundabout landscaping will be included in the MOU between MDT and the City of Great Falls. Coordination with the City of Great Fall on the shared use Bike/PED path configuration and landscaping details will continue throughout the design process.

Design Exceptions

The 250' radius horizontal curves at the 4th St. NE intersection on the north and south connection streets and the dual right curve connecting to 3rd St. NW. do not meet the minimum standards at 35 mph, but do at 30 mph. Given the low speeds expected at the stop and signal controlled intersections, we believe it is acceptable to reduce the design speed on these connections to city streets to 30 mph. The curves are designed to allow the least impact to the adjacent properties and all are designed with a normal crown.

Right-of-Way

A. New right-of-way will be required with this project. The intersection of Smelter Ave. and Division Rd. has been shifted south in order to accommodate the new roundabout. Shifting the intersection south will reduce the amount of impacts to the developed areas on the north side of the roundabout.

   New right-of-way will also be required at the intersection of Smelter Ave. and 4th St. NE. The North and South legs of 4th St. NE. will be realigned so that they line up across from one another instead of the current offset of approximately 90'.

B. Existing right-of-way on Smelter Ave. appears to be 50’ from centerline on the north side and 40’ feet from centerline on the south side.

Utilities/Railroads

A. There are no railroads in the vicinity of the project.

B. Overhead power runs along the south side of mainline. Other known existing utilities include: 12” water main, 36” RCP storm sewer, and 8” sanitary sewer. Water and gas service utilities exist on both north and south sides of mainline. Specific type and location of existing utilities will become known when the SUE survey data becomes available.

C. The City of Great Falls intends to replace the existing 12” water main with new during construction on this project.

Environmental Considerations

A. Hazardous materials have been encountered within project limits due to the urban location. Properties, past and present, such as gas stations, may pose present and future environmental problems. Environmental will provide the Initial Site Assessment (ISA) document for the project.

B. The Phase II Subsurface Soil Investigation Report has been completed for this project. PBS&J investigated three locations within the project corridor that were listed as leaking underground storage tank (LUST) sites. Soil and groundwater samples were collected from 4 feet to 7 feet below ground surface (bgs) from borings adjacent to the Riverview Conoco. The samples taken contained elevated levels of both gasoline and diesel constituents. It is likely that these contaminants extend laterally into Smelter Ave.

MDT- Environmental services is planning to advance 3 to 4 additional borings on the south side of Smelter Ave. to delineate the lateral extent of soil and groundwater contamination associated with Riverview Conoco. Environmental will provide special provisions for dealing with impacted soils and groundwater in this area of the project.

C. The Environmental Services Bureau will determine, and provide the appropriate Environmental Documentation for this project.

Traffic Control

A. Traffic will be maintained throughout the project during construction with the appropriate signing, flagging, detours, etc. All signing will be in accordance with the Manual on Uniform Traffic Control Devices. Local access will be maintained to the maximum extent possible. The MUTCD will be utilized to guide the application of all traffic control plans. A detailed traffic control, operations and phasing plan will be completed for the project.

B. The City of Great Falls intends on replacing the existing potable water mains with this project. Other utility adjustments may be completed before any major road construction phases are initiated.

C. Traffic may be detoured from mainline to a side street during construction of the concrete roundabout. Local access will be maintained to the maximum extent possible as to minimize impact to the local businesses and traveling public.

D. During construction of the roundabout, we will consider short-term closures with incentives to speed up construction in this area.

Public Involvement

A. Based on the presently anticipated scope of work, a Level B public involvement plan is appropriate.

The proposed plan is briefly described below:

1. A news release describing the proposed scope of work and need for the project was sent to the local media on April 3rd, 2007, with a department point of contact.
2. A public meeting was held January 25, 2010. No major concerns were brought up.
3. When the design is further along and complete plans are available, right-of-way agents will contact and visit all of the landowners adjacent to the project to explain the work to be performed and the overall design of the project as it pertains to them.
4. Affected landowners along the project will be contacted at the time of right of entry. Once construction begins, affected landowners will be sent construction notifications and information. A web site or other means of information for the traveling public will be considered in the development of the TCP.

B. The public involvement plan may be adjusted if controversial issues are identified.

Cost Estimate

The following items were considered in the roadwork for the alignment and grade cost estimate: PCCP surfacing, crushed aggregate course, curb and gutter, sidewalk, street excavation, seal and cover, prime, and blotter. This estimate includes an updated IDC of 17.48%. The cost per mile is approximately $3,557,552.50.

This estimate compares with the PFR cost estimate of $2,328,445, which included an IDC of 12.25%.

STPU-CM 5201(19)		Estimate Costs	Inflation (INF) (from PPMS)	w/INF + IDC (from PPMS)
Road work		$1,268,409		
Remove Structure		$0		
New Structure		$0		
Traffic Control		$130,000		
Subtotal		**$1,398,409**		
Mobilization	6%	$83,905		
Subtotal		**$1,482,314**		
Contingencies	20%	$296,463		
Total CN		**$1,778,776**	**$167,678**	**$2,286,694**
CE	10%	**$177,878**	**$16,768**	**$228,669**
IDC:	17.48%		**TOTAL**	**$2,515,363**
		Inflation Factor (ppms)	*0.094265757*	

Note: Inflation is calculated in PPMS to the letting date plus one year to estimate mid-point of construction. 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 17.48% as of FY 2010.

Ready Date

The project is being designed in the Great Falls Design Unit and has a ready date of September 2011 with a proposed letting date of March 2011. This project is behind schedule due to the time required for preliminary traffic studies and complex geometrics. However, this project is anticipated to be completed and ready on time according to OPX2.