

APPENDIX A

Analysis of Traffic Conditions

**US 89 Browning to Hudson Bay Divide
STPP 58-1(19)0 CN 4045**

Analysis of Traffic Conditions in the US 89 Project Area

Traffic Data Collection

Existing traffic and accident data was gathered from Federal, State, and local information sources, and by conducting on-site traffic surveys. The on-site surveys included vehicle turning movement counts, and average travel time drives. In addition, a trucking industry survey was conducted by mail to determine existing, anticipated, and preferred truck traffic flow patterns.

Existing Traffic Volume Data

Existing 1998 traffic volume data was obtained from the Montana Department of Transportation (MDT) and the US Department of Transportation's Bureau of Transportation Statistics. A variety of information sources were required due to the complexity of traffic flows within the corridor study area. There are local, regional, and tourist generated traffic flows, which are seasonal and have a direct correlation with Glacier Park. The information collected included:

- 1998 traffic count data, including Annual Average Daily Traffic (AADT) vehicle classification (truck, RV, and bus)
- 1998 Glacier Park incoming traffic flow information for the Going-to-the-Sun Road at the St. Mary entrance

The following table summarizes the 1998 annual average traffic volumes for the Corridor Study area.

**Table 1
Existing Traffic Volumes**

Description	Location (reference post)	1998 AADT (all vehicles)	% Growth Rate (FUT)	Projected 2000 AADT (all vehicles)	Percent of Heavy Vehicles In AADT		
					truck	bus	RV
MT 464 (Duck Lake Rd) north of Starr School Rd	6.3	760	1.6	785	9.9	--	--
MT 464 (Duck Lake Rd) south of Starr School Rd	0.23	6,500	1.7	6,720	-	-	-
MT 464 (Duck Lake Rd) midway	12.8	550	1.6	570	-	-	-
MT 464 (Duck Lake Rd) east of US 89	33.8	640	1.6	660	-	-	-
US 89 north of MT 464 (Duck Lake Rd)	39.8	1,540	2.0	1,600	1.8	.025	4.5
US 89 north of Saint Mary	31.3	1,570	2.0	1,630	1.8	.025	4.5
US 89 south of Saint Mary	31.2	840	3.0	890	4.3	.05	8.8
Going-to-the-Sun Road – St Mary Entrance	-	1,460	2.0	1,520	-	-	-
Starr School Road midway	-	300	1.6	310	-	-	-
US 89 north of Looking Glass Rd	12	650	3.0	690	5.7	0.8	11.4
US 89 southeast of Looking Glass Rd	11.9	600	3.0	640	9.0	1.5	18
Looking Glass Road southwest of US 89	7.0	680	2.2	710	4.6	-	-
Looking Glass Rd north of US 2	1.4	1,210	2.2	1,260	5.6	-	-
US 2 northeast of Looking Glass Rd	210.0	1,710	2.9	1,810	11.0	0.3	3
US 2 southeast of Browning	221.3	2,680	2.9	2,840	5.9	.19	1.9
US 2/89 in Browning	220.6	4,520	2.9	4,790	3.5	.08	1.1
US 89 west of Browning	0.5	980	1.1	1,000	3.8	0.5	7.7

Growth rate percentages provided by the Montana Department of Transportation

The following functional classifications were provided by MDT.

Table 2
Functional Classification

Description	Existing Functional Classification
Starr School Road	Major Collector
Duck Lake Road	Major Collector
Looking Glass Road	Major Collector
US Highway 89	Minor Arterial
US Highway 2	Principal Arterial

Existing Accident Data

Accident data was collected for each of the five roadways indicated below:

- US 89 from Browning to Babb
- US 2 from East Glacier to Browning
- Starr School Road
- Duck Lake Road (Highway 464)
- Looking Glass Road (Highway 49)

Accident data was obtained from both MDT and the Blackfeet Nation Emergency Medical Services (EMS) in Browning for the period of October 1, 1994 through December 31, 1999. Glacier County police and the Blackfeet Law enforcement reports are included in these two agency reports.

Table 3
Accident Data Summary

US 89							
	Total	1994	1995	1996	1997	1998	1999
Total Number of Accidents	115	2	17	27	25	26	18
Location							
Intersection /Intersection related	3			1		1	1
Non-intersection	112	2	17	25	26	25	17
Accident Severity							
Fatal Accidents	2				2		
Property damage only	41		8	5	12	8	8
No. of injury accidents	72	2	9	22	11	18	10
Majority of accidents occurred							
Dry roadway	89	1	15	21	20	20	12
Clear day	62	1	11	13	15	12	10
Daylight	63	1	10	17	13	13	9
Single vehicle	84	0	0	25	21	22	16

Table 3 (continued)

US 2							
	Total	1994	1995	1996	1997	1998	1999
Total Number of Accidents	84	2	10	19	29	14	10
Location							
Intersection/Intersection related	18		4	2	3	3	1
Non-intersection	66	2	6	14	25	10	9
Accident Severity							
Fatal Accidents	3	0	0	0	2	0	1
Injury Accidents	35	2	6	7	12	5	3
Property damage only	46		4	12	15	9	6
Majority of accidents occurred							
Dry	42		7	6	13	10	6
Clear	34	1	5	6	11	7	4
Daylight	45	1	7	9	23	1	4
Single Vehicle	39			9	12	12	6

Starr School Road							
	Total	1994	1995	1996	1997	1998	1999
Total Number of Accidents	15		1	2	4	2	6
Location							
Intersection/Intersection related	1	NA			1		
Non-intersection	14	NA	1	2	3	2	6
Accident Severity							
Fatal Accidents	3	NA	0	0	0	0	3
Injury Accidents	12	NA	1	2	4	2	3
Property damage only	0	NA					
Majority of accidents occurred							
Dry	15	NA	1	2	4	2	6
Clear	12	NA	1	1	3	1	6
Daylight	8	NA	1	1	3	2	1
Dark-not lighted	7	NA		1	1		5
Single Vehicle	9	NA		1	1	2	5

Duck Lake Road							
	Total	1994	1995	1996	1997	1998	1999
Total Number of Accidents	56	1	3	20	18	4	10
Location							
Intersection/Intersection related	13	0	0	7	4	1	1
Non-intersection	43	1	3	13	14	3	9
Accident Severity							
Property damage only	15	1	2	6	3	2	1
Fatal Accidents	5	0	0	2	1	0	2
Injury Accidents	36	0	1	12	14	2	7
Majority of accidents occurred							
Dry	36		2	11	14	1	8
Clear	26	1	3	5	11		6
Daylight	29	1	3	9	8	2	6
Single Vehicle	33			11	9	3	10

Table 3 (continued)

Looking Glass Road							
	Total	1994	1995	1996	1997	1998	1999
Total Number of Accidents	34	1	3	3	13	4	10
Location							
Intersection/Intersection related	1						1
Non-intersection	33	1	3	3	13	4	9
Accident Severity							
Fatal Accidents	3	0	0	0	1	2	0
Injury Accidents	18	0	1	2	9	2	4
Property damage only	13	1	2	1	3	0	0
Majority of Accident occurred							
Dry	27		3	1	11	4	8
Clear	25	1	3	2	10	4	5
Daylight	20	1	2	2	6	2	7
Single Vehicle	27			3	12	4	8

Trucking Survey

Local and regional trucking companies were sent a brief questionnaire via mail to determine existing and future trucking usage of US 2, US 89, Duck Lake Road, Looking Glass Road, and Starr School Road. Trucking companies within Glacier County generally included those involved in logging, farming, commercial freighting and/or construction activities. Companies were also selected if they might service communities within the corridor study area (Browning, East Glacier, Kiowa, St. Mary, Babb, etc.), Glacier Park, or Canada. The survey gave those in the trucking industry an opportunity to voice concerns, observations, needs, suggestions, and opinions concerning current and future use and possible upgrades to the roadways.

Of 115 questionnaires sent out, 38 were completed and returned. Eight questionnaires were returned indicating that they do not travel within the US 89 Corridor Study area, and subsequently their responses were not included. Seven questionnaires were returned either because of incorrect addresses, or because they are now out of business.

Summary of Truck Survey

Survey Questions	YES	NO	All Year	Winter	Summer	Spring	# of trips/wk		
							A.M.	Midday	P.M.
1. Do your trucks use Highway 464 (Duck Lake Road) between Browning and Babb?	22	8	14	1	7	4	22	11	14
2. Do your trucks use Starr School Road between Browning and its intersection with US 89?	14	16	8	1	4	4	13	4	10
3. Do your trucks use US 89 between Browning and Kiowa?	9	21	5	0	2	0	2	2	3
4. Do your trucks use US 89 between Kiowa and St. Mary?	11	19	6	0	5	1	3	7	5
5. Do your trucks use US 89 between St. Mary and Babb?	18	12	9	0	6	2	12	8	8
6. Do your trucks use US 89 between Babb and the Canadian border (the Piegan border crossing)?	11	19	5	1	3	1	6	7	6
7. Do your trucks use the Going-to-the-Sun Road in Glacier Park?	5	25	0	0	5	1	0	0	0
8. Do your trucks use Highway 49 between East Glacier and Kiowa?	5	25	1	0	4	1	0	5	2
9. Do your trucks use US 2 between Browning and East Glacier?	26	4	19	0	4	1	25	20	24
10. Do your trucks use US 2/89 between Browning and US2/US89 junction (Southeast of Browning)?	23	7	15	0	2	1	21	15	15
11. Would a new route from Browning to Babb built to current design standards be beneficial to your operation?	18	9							
12. Do you expect to increase the number of trips on any of these routes?	7	21							
13. Which route do your trucks prefer to use between Browning and Babb?	US 89					Duck Lk. Rd.			
	2						22		

Conclusions from the responses provided:

- 73% of companies who responded to the survey use Montana 464 (Duck Lake Road)
- 47% use Starr School Road
- 30% use US 89 between Browning and Kiowa
- 37% use US 89 between Kiowa and St. Mary
- 60% use US 89 between St. Mary and Babb
- 37% use US 89 between Babb and the Canada border
- 17% use Going-to-the-Sun Road to either deliver goods to park businesses, or park-related construction activities
- 17% use Montana 49 (Looking Glass Road) between East Glacier and Kiowa
- 87% use US 2 between East Glacier and Browning
- 77% use US 2/89 from Browning to US2/US89 jct. southeast of Browning
- 67% desire a truck route built to current design standards between Browning and Babb
- 25% expect to increase their volume of traffic on roadways within the corridor
- 92% prefer Montana 464 (Duck Lake Road) over US 89

Onsite Traffic Surveys

Turning movements

Turning movement traffic counts were taken at the 5 intersections described below.

- US 89 and US 2 (located west of Browning)
- US 89 and Starr School Road (northwest of Browning)
- US 89 and Duck Lake Road (near Babb)
- Duck Lake Road and Starr School Road (in Browning)
- Central Avenue (US 2/89) and Duck Lake Road (in Browning)

Turning Counts were recorded during AM and PM peak traffic hours January 19-24, 2000 and on May 4, 2000.

**Table 5
2000 Existing Turning Movements**

Intersection	AM			PM		
	LT	THRU	RT	LT	THRU	RT
US 2/89 & MT 464 (Duck Lake Rd) **Signalized**						
MT 464 (Duck Lake Rd) SB	179		150	163		149
US 2/89 WB		177	99		375	191
US 2/89 EB	54	147		132	416	
MT 464 (Duck Lake Rd) & Starr School Rd						
MT 464 (Duck Lake Rd) NB	162	136		73	155	
MT 464 (Duck Lake Rd) SB		139	4		57	11
Starr School Rd EB	4		191	11		155
US 2 & US 89 (Browning)						
US 2 NB	3		50	1		81
US 89 WB	29	31		99	47	
US 89 EB		46	3		24	3
US 89 & Starr School Rd						
US 89 NB		5	4		2	5
US 89 SB	10	3		6	2	
Starr School Rd WB	1		2	1		1
US 89 & MT 464 (Duck Lake Rd) (north)						
US 89 NB		5	7		5	2
US 89 SB	8	9		8	3	
MT 464 (Duck Lake Rd) WB	3		2	1		5

Average Travel Times

Average travel times were determined by driving the existing roadways described below:

- US 2 from Browning to East Glacier 10.8 minutes
- Montana 464 (Duck Lake Road) Browning to US 89 near Babb 32.1 minutes
- US 89 from Browning to Highway 464 (Duck Lake Road) near Babb 48.6 minutes
- Starr School Road From MT 464 near Browning to US 89 13.3 minutes

Each stretch of highway was driven once in each direction, and the two travel times were averaged. Speed limits were driven depending on road conditions.

No significant delays were encountered due to operational problems.

Level of Service Criteria

The concept of level of service is defined as a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. A level of service (LOS) definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruption, comfort and convenience, and safety.

Six levels of service are deemed for each facility for which analysis procedures are available. They are given letter designations, from A to F, with LOS A representing the best operating conditions and LOS F the worst. The following condensed definitions generally define the various levels of service. Each level of service is not a discrete condition, but rather a range of conditions for which boundaries are established.

Level of service A represents free flow conditions. Individual users are virtually unaffected by the presence of others in the traffic stream.

Level of service B is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable.

Level of service C is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by the interactions with others in the traffic stream.

Level of service D represents high-density, but stable, flow conditions. Small increases in traffic flow will generally result in the occurrence of operational problems at this level.

Level of service E represents operating conditions at or near the capacity level of a given facility. Operations at this level are usually unstable, because small increases in flow or minor disturbances in the traffic stream to breakdown.

Level of service F is used to define forced or breakdown flow. This condition exists whenever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations. Operations within the queue are characterized by stop-and-go waves, and they are extremely unstable.

The Level of Service (LOS) analyses were conducted in accordance with the methods and criteria presented in the Transportation Research Board 2000 Highway Capacity Manual utilizing the Highway Capacity 2000 Software and Strong Concept's Signal 2000 a Highway Capacity Manual based signalized intersection capacity analysis and optimization software.

Level of Service for two way stop-controlled intersections is determined by the computed or measured control delay and is defined for each minor movement. LOS is not defined for the intersection as a whole.

The following table taken from the Highway Capacity Manual lists the LOS criteria for control delay times.

**Table 6
LOS Criteria for Stop Controlled Intersections**

LOS	Control Delay per Vehicle (Sec. per vehicle)
A	0 to 10
B	11 to 15
C	16 to 25
D	25 to 35
E	36 to 50
F	More than 50

Level of Service for signalized intersections is evaluated on the basis of control delay per vehicle (in seconds per vehicle). Control delay includes initial deceleration delay, queue move up time, stopped delay, and final acceleration delay. The average control delay is estimated for each lane group and for the intersection as a whole. LOS is directly related to the control delay value.

The following table taken from the Highway Capacity Manual lists the LOS criteria for control delay times.

**Table 7
LOS Criteria for Signalized Intersections**

LOS	Control Delay per Vehicle (Sec. per vehicle)
A	0 -10
B	11 to 20
C	21 to 35
D	36 to 55
E	56 to 80
F	More than 80

Level of Service for two lane highways is evaluated on two criteria. Class I highways are evaluated on percent time following and average travel speed. Class II highways are evaluated only on percent time following.

The highways evaluated in this analysis are considered Class II highways.

The following table taken from the Highway Capacity Manual lists the LOS criteria percent time following.

**Table 8
LOS Criteria for Class II Two Lane Highways**

LOS	Percent Time Spent Following:
A	0 to 40
B	41 to 55
C	56 to 70
D	71 to 85
E	More than 85

Note: LOS F applies whenever the flow rate exceeds the segment capacity

Analysis of Existing Conditions

Levels of service, delays and flow rates were calculated for the major intersections and arterials within the study area. Accident data was analyzed for a 5-year period to determine accident rates and high-accident locations.

Intersection Analysis

The following intersections were analyzed to determine existing (2000) LOS values.

- US 89 & Duck Lake Road
- US 2 & US 89 west of Browning
- US 89 & Starr School Road
- Central Avenue & Duck Lake Road in Browning
- US 89 & Looking Glass Road
- Starr School Road & Duck Lake Road

Data from year 2000 turning counts and 1998 traffic volumes provided by the Montana Department of Transportation (MDT) were utilized in this analysis. Calculations were performed in accordance with methodology outlined in the Highway Capacity Manual (2000) and using Highway Capacity Software (HCS-2000). Intersection levels of service and delays are given for each intersection.

Table 9
2000 Stop-controlled Intersection Level of Service (LOS)

LOCATION	Approach Direction	AM PEAK		PM PEAK	
		Approach LOS	Approach Delay (sec.)	Approach LOS	Approach Delay (sec.)
US 89 & MT 464 (Duck Lake Road)	WB	A	8.6	A	9.0
US 2 & US 89	NB	A	9.0	A	8.8
US 89 & Starr School Road	WB	A	8.5	A	9.2
Starr School Road & MT 464 (Duck Lake Road)	EB	B	10.3	A	9.5

Table 10
2000 Signalized Intersection Level of Service (LOS)

LOCATION	AM PEAK		PM PEAK	
	Intersection LOS	Control Delay (sec.)	Intersection LOS	Control Delay (sec.)
US 2/89 & MT 464 (Duck Lake Road)	B	11.3	A	9.6

Accident Analysis

A review of accidents over a five-year period was used to assess existing safety problems. A qualitative comparison was then made to determine which areas raise particularly strong safety concerns if any.

**Table 11
Accident Summary**

Roadway Description	Total Fatalities 1994-1999	Total Injuries 1994-1999	Total Accidents 1994-1999	Accident Rate 1994-1999	Montana State Wide Accident Rate
US 89 – Browning to Babb	2	130	115	1.81	1.55
Looking Glass Rd.	3	34	34	2.27	1.38
Duck Lake Rd.	5	86	56	1.24	1.77
Starr School Rd.	3	35	15	2.05	1.38
US 2 – Browning to East Glacier	3	71	84	1.59	1.55

All accident rates shown are per million vehicle miles of travel and were obtained using the following formula.

$$\frac{(\text{Number of Accidents}) \times (1 \text{ million})}{(\text{Section Length in miles}) \times (\text{AADT}^*) \times (\# \text{ of years in days})}$$

*AADT = 1998 Annual Average Daily Traffic

63% of the accidents on all roads were single vehicles accidents. 73% of the single vehicle accidents were, on US-89 and Looking Glass Road.

US 89, Looking Glass Road and Starr School Road 5-year accident rates were high, when compared with statewide averages for similar highways in Montana (see Table 11). Segments of highways with noticeably high frequencies of accidents are noted below.

US-89

- Reference Post 20-21 - 19 accidents
- Reference Post 37.5-38.5 - 11 accidents

US 2

- Reference Post 221.5-223 - 19 accidents
- Reference Post 214.9-215.9 - 13 accidents

Duck Lake Road

- First 3.2 kilometers (2 miles) commencing in Browning - 19 accidents
- The last 9.7 kilometers (6 miles) - 15 accidents

Looking Glass Road

- Entire length - 34 accidents in 18 kilometers (11.2 miles).

Starr School Road

- Entire length - 15 accidents in 21.4 kilometers (21.4 miles).

Rural Two-lane Analysis

The arterials listed below (Table 12) were analyzed in accordance with methodology outlined in the Highway Capacity Manual 2000 and utilizing HCS-2000 software to determine their existing LOS values. These LOS values were calculated using existing geometric configurations and 2000 traffic volume data forecasted from 1998 data received from MDT. Threshold LOS values were obtained from the Montana Road Design Manual (MDT, April 1994) using the roadways functional classification provided by MDT.

Table 12
2000 Rural Two Lane LOS Summary

Description	Calculated LOS Value	Percent Time Following	MDT Threshold LOS Value
US 89 – Browning to Kiowa	A	29.8	C
US 89 – Kiowa to Hudson Bay Divide	B	49.0	C
US 89 – St. Mary to MT 464 (Duck Lake Road)	C	55.7	C
Looking Glass Road	A	33.0	C
Duck Lake Road	A	24.1	C
Starr School Road	A	25.2	C
US 2 – Browning to East Glacier	A	36.0	C

2025 Forecast Conditions

Traffic Forecasts

Intersection turning movements, annual Average Daily Traffic (AADT), 2025 volumes, and 2025 30th Highest Hour traffic volumes were calculated using 1998 AADT, 2000 turning movements and growth rates, specific to the different highways as shown in the Existing Traffic Volumes table on page 2. Standard formulas and methodology were provided by MDT to calculate the values depicted below.

Table 13
2025 Forecast Turning Movements

Intersection	AM			PM		
	LT	THRU	RT	LT	THRU	RT
US 2/89 & MT 46 4 (Duck Lake Rd) ** Signalized**						
Mt 464 (Duck Lake Rd) SB	366		306	333		304
US 2/89 WB		362	202		766	390
US 2/89 EB	110	300		270	850	
MT 464 (Duck Lake Rd) & Starr School Rd						
MT 464 (Duck Lake Rd) NB	241	202		109	231	
MT 464 (Duck Lake Rd) SB		207	6		85	16
Starr School Rd EB	4		284	16		231
US 2 & US 89 (Browning)						
US 2 NB	6		102	2		166
US 89 WB	59	63		202	96	
US 89 EB		94	6		49	6
US 89 & Starr School Rd						
US 89 NB		7	6		3	7
US 89 SB	15	5		9	3	
Starr School Rd WB	2		3	2		2
US 89 & MT 464 (Duck Lake Rd) (north)						
US 89 NB		8	11		8	3
US 89 SB	13	14		13	5	
MT 464 (Duck Lake Rd) WB	5		3	2		8

Table 14
2025 Forecast Traffic Volumes

Description	Location (reference post)	2025 AADT	2025 30 th - hr traffic volume
MT 464 (Duck Lake Rd) north of Starr School Rd intersection	-	1170	150
MT 464 (Duck Lake Rd) south of Starr School Rd intersection	0.23	10,240	1,230
MT 464 (Duck Lake Rd) midway	12.8	850	110
MT 464 (Duck Lake Road) east of US 89 (near Babb)	33.8	980	130
US 89 north of MT 464 (Duck Lake Rd)	39	2,630	580
US 89 north of Saint Mary	31	2,580	570
US 89 south of Saint Mary	31	1,990	440
Going-to-the-Sun Road – West of Saint Mary entrance	-	2,490	550
Starr School Rd midway	-	460	80
US 89 north of Looking Glass Road	12	1,450	320
US 89 southeast of Looking Glass Road	11.9	1,510	330
Looking Glass Road Southwest of US 89	7.0	1,220	300
Looking Glass Road North of US 2	-	2,170	480
US 2 Northeast of Looking Glass Road	210	3,660	600
US 2 Southeast of Browning	223	5,800	810
US 2/89 in Browning	220.6	9,800	1,370
US 89 west of Browning	0	1,320	290

Analysis of 2025 Forecast Conditions

Levels of service (LOS), delays and flow rates were calculated for the 2025 design year at major intersections and arterials within the study area. Several improvement alternatives were analyzed and mapped to determine the effects on existing roadways.

Intersection Level of Service (LOS) Analysis – 2025 forecast

Five intersections were analyzed using turning movement 2025 30th highest-hour forecast traffic volumes. All calculations were performed in accordance with methodology outlined in the Highway Capacity Manual 2000 and HCS-2000 software. Intersection LOS values and time delays are given for each intersection below.

Table 15
2025 Stop Controlled Intersection Level of Service (LOS)

LOCATION	Approach Direction	AM PEAK		PM PEAK	
		Approach LOS	Approach Delay (sec.)	Approach LOS	Approach Delay (sec.)
US 89 & MT 464 (Duck Lake Road)	WB	A	8.7	A	8.5
US 2 & US 89	NB	A	9.4	A	9.4
US 89 & Starr School Road	WB	A	8.5	A	9.2
Starr School Rd & MT 464 (Duck Lake Road)	EB	B	14.2	B	13.8

Table 16
2025 Signalized Intersection Level of Service (LOS)

LOCATION	AM PEAK		PM PEAK	
	Intersection LOS	Control Delay (sec.)	Intersection LOS	Control Delay (sec.)
US 2/89 & MT 464 (Duck Lake Road)	B	13.0	B	17.8

The acceptable LOS value provided by MDT for the intersections above is B. All intersections operate at or above this level. These intersections may require additional studies to determine future impacts if proposed routing changes are pursued.

Rural Two-lane Analysis-2025 forecast

The following arterials were analyzed in accordance with the methodology outlined in the Highway Capacity Manual 2000 and utilizing HCS-2000 software. Traffic data necessary for analysis was obtained from MDT and through field studies. This information was utilized to forecast 30th Highest Hour average traffic volumes and determine LOS values for the design year.

Table 17
2025 Rural Two-lane LOS

Description	Calculated LOS Value	Percent time following	MDT * Threshold LOS Value
US 89 – Browning to Kiowa	C	59.8	C
US 89 – Kiowa to Hudson Bay Divide	C	66.3	C
US 89 – St. Mary to Duck Lake Road	C	64.1	C
MT 49 (Looking Glass Road)	C	58.4	C
Duck Lake Road (MT 464)	A	30.0	C
Starr School Road	A	27.8	C
US 2 – Browning to East Glacier	C	63.8	C

* Acceptable LOS values were obtained from MDT.

Truck rerouting from US 89 to MT 464 (Duck Lake Road).

It appears that the majority of trucks using the roadways in and around Browning are of a local nature and not long haul trucks. It does not appear that there is a major terminal destination for long haul trucks along US 89. A best estimate would relocate 1 % of the trucks from US 89 to Montana 464 (Duck lake Road).

Existing Traffic:

US 89 West of Browning:

- Year 2000 - 1000 vehicles
- Trucks 3.7% = 37 trucks

Montana 464 (Duck Lake Rd) north of Starr School Road:

- Year 2000 - 785 vehicles
- Trucks 9.9% = 78 trucks

1 % of 1000 = 10 trucks shifted from US-89 to Duck Lake Road. 78+10=88 Trucks

785+10 = 795 vehicles on Duck Lake Road - Trucks 11 %

This shift results in a 1.4% increase in traffic on Duck Lake Road and a 0.01% decrease in US 89 traffic.

Alternative Analysis

Two highway improvement alternatives (and an option) and the ‘No-Build’ alternative were analyzed to determine whether limited road improvements would result in higher LOS values.

Alternative A – No Build

The 2025 LOS values for US 89 between Browning and Hudson Bay Divide, assuming no improvements, are shown in Table 18. US 89 was broken into two segments due to distinct differences in roadway geometrics and traffic flow characteristics.

Table 18
2025 LOS Summary Alternative A

Description	Calculated LOS Value	MDT Threshold LOS Value	Percent Time Following
US 89 – Browning to Kiowa	C	C	59.8
US 89 – Kiowa to Hudson Bay Divide	C	C	66.3

The accident rate would not decline. In all probability it would increase with the lower LOS.

Alternative B– Improve US 89 from Browning to Hudson Bay Divide

Improvements would consist of:

- Widening travel lane width to 3.6 meters (12 feet)
- Widening shoulder width to 1.2 meters (4 feet)
- Increasing curve radius
- Higher frequency of passing zones
- Improving roadside drainage features
- Adding pullouts and scenic vista points
- Installing guardrail as needed

Table 19
2025 LOS Summary Alternative B

Description	Calculated LOS Value	MDT Threshold LOS Value	Percent Time Following
US 89 – Browning to Kiowa	C	C	59.8
US 89 – Kiowa to Hudson Bay Divide	C	C	61.1

Since the majority of accidents were single vehicle accidents, the accident rate would in all probability decrease due to the wider driving lanes, the increased shoulder width, and the installation of guardrail.

Alternative C – Improve US 89 from Browning to Hudson Bay Divide

Improvements would be the same as Alternative B with the exception of widening shoulders to a width of 1.8 meters (6 feet).

The level of service would remain the same as Alternative B. The probable accident reduction would be the same.

Option: – Improve Montana 464 (Duck Lake Road)

Improvements would consist of:

- Widening travel lane width to 3.6 meters (12 feet)
- Widening shoulder width to 1.2 meters (4 feet)
- Increasing curve radius
- Improving roadside drainage features
- Installing guardrail as needed
- Repair Duck Lake Road to prevent frost heaving
- Enhance parking area at Cut Bank Creek.

The level of service would continue to remain at LOS A.

APPENDIX B

Highway Traffic Noise Preliminary Screening

**HIGHWAY TRAFFIC NOISE
PRELIMINARY SCREENING**

**US 89 Browning — Hudson Bay Divide
Corridor Study**

STPP 58-1(19)0~CN 4045

Prepared for

Skillings-Connolly, Inc.
2685 Palmer Street, Suite C
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Prepared by

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May 2004 Draft

Highway Traffic Noise Preliminary Screening

Introduction

This appendix presents the results of the preliminary screening for traffic noise for the US Highway 89 (US 89) improvement project. The screening was conducted in accordance with the *Traffic Noise Analysis and Abatement: Policy and Procedure Manual* (MDT 2001).

The US 89 improvement project has been proposed by the Montana Department of Transportation (MDT) on the Blackfeet Indian Reservation in Glacier County, Montana (Figure B-1). The proposed project consists of improvements to 41 kilometers (25.5 miles) of US 89 between the town of Browning and the Hudson Bay Divide, approximately 8.7 kilometers (5.4 miles) south of the town of Saint Mary (Figure B-2). Under the two action alternatives being considered, no new travel lanes would be added to the existing two-lane highway. However, the road would be realigned at several locations, and it would be rebuilt or repaved to provide standard lane widths, as well as adequate shoulders and roadside ditches. In addition to the improvements to US 89, the project includes optional improvements to Duck Lake Road (Montana Highway 464), which extends east from its intersection with US 89 north of Saint Mary and then south to Browning (Figure B-2). The optional improvements include repaving approximately 11.2 kilometers (7 miles) of Duck Lake Road starting at its intersection with US 89 north of Saint Mary, realigning Duck Lake Road where it currently takes a right-angle curve approximately 29 kilometers (18 miles) north of Browning, and providing a formal paved off-road parking area where Duck Lake Road crosses Cut Bank Creek, approximately 8 kilometers (5 miles) north of Browning. No new lanes would be added to Duck Lake Road. As part of the optional improvements, Duck Lake Road would be formally designated as an alternate truck route to US 89.

Screening Results

The overall conclusion reached on the basis of the screening results is that a detailed noise analysis is not needed for the US 89 project.

The first step in the screening procedure described in the manual (MDT 2001) is to determine whether the project under consideration is a Type I project. Type I projects typically require a detailed noise analysis, whereas projects that are not Type I projects do not. A Type I project is defined in the Code of Federal Regulations (CFR), Title 23, Section 772, as follows:

A proposed Federal or Federal-aid highway project for the construction of a highway on a new location, or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment, or increases the number of through lanes. More specifically, a Type I project is any project that has the potential to increase noise levels at adjacent receivers. Such a project specifically creates a totally new noise source, or increases the volume or speed of traffic or moves traffic closer to receivers. The addition of an interchange/ramp/auxiliary lane/truck climbing lane to an existing highway is considered to be a Type I project. A project to widen an existing ramp by a full lane-width is also considered to be a Type I project.



Figure B-1. Vicinity map of the US 89 improvement project, Montana.

Both the improved US 89 and the improved Duck Lake Road would be two-lane roadways in substantially the same location as the existing two-lane roadways. The project would not increase traffic on US 89: traffic volumes are expected to be essentially the same under all alternatives, including the no-build alternative. Truck volumes could increase along Duck Lake Road as a result of the formal designation of that road as an alternate truck route. The project would not add an interchange or a new climbing lane. The project would not increase the speed of traffic on either road, particularly where there are receivers. Because the project involves realignments at several locations, and truck volumes could increase along Duck Lake Road, it would most likely be considered a Type I project.

The second step in the screening procedure is to determine whether there would be any potentially impacted receivers within 150 meters (500 feet) of the roadway. If there are no potentially impacted receivers within 150 meters of the roadway, a detailed noise analysis is not necessary. The procedure manual (MDT 2001) defines impacted receivers as “generally residences that will receive a traffic noise impact from the construction of a project.”

A traffic noise impact is an impact that results when certain noise thresholds are reached or exceeded. Noise impacts are determined for a future design year (2025 for the US 89 project), which is typically several to many years after the project becomes operational. A noise level is measured as an equivalent sound level (L_{eq}), which is defined as the equivalent steady-state sound level that in a stated period of time contains the same acoustic energy as the actual measured time-varying sound level during the same time period.

The conclusion reached on the basis of the second step of the screening procedure is that there are no potentially impacted receivers. Along US 89, implementation of any of the action alternatives would result in no increase in traffic volumes. Any realignments that are proposed along US 89 would move traffic no closer to any receivers. Along Duck Lake Road, implementation of the proposed improvements would not result in realignments that would move traffic closer to any receivers. The increase in truck traffic along Duck Lake Road would be minor and would have no material effect on noise levels along that road. Details of the assessment leading to these conclusions are provided in the following sections.

US 89 Assessment of Potentially Impacted Receivers

The project corridor along US 89 is divided into two segments: the southeasterly segment extending from Browning to Kiowa and the northerly segment extending from Kiowa to the Hudson Bay Divide. Along the southeasterly segment, there are residences or other potentially impacted receivers near the roadway, particularly near Browning and at Kiowa. The existing roadway in this segment has moderate horizontal and vertical curves, and the proposed roadway realignments in this segment are limited.

Along the northerly segment, there are no residences or potentially impacted receivers near the roadway. The existing roadway goes through hilly country with numerous horizontal and vertical curves, and the proposed roadway realignments in this segment are more extensive. The

following list provides a breakdown of realignments within the project corridor along US 89; station numbers are in meters and reference posts (RPs) are in miles.

- Between the Browning terminus of the project at station 30 (RP 0.0) and approximately station 8000 (RP 5.0), the new road centerline is in the same alignment as the existing road centerline. There are approximately 10 to 15 residences in proximity to the road along this 8-kilometer (5-mile) stretch of the corridor.
- Between approximately station 8000 (RP 5.0) and station 8600 (RP 5.3), the new centerline would deviate slightly to the north of the existing centerline. At this location, there is a residence approximately 100 meters (330 feet) south of the roadway; therefore, the alignment shift, although quite minor, would move the roadway slightly farther from this residence. There is no residence north of the roadway at this location.
- Between stations 8600 (RP 5.3) and 14700 (RP 9.1), the new roadway would follow the existing roadway, except for a few slight deviations of several meters. At the locations of these deviations, there are no residences near the realignment.
- Between approximately stations 14700 (RP 9.1) and 14950 (RP 9.3), the centerline of the new roadway would be shifted to the south. At this location, there is a residence approximately 50 meters (165 feet) north of the existing roadway; therefore, the shift in alignment would move the roadway farther from this residence. There is no residence south of the roadway at this location.
- Between approximately stations 14950 (RP 9.3) and 15800 (RP 9.8), the centerline of the new roadway would be coincident with that of the existing roadway.
- Between approximately stations 15800 (RP 9.8) and 16180 (RP 10.0), the roadway centerline would shift slightly to the north. At this location, the mapping shows a fenced area north of the roadway that appears to include a small adjacent structure with dimensions of approximately 3.6 by 7.3 meters (12 by 24 feet). This structure may be a residence; however, it is more than 180 meters (591 feet) from both the existing and new roadway alignments.
- Between approximately stations 16180 (RP 10.0) and 18100 (RP 11.2), the centerline of the new roadway would be coincident with that of the existing roadway.

- Between approximately stations 18100 (RP 11.2) and 18900 (RP 11.7), the centerline of the new roadway would deviate substantially (up to 50 meters [165 feet] or so) from the existing centerline; however, there are no residences anywhere in the vicinity.
- Between approximately station 18900 (RP 11.7) and Kiowa (station 22500; RP 14.0), the centerline of the roadway follows the existing centerline, except for a significant deviation (50 meters [165 feet] or more) between stations 21250 (RP 13.2) and 21870 (RP 13.6), approximately 0.6 kilometers (0.4 miles) south of Kiowa, where there are no residences in the vicinity of the existing or the new roadway alignments.
- At Kiowa, there are a store and a campground. At this location, the centerline of the new roadway would be coincident with that of the existing roadway. Just north of Kiowa, the new roadway would be realigned toward the east, away from the Kiowa store and campground.
- In the hilly portion of the northerly segment (north of Kiowa), there would be several substantial horizontal realignments (deviating significantly more from the centerline of the existing roadway than those in the Browning to Kiowa segment). However, there are no residences within 150 meters (500 feet) of either the existing or the new roadway centerlines.

On the basis of this assessment, it has been concluded that the realignments proposed for US 89 would not result in increased noise levels for receivers. Furthermore, in no areas would existing shielding near receivers be eliminated or compromised. In general, the roadway goes through country with little vegetation. Improvement of the segment between Browning and Kiowa, where there are receivers near the roadway, would involve only moderate changes in vertical and horizontal alignment, and no existing topographic barriers would be eliminated or compromised. Therefore, there are no potentially impacted receivers along the US 89 portion of the project.

Duck Lake Road: Assessment of Potentially Impacted Receivers

The project includes optional improvements to Duck Lake Road at three locations:

- At the intersection of Duck Lake Road with US 89 north of Saint Mary, Duck Lake Road would be realigned east of US 89 to create a horizontal curve and an intersection close to, or equal to, a right angle. There are no receivers east of US 89 (Duck Lake Road extends east from US 89) in the vicinity of this realignment.

- Approximately 9.7 kilometers (6 miles) of the roadway east of its intersection with US 89 north of Saint Mary would be repaved but not realigned.
- The right-angle curve approximately midway between US 89 north of Saint Mary and Browning would be realigned to increase the radius of the curve; however, there are no residences in the vicinity of this realignment.
- A formal paved off-road parking area would be created at the Cut Bank Creek bridge, in a location that is already being used for parking, and no new noise sources would be created. In addition, there are no receivers within 150 meters of the parking area.

The optional improvements along Duck Lake Road would neither eliminate nor compromise any existing noise shielding for receivers. The roadway goes through country with little vegetation, and the improvements would involve only moderate changes in topography; therefore, no existing topographic barriers would be eliminated or compromised. On the basis of this assessment, the three optional improvements along Duck Lake Road would not result in increased noise levels for receivers.

The formal designation of Duck Lake Road as an alternate truck route could increase truck traffic on Duck Lake Road, thereby increasing noise levels along that road. A traffic analysis conducted for the project has indicated that, at a maximum, 10 additional trucks per day could travel along Duck Lake Road after its redesignation as an alternate truck route. This additional traffic would be less than one additional truck per hour, which would not result in any material or discernible increase in noise levels (measured as L_{eq}) for receivers. Therefore, there are no potentially impacted receivers along the Duck Lake Road portion of the project.

References

MDT. 2001. Traffic Noise Analysis and Abatement: Policy and Procedure Manual. Prepared by Montana Department of Transportation, Environmental Services, Helena, MT. June 2001.

APPENDIX C

Form AD-1006
Farmland Conversion Impact Rating

United States Department of Agriculture



Natural Resources Conservation Service
12 3rd Street NW, Suite 300
Great Falls, MT 59404
406-453-9641 x129
rbandy@mt.usda.gov

06/06/05

Julie Kightlinger
Herrera Environmental Consultants, Inc.
101 E Broadway St. Ste. 610
Missoula, MT 59802

Dear Ms. Kightlinger:

I have completed the review of the Highway 89 and Duck Lake Road improvement project that your firm is preparing an Environmental Impact Statement for. No Prime farmlands or Lands of statewide importance are found in the areas where the improvement project is located.

If you should have any questions or need further information please let me know.

A handwritten signature in cursive script that reads "Rick Bandy".

Rick Bandy
Resource Soil Scientist

**FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS**

PART I (To be completed by Federal Agency)		3. Date of Land Evaluation Request 6/1/05	4. Sheet 1 of <u>1</u>
1. Name of Project US 89 - Browning to Hudson Bay Divide		5. Federal Agency Involved USDOT - FHWA	
2. Type of Project Highway Right-of-way		6. County and State Glacier County, MT	
PART II (To be completed by NRCS)		1. Date Request Received by NRCS 6/3/05	2. Person Completing Form Rick Sandy
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		4. Acres Irrigated Average Farm Size	
5. Major Crop(s)	6. Farmable Land in Government Jurisdiction Acres: _____ %	7. Amount of Farmland As Defined in FPPA Acres: _____ %	
8. Name Of Land Evaluation System Used	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS	

PART III (To be completed by Federal Agency)	Alternative Corridor For Segment _____			
	Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly				
B. Total Acres To Be Converted Indirectly, Or To Receive Services				
C. Total Acres In Corridor	0	0	0	0

PART IV (To be completed by NRCS) Land Evaluation Information	Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value				

PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)

PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))	Maximum Points	Corridor A	Corridor B	Corridor C	Corridor D
1. Area in Nonurban Use	15				
2. Perimeter in Nonurban Use	10				
3. Percent Of Corridor Being Farmed	20				
4. Protection Provided By State And Local Government	20				
5. Size of Present Farm Unit Compared To Average	10				
6. Creation Of Nonfarmable Farmland	25				
7. Availability Of Farm Support Services	5				
8. On-Farm Investments	20				
9. Effects Of Conversion On Farm Support Services	25				
10. Compatibility With Existing Agricultural Use	10				
TOTAL CORRIDOR ASSESSMENT POINTS	160	0	0	0	0

PART VII (To be completed by Federal Agency)	Corridor A	Corridor B	Corridor C	Corridor D
Relative Value Of Farmland (From Part V)	100			
Total Corridor Assessment (From Part VI above or a local site assessment)	160	0	0	0
TOTAL POINTS (Total of above 2 lines)	260	0	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input type="checkbox"/>
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5. Reason For Selection:

Signature of Person Completing this Part: _____ DATE _____

NOTE: Complete a form for each segment with more than one Alternate Corridor

APPENDIX D

Section 4(f) Evaluation

Section 4(f) Evaluation

The Montana Department of Transportation and the Federal Highway Administration propose to improve a 41-kilometer (25.5-mile) section of the existing US 89 corridor extending from Browning, Montana, west and north to Hudson Bay Divide. The preferred alternative of the proposed US 89 improvement project would widen the US 89 roadway from Browning to Hudson Bay Divide to an overall roadway width of 11 meters (36 feet). This alternative would provide two 3.6-meter (12-foot) lanes with a 1.8-meter (6-foot) shoulder on each side, including a 0.45-meter (1.5-foot) rumble strip. The proposed project would affect two bridges eligible for listing in the National Register of Historic Places and four historic roads covered under a programmatic agreement between Montana Department of Transportation and Montana State Historic Preservation Office. These historic properties are considered to be Section 4(f) resources.

Section 4(f) of the 1966 Department of Transportation Act, codified as USC §138 and 23 CFR §771.135, requires that no federal approval may be granted for a project using land from a publicly owned park, recreation area, wildlife and waterfowl refuge, or any significant historic site unless:

- i) There is no feasible and prudent alternative to the use of such land, and
- ii) The proposed action includes all possible planning to minimize harm to the property resulting from such use.

The Federal Highway Administration must prepare a Section 4(f) evaluation when a Section 4(f) resource is used by a project. This Section 4(f) evaluation includes a description of the proposed project purpose and need, the alternatives considered, the Section 4(f) resources affected, and measures to avoid or minimize impacts on these Section 4(f) resources. This evaluation also discusses the basis for concluding that the proposed action includes all possible planning to minimize harm to Section 4(f) resources and summarizes the coordination efforts with other agencies to identify suitable minimization measures.

Purpose of the Proposed Action

The purpose of the project is to improve traffic flow, roadway safety, and roadway maintenance within the US 89 corridor.

The US 89 corridor from Browning to Hudson Bay Divide is a critical portion of the roadway network serving the Blackfeet Indian Reservation and the east entrance of Glacier National Park. This corridor extends north to the Port of Piegan at the Canadian border and southeast to Yellowstone National Park, representing an important recreational and truck route (Figures 1 and 2). Because of its location on the Blackfeet Indian Reservation, and its connection to several National Parks and the Port of Piegan border station, US 89 accommodates a wide variety of vehicular traffic, including cars, trucks, and recreational vehicles.

All of these types of vehicles have different movement characteristics (e.g., speed and frequency of stops) resulting in different sets of desirable roadway characteristics (e.g., speed limit designations, site distances, location and frequency of turnouts, rest facilities). The existing two-lane roadway is narrow, with sharp curves and few turnouts, providing few opportunities for passing slow-moving vehicles and bicyclists. Because of these roadway characteristics and the variety of vehicles using the roadway, it is not possible to drive at the designated speed limits; vehicles must travel more slowly. Average daily traffic volumes are projected to increase over the next 25 years, exacerbating the effects of the roadway configuration on traffic flow.

Many of the factors that contribute to the need for action based on traffic flow are also factors affecting roadway safety. Sharp curves, narrow shoulders, and numerous roadside obstacles such as steep cut-and-fill slopes reduce the overall safety of the roadway. None of the existing US 89 roadway between Browning and Hudson Bay Divide meets current state and federal roadway design requirements. The diverse mix of traffic and traveling characteristics results in traveler safety issues associated with vehicle speed and frequency of stops. The roadway has insufficient roadway shoulders and pullout areas for bicycle and pedestrian use. There are few places where it is suitable to pass slow-moving vehicles or for slow-moving vehicles to pull off the road and stop. Accidents have become increasingly common, especially in the mountainous section of the roadway north of Kiowa. The accident rate on US 89 from 1994 to 1999 is 1.81 accidents per million vehicle miles of travel, compared with a Montana state average accident rate of 1.55 for similar roads. The absence of right-of-way fencing allows large domestic animals to enter the roadway. Poor sight distance and lack of adequate clear zone contribute to collisions with wild and domestic animals.

US 89 is becoming increasingly difficult and expensive to maintain. The structural section of the roadway has deteriorated to the extent that large areas are rough and uneven. Pavement overlays are no longer a viable option for roadway maintenance because the paved surface, which becomes narrower with each successive overlay, is already dangerously narrow. Snow removal, particularly in the segment of US 89 from Kiowa to Hudson Bay Divide, is complicated by a lack of snow storage areas. Steep cut slopes or vegetation within a few feet of the roadway contribute to drifting and make snow removal slow and expensive.

To address the need for improved traffic flow and safety on US 89, this proposed project also addresses the potential for improving Duck Lake Road as an alternate route for truck traffic traveling between Babb (and points north of Babb) and Browning (and points west, south, and east of Browning). Duck Lake Road is currently used by numbers of trucks, many of which use Duck Lake Road in preference to traveling the curvier alignment of US 89 north of Kiowa and to avoid conflicts with tourist traffic on US 89. As an alternate route to US 89, Duck Lake Road is particularly important for trucks (and other vehicles) in winter, when US 89 can be temporarily snowbound. Duck Lake Road is farther from the Rocky Mountain front than US 89 and has more moderate grades, and so is less often closed due to adverse winter conditions. The proposed improvements to Duck Lake Road address localized inadequate alignment and road surface conditions, and are necessary to maintain safe travel opportunities for all vehicles throughout the year in the Babb to Browning travel corridor. For this reason, the proposed improvements to Duck Lake Road are an essential element in meeting the purpose and need for

the project. Specifically, the Duck Lake Road improvements are necessary to meeting the following project objectives (see discussion of project objectives in Chapter 1):

- Accommodate commercial traffic along US 89 or parallel routes.
- Ensure that critical links in the roadway network are available on a year-round basis.

Alternatives Considered

Alternatives under consideration include a no-build alternative, two action alternatives, and one option. The no-build alternative would maintain the existing road configuration. Alternative B would widen US 89 to an overall width of 9.8 meters (32 feet). Alternative C would widen US 89 to an overall width of 11 meters (36 feet). The Duck Lake Road Option would improve portions of Duck Lake Road to ensure that the road could perform as a truck route. The alternatives under consideration are described in detail in Chapter 2 – Alternatives.

Alternative C with the Duck Lake Road Option has been selected as the preferred alternative for the US 89 Browning to Hudson Bay Divide project.

Section 4(f) Resources in the US 89 Project Area

Four historic roads in the project area are covered by a programmatic agreement and therefore are considered Section 4(f) resources. Two historic bridges in the US 89 project corridor are eligible for listing in the National Register of Historic Places. While there are no publicly owned parks, wildlife or waterfowl refuges, or recreation areas located within the project corridor, Glacier National Park is accessible from the project corridor. Locations of the historic resources discussed below are shown on maps appended to this evaluation. The location of Glacier National Park in relation to the project corridor is shown on Figure 2. Table D-1 summarizes the Section 4(f) resources in the project area, their eligibility, project effects, and measures to minimize harm.

Blackfeet Highway (Site 24GL846)

US 89 between Kiowa and the Canadian border follows the route of the original Blackfeet Highway. The Blackfeet Highway, which ran from East Glacier to Canada, was paved around 1928. Long, intact stretches of an old road grade between Saint Mary Ridge/Hudson Bay Divide and the divide between North Fork Cut Bank Creek and South Fork Cut Bank Creek are evident in the project corridor. The stretches of road exhibit a raised, constructed bed or grade. Some of the segments between Kiowa and Hudson Bay Divide show badly weathered and fragmented pieces of asphalt; others exhibit no asphalt at all. There are numerous two-track roads and trails with no constructed grade in the area, many of which are currently used for access to residences, recreation areas, and hunting areas.

Table D-1. Summary of Section 4(f) resources in the project area, eligibility, effects, and measures to minimize harm.

Resource	NRHP Eligibility	Effects	Measures to Minimize Harm
Blackfeet Highway (site 24GL846)	Protected under programmatic agreement between MDT and FHWA; determination of significance or eligibility not necessary.	Segments would be eliminated where highway crosses US 89.	Road is subject to requirements in programmatic agreement (Appendix D). Prior to removal, road would be photographed and described in detail in a written summary and historic record.
Browning to Babb to Saint Mary Stage Road (site 24GL208)	Protected under programmatic agreement between MDT and FHWA; determination of significance or eligibility not necessary.	Road would be eliminated in Duck Lake improvement area 3 where road crosses Duck Lake Road.	Road is subject to requirements in programmatic agreement (Appendix D). Prior to removal, road would be photographed and described in detail in a written summary and historic record.
Old Duck Lake Road (site 24GL209)	Protected under programmatic agreement between MDT and FHWA; determination of significance or eligibility not necessary.	Road would be eliminated in Duck Lake Road improvement areas 2 and 3 and where road crosses Duck Lake Road.	Road is subject to requirements in programmatic agreement (Appendix D). Prior to removal, road would be photographed and described in detail in a written summary and historic record.
Browning to Peksan Road (site 24GL210)	Protected under programmatic agreement between MDT and FHWA; determination of significance or eligibility not necessary.	Road would be eliminated in Duck Lake Road improvement area 2 and where road crosses Duck Lake Road.	Road is subject to requirements in programmatic agreement (Appendix D). Prior to removal, road would be photographed and described in detail in a written summary and historic record.
South Fork Cut Bank Creek / Kiowa Bridge (site 24GL212)	Eligible	Bridge would be removed under Alternatives B and C.	Prior to removal, bridge would be photographed, measured, and described in detail in a written summary and historic record.
South Fork Milk River Bridge (site 24GL213)	Eligible	Bridge would be modified under Alternatives B and C.	A portion of the bridge would be preserved and the other side would be reconstructed to look like the original arch. Prior to modification, the existing bridge would be photographed, measured, and described in detail in a written summary and historic record. (Pending further analysis, this bridge may require replacement as described for the South Fork Cut Bank Creek bridge).
Glacier National Park	Not applicable	No direct acquisition; no constructive use; some delays for travelers during construction.	Construction on Duck Lake Road would not occur while construction of US 89 is occurring; travelers would be informed of potential construction delays and alternative travel routes.

The Blackfeet Highway is a historic road protected under a programmatic agreement between the Montana Department of Transportation and the Montana State Historic Preservation Office (see Appendix D). Under that programmatic agreement, neither a determination of significance nor National Register eligibility is necessary.

Browning to Babb to Saint Mary Stage Road (Site 24GL208)

Copies of General Land Office maps of 1907 obtained during project research variously label the road from Browning to Lower Saint Mary Lake and the Saint Mary River area as “Browning and Babb Road,” “Browning to Babb Stage Road,” and “Saint Mary’s Stage Road Browning to Babb.”

Routes of the two historic roads were very similar from Browning just south of the Dry Fork Milk River. The Browning to Babb to Saint Mary Stage Road angled in a northwest direction from Dry Fork Milk River to the southwest corner of Duck Lake. Evidence of the Browning to Babb to Saint Mary Stage Road is visible in improvement areas 2 and 3 on Duck Lake Road.

The Browning to Babb to Saint Mary Stage Road is a historic road protected within a programmatic agreement between the Montana Department of Transportation and the Montana State Historic Preservation Office (appended to this evaluation). Under that programmatic agreement, neither a determination of significance nor National Register eligibility is necessary.

Old Duck Lake Road (Site 24GL209)

A well-constructed (raised) abandoned road grade, built from 1925 to 1931, is clearly visible on the ground and in aerial photos generally paralleling the present alignment of Duck Lake Road. This historic road is referred to as the Old Duck Lake Road for the purposes of this analysis. It departs in some instances from the modern Duck Lake Road by approximately 1.6 kilometers (1 mile) to the south but eventually rejoins the modern alignment just north of the Middle Fork Milk River, where the modern road curves at reference post DLR-24.

The route of Old Duck Lake Road is similar from Browning just south of the Dry Fork Milk River. Old Duck Lake Road continues north, crossing the Dry Fork Milk River and the Middle Fork Milk River before turning west not far to the north of the Middle Fork Milk River. Old Duck Lake Road continues generally westward toward Duck Lake. Near the southwest corner of Duck Lake, Old Duck Lake Road rejoins Babb to Browning to Saint Mary Stage Road.

Old Duck Lake Road is a historic road protected within a programmatic agreement between the Montana Department of Transportation and the Montana State Historic Preservation Office (appended to this evaluation). Under that programmatic agreement, a determination of significance or National Register eligibility is not necessary.

Browning to Peskan Road (Site 24GL210)

This site is also known as the Babb to Peskan Road. A 1907 General Land Office map for township range coordinates 36N, 12W shows a road extending north labeled “Browning to Peskan” that branched off the Browning to Babb to Saint Mary Stage Road just south of the Dry Fork Milk River. Evidence of this road was observed in improvement area 2 on Duck Lake Road and consisted of a remnant roadbed.

The Browning to Peskan Road is a historic road protected within a programmatic agreement between the Montana Department of Transportation and the Montana State Historic Preservation Office (appended to this evaluation). Under that programmatic agreement, a determination of significance or National Register eligibility is not necessary.

South Fork Cut Bank Creek/Kiowa Bridge (Site 24GL212)

The South Fork Cut Bank Creek/Kiowa bridge is located in the proximity of reference post 13 in the US 89 corridor (Figure 5). The bridge is part of the US 89 system and conveys South Fork Cut Bank Creek underneath the roadway. A pullout for recreational access to the river is located to the northwest of the bridge. This pullout provides parking opportunities to view the structure; however, the bridge is not labeled as a historic structure, and there is no established viewing area.

The structure is a rock-faced concrete arch bridge with an approximately 6.2-meter (20-foot) opening. The bridge measures 9 meters (30 feet) in length and 6 meters (20 feet) in width. The bridge contains hand-placed flagstone railing and detail work. The bridge was built in 1928 during construction of the Blackfeet Highway. The bridge is eligible for listing in the National Register of Historic Places.

The bridge appears to be in poor condition and would be replaced as part of this proposed project. The bridge opening does constrain streamflow, creating a pool on the upstream side of the bridge and causing erosion during high flows. Further, the bridge cannot be brought to current standards. It is too narrow, the rails are inadequate, and the basic structure can not be made as strong as is now required.

South Fork Milk River Bridge (Site 24GL213)

The South Fork Milk River bridge is located in the proximity of reference post 21.7 in the US 89 project corridor (Figure 5). The bridge is part of the US 89 highway system and conveys the South Fork of the Milk River underneath the roadway. At the bridge, there is no sign indicating that the bridge is a historic structure and there is no established viewing area.

The structure is a rock-faced concrete arch bridge with a 6.2-meter (20-foot) opening and measures approximately 9 meters (30 feet) in length and 6 meters (20 feet) in width. The bridge contains hand-placed flagstone railing and detail work. The bridge was constructed in 1928

during construction of the Blackfeet Highway. The bridge is eligible for listing in the National Register of Historic Places.

The bridge is reportedly structurally sound and does not constrict streamflow.

Glacier National Park

Glacier National Park is a destination park, meaning tourists typically travel a substantial distance to visit the park and spend several days in the area. Within the project area, US 89 is part of an important scenic loop, consisting of Highway 2, Going-to-the-Sun Road, US 89 and Looking Glass Hill Road, that is frequently traveled by tourists visiting the project area. Outside the project corridor, US 89 provides access to the eastern end of Going-to-the-Sun Road, which is one of Glacier National Park's premier attractions and is traveled by nearly 2 million visitors each year. Going-to-the-Sun Road, the only road that traverses the entire width of Glacier Park, connects Lake McDonald on the west with St. Mary Lake on the east and provides the only access to many of the Park's other main attractions. The road is open to motorists from early June to mid October. During winter months, segments of Going-to-the-Sun Road are accessible for cross-country skiing and snowshoeing. US 89 also serves as a major travel route between Yellowstone National Park, the Bob Marshall Wilderness area, and Glacier National Park. The highway continues north into Alberta Canada, where it becomes Alberta Highway 2, and provides vehicular access from Glacier National Park to Waterton National Park, Jasper National Park, and Banff National Park.

There are four entrances to Glacier National Park accessible from US 89; however, only one (the Cut Bank entrance west of reference post 17) accesses directly from US 89 within the project corridor. The boundary of Glacier National Park is approximately 6 kilometers (4 miles) along the Cut Bank access road from that road's junction with US 89 just north of the bridge over the North Fork Cut Bank Creek. The Cut Bank entrance is the least utilized eastern entrance to the park. The Cut Bank campground, immediately west of the national park boundary, is accessible from this entrance and rarely fills to capacity during the peak visitor season (June – August). Between 1990 and 1991, this entrance received an average of 1,598 visitors in August, whereas the St. Mary's entrance (the most popular eastern entrance) received an average of 120,479 visitors in August.

Project Effects on the Section 4(f) Resources

This section describes the impacts on Section 4(f) resources resulting from each alternative of the proposed US 89 corridor project. No use of land from any Section 4(f) resource would be required under the no-build alternative.

Blackfeet Highway (Site 24GL846)

Segments of the Blackfeet Highway would be eliminated within the proposed reconstruction limits of US 89 at each location where the Blackfeet Highway crosses US 89. Specifically, seven segments of the Blackfeet Highway are located in proximity to the existing US 89 alignment (refer to maps appended to this evaluation). Four of these segments are located between Kiowa and Browning adjacent to portions of US 89 that would be widened but not realigned. Depending on final design, up to approximately 20 meters (66 feet) of area on one or both sides of the existing US 89 roadway could be disturbed during construction with the elimination of the existing Blackfeet Highway within the zone of construction.

The fifth segment crosses US 89 adjacent to the South Fork Cut Bank Creek. At this location, US 89 would be realigned slightly to the east to minimize total impacts to the creek and the slope to the northeast, and up to approximately 50 meters (164 feet) of the Blackfeet Highway would be eliminated.

The sixth segment of the Blackfeet Highway roughly parallels US 89 on the south and north slopes of Cut Bank Ridge – Red Blanket Butte crossing US 89 at three locations and varying in distance from US 89 from 0 to 400 meters (1,300 feet) or more. US 89 would be realigned substantially on the south side of Cut Bank Ridge to eliminate a severe hairpin and double curve. The realigned road would cross the Blackfeet Highway resulting in the elimination of up to approximately 50 meters (164 feet) of the Blackfeet Highway. The widened US 89 would cross this segment of the Blackfeet Highway in two other locations at approximately the same locations that the existing US 89 crosses the Blackfeet Highway resulting in the elimination of up to approximately 40 meters (130 feet) of the Blackfeet Highway at each location.

The seventh segment of the Blackfeet Highway roughly parallels the existing alignment of US 89 for about 10 kilometers (6 miles) south of Hudson Bay Divide. This segment crosses US 89 in two locations and varies in distance from US 89 between 0 and 1000 meters (3300 feet) or more. Three areas of use would occur along this segment. On the south side of Milk River Ridge, the Blackfeet Highway closely parallels US 89 and widening could eliminate the Blackfeet Highway for a distance of up to about 400 meters. The other two locations occur where the Blackfeet Highway crosses the existing US 89 at the sharp double curve south of the South Fork Milk River and at the south end of the large hairpin curve immediately south of Hudson Bay Divide. The realignments at these locations proposed to eliminate or reduce the severe roadway curves would result in the elimination of up to approximately 50 meters (164 feet) of the Blackfeet Highway at each location.

In total, of the approximately 19 kilometers (12 miles) of Blackfeet Highway that occurs in proximity to US 89 within the project corridor, up to about 800 meters of Blackfeet Highway would be eliminated by the proposed project.

Browning to Babb to Saint Mary Stage Road (Site 24GL208)

The Browning to Babb to Saint Mary Stage Road would be eliminated within proposed reconstruction limits of improvement area 3 on Duck Lake Road at each location where the Browning to Babb to Saint Mary Stage Road crosses Duck Lake Road. The historic road crossing near improvement area 2 is not within the proposed area of improvements and no impacts are expected at this location.

Old Duck Lake Road (Site 24GL209)

Old Duck Lake Road would be eliminated within proposed reconstruction limits for improvement areas 2 and 3 on Duck Lake Road and at each location where it crosses the Duck Lake Road project corridor.

Browning to Peskan Road (Site 24GL210)

The Browning to Peskan Road would be eliminated within proposed reconstruction limits of improvement area 2 on Duck Lake Road at each site where it crosses Duck Lake Road.

South Fork Cut Bank Creek/Kiowa Bridge (Site 24GL212)

Both Alternative B and the preferred Alternative C would require use of this historic site, and the historic bridge would be removed.

South Fork Milk River Bridge (Site 24GL213)

Based on preliminary investigations, both Alternative B and Alternative C would require partial use of this historic site. Both alternatives would retain the existing bridge, but would modify it to accommodate proposed roadway widening. One side of the bridge would retain the original concrete arch and would not be modified. The other side of the bridge would be widened and reconstructed to look like the original concrete arch bridge. If the structure cannot be brought to current standards through modification of the existing structure, this bridge may be removed, requiring a full use of the site.

Glacier National Park

The proposed project would not require the direct use of any publicly owned parks. During construction, tourists accessing Glacier National Park from US 89 may experience some delays during construction thereby affecting the quality of the recreational experience and user enjoyment. However, these delays would not substantially impair the function of the park.

The portion of US 89 in the vicinity of the Cut Bank entrance to Glacier National Park was reconstructed approximately 10 years ago. No improvements are proposed or required at this location under the proposed action. Therefore, access to the Cut Bank entrance would not be

directly affected by construction of the proposed action. Construction in the US 89 corridor is unlikely to affect user enjoyment of the Cut Bank campground due to the separation of that facility from construction activity. For example, noise from US 89 construction, which may reach levels of 80 to 90 decibels at a distance of 15 meters (50 feet) from the construction activity, would be attenuated to ambient levels at the campground due to the distance from construction (at least 6 kilometers [3.7 miles]) and intervening vegetation and topography. Other potential proximity impacts, such as air quality impacts from construction dust and visual impacts would similarly be minimal due to distance. Based on the above, no constructive use of Glacier National Park would occur due to the proposed project.

Avoidance Alternatives

This section identifies and evaluates location and design alternatives that would avoid the use of Section 4(f) resources. The March 1, 2005 FHWA Section 4(f) Policy Paper states that “[t]he intent of the Section 4(f) statute and the policy of the USDOT is to avoid the use of significant public parks, recreation areas, wildlife and waterfowl refuges and historic sites as part of a project, unless there is no feasible and prudent alternative to the use of such land. In order to demonstrate that there is no feasible and prudent alternative to the use of 4(f) land, the evaluation must address both location alternatives and design shifts that totally avoid the 4(f) land.”

The March 1 policy paper also states that “[a]n alternative is feasible if it is technically possible to design and build that alternative....An alternative may be rejected as not prudent for any of the following reasons:

1. It does not meet the project purpose and need,
2. It involves extraordinary operational or safety problems,
3. There are unique problems or truly unusual factors present with it,
4. It results in unacceptable and severe adverse social, economic or other environmental impacts,
5. It would cause extraordinary community disruption,
6. It has additional construction costs of an extraordinary magnitude, or
7. There is an accumulation of factors that collectively, rather than individually, have adverse impacts that present unique problems or reach extraordinary magnitudes.”

Four Historic Road Segments (Sites 24GL846, 24GL208, 24GL209, and 24GL210)

Because the road segments cross US 89 and Duck Lake Road, any road widening or improvements would affect these segments. Large realignments that would move the roadway

several hundred to several thousand meters from the existing or proposed alignment would be necessary to avoid some of the road segments altogether. Large realignments such as these would result in unacceptable and severe impacts to wetlands and streams and require substantially more topographic modifications. Effects on the historic road segments where they cross widened portions of US 89 could be avoided if the widening did not occur at those locations. This localized reduction of road width to avoid impacts would result in an unsafe condition for vehicles and bicyclists that would be similar to the unsafe conditions that now exist on US 89, and therefore this design shift would not meet the project purpose and need to improve roadway safety. Therefore, no feasible and prudent alternative exists to avoid impacts.

South Fork Cut Bank Creek/Kiowa Bridge (Site 24GL212)

Both action alternatives would remove the existing bridge and construct a longer and wider structure with a larger opening to convey streamflows. Avoidance alternatives at this location include using the existing bridge in its current condition or roadway realignment.

The feasibility of retaining the existing structure and alerting motorists to the presence of a narrow bridge was examined for both action alternatives. However, this option would result in the following consequences:

- There would be continued hydraulic constraints on the river's natural flow at the historic bridge site.
- This option would not improve safety for bicycles and pedestrians.
- The bridge would not meet current standards and could not be made as strong as is now required to meet current standards.

Therefore, this alternative is not prudent because it would not meet the project purpose and need to improve roadway safety (for bicycles and pedestrians), would involve extraordinary operational and safety problems (because the bridge would not meet current standards), and would result in unacceptable and severe environmental impacts (because of continued hydraulic constraints).

The feasibility of retaining the existing bridge and realigning the roadway on a wider bridge to the east was also examined for both alternatives. However, the proposed realignment to the east would result in the following consequences:

- The realignment would require a second bridge crossing and the loss of riparian vegetation near an existing crossing.
- A large cut into a steep, potentially unstable slope would be made, resulting in potential adverse impacts on South Fork Cut Bank Creek from sedimentation and erosion
- More wetland area would be filled.

-
- More land would be converted to highway right-of-way.
 - A cultural site could be disturbed.
 - The realignment would result in increased disturbance in riparian areas and ongoing hydraulic constraints on the natural flow of the river at the historic bridge site.

Therefore, this realignment alternative is not prudent because it would result in unacceptable and severe environmental impacts.

Retaining the existing bridge and realigning the roadway to the west was not considered for the following reasons:

- A western alignment would place the roadway in the stream channel and result in extensive adverse impacts on the stream.
- A western alignment would require extensive filling of wetland area and likely would not receive the required permits under Section 404 of the Clean Water Act.
- One of the project objectives, to protect the natural environment, would not be met due to increased disturbance in riparian area and ongoing hydraulic constraints on the natural flow of the river at the historic bridge site.

Therefore, this realignment alternative is not prudent because it would result in unacceptable and severe environmental impacts.

South Fork Milk River Bridge (Site 24GL213)

Based on preliminary investigations, both action alternatives would retain the existing bridge in its current location and widen one side of the structure to accommodate roadway improvements. If the structure cannot be brought to current standards, this bridge may be removed. Avoidance alternatives at this location include using the existing bridge or roadway realignment.

The feasibility of retaining the existing structure and alerting motorists to the presence of a narrow bridge was examined for both action alternatives. However, this option is not prudent because it would not meet the purpose of and need for the project to improve roadway safety for vehicles, bicyclists, and pedestrians.

A second avoidance alternative that was examined would retain the existing bridge and realign the roadway on a wider bridge to the east or west. This alternative was not considered for the following reasons:

- A second bridge crossing near an existing crossing would result in the loss of riparian vegetation and habitat.

-
- More wetland area would be filled.
 - More land would be converted to highway right-of-way.
 - Grizzly bear foraging habitat would be adversely affected.

Therefore, this realignment alternative is not prudent because it would result in unacceptable and severe environmental impacts.

Glacier National Park

While the proposed project may cause some travel delays in accessing the east side of Glacier National Park, this public park would not be directly used and no constructive use would occur. In addition, suitable detour routes to avoid construction are available. Therefore, no avoidance alternatives were considered.

Measures to Minimize Harm

This section describes the measures considered to minimize harm on the historic roads and bridges affected by the proposed action. The March 1, 2005 FHWA Section 4(f) Policy Paper states that “[m]inimization of harm entails both alternative design modifications that lessen the impact on 4(f) resources and mitigation measures that compensate for residual impacts.” Measures identified to minimize harm will be implemented as an element of the project design and construction.

Four Historic Road Segments (Sites 24GL846, 24GL208, 24GL209, and 24GL210)

Selection of Alternative B rather than the preliminary preferred alternative, Alternative C, while not avoiding use of the Blackfeet Highway (Site 24GL846), would reduce the extent of use of the site, but only by a very minor amount. Alternative B would result in a width of cleared area approximately 1.2 meters (4 feet) less than Alternative C (refer to Figure 9). This reduced use of the Blackfeet Highway under Alternative B would result in a negligible reduction in impact to the historic character of the site. Given the large area covered by the Blackfeet Highway, the negligible difference in impacts between alternatives B and C results in a constructively equal net impact on this resource for these alternatives. In light of these equivalent impacts, Alternative C remains the preferred alternative due to the safety benefits from the wider roadway. Therefore, there are no practical alternatives available that reduce harm to the four historic road segments.

Historic roads and bridges in the project corridor are subject to the requirements outlined in the Montana Department of Transportation, Montana State Historic Preservation Office, Federal Highway Administration, and the Advisory Council on Historic Preservation programmatic agreement dated May 1989 (appended to this evaluation). Prior to construction each historic road segment to be affected by the project will be photographed and described in detail in a

written summary and historic record of the site. This record will be retained at the Blackfeet Cultural Department and the Montana State Historic Preservation Office. These measures will compensate for residual impacts on the four historic road segments.

South Fork Cut Bank Creek/Kiowa Bridge (Site 24GL212)

The South Fork Cut Bank Creek/Kiowa Bridge would be removed under the proposed action. Measures to minimize harm at this site include retaining the structure but widening it to accommodate the proposed roadway improvements. However, the existing structure constricts the natural streamflow of the river and causes erosion during high flows. Further, the existing structure cannot be made as strong as is now required to meet current standards. Retaining a portion of the structure onsite was also considered, however due to the nature of the materials used in its construction, it is not possible to retain just a portion of the structure. Replacing the bridge will improve hydrology in this important fish-bearing system and will also include provisions for dry land passage for large mammals underneath the bridge during most of the year. To minimize harm to the bridge, removal and reuse was also considered. However, because of the nature of the materials used in its construction, this structure cannot be removed intact to be reused at another site. Therefore, there are no practical alternatives available that reduce harm to the South Fork Cut Bank Creek/Kiowa historic bridge.

Prior to its removal, the existing bridge will be photographed, measured, and described in detail in a written summary and historic record of the site. This record will be retained at the Blackfeet Cultural Department and the Montana State Historic Preservation Office. These measures will compensate for residual impacts on the South Fork Cut Bank Creek/Kiowa historic bridge.

South Fork Milk River Bridge (Site 24GL213)

Recognizing the need to remove the historic bridge at South Fork Cut Bank Creek, the South Fork Milk River Bridge would be preserved to the extent feasible. The bridge would be retained on the site, although the widened alignment would require modifications to the bridge. The modifications are the minimum necessary for structural safety, and therefore eliminating or lessening the modifications to reduce harm to the bridge is not practical. However, if the structure cannot be brought to current standards, this bridge may be removed. If the bridge is preserved, one side of the bridge would retain the original concrete arch. The other side of the bridge would be widened and reconstructed to look like the original concrete arch bridge. Prior to the proposed modifications, the existing bridge would be photographed, measured, and described in detail in a written summary and historic record of the site. This record would be retained at the Blackfeet Cultural Department and the Montana State Historic Preservation Office. These measures will compensate for residual impacts on the South Fork Milk River historic bridge.

Glacier National Park

Although the expected impacts to Glacier National Park would not be sufficiently severe to constitute either a direct use or a constructive use, the proposed project would incorporate measures that would minimize impacts to the park. Tourists accessing the east entrance of Glacier National Park could travel Duck Lake Road to avoid construction delays on US 89. Because improvements are also planned for Duck Lake Road, these projects could not occur during the same period. In addition, the traveling public would be provided sufficient warning of potential traffic delays and alternative travel routes.

Coordination

In addition to compliance with Section 4(f), the Montana Department of Transportation must comply with the requirements of the Historic Preservation Act, Section 106. On October 29, 2002, the Montana Department of Transportation provided its determination of effect for the US 89 project to the Montana State Historic Preservation Office (appended to this evaluation). On October 31, 2002, the Montana State Historic Preservation Office provided its letter of concurrence to the Montana Department of Transportation (see appended to this evaluation).

On August 14, 2001, and other dates, the Montana Department of Transportation also consulted with the Blackfeet Cultural Program to identify mitigation measures for impacts on cultural resources. Most of these resources were subsequently avoided by realigning the roadway. These resources were subsequently determined not to be eligible for listing and thus do not meet the definition of Section 4(f) resources. Therefore they have not been discussed elsewhere in this 4(f) evaluation.

Coordination with the U.S. Department of the Interior

The U.S. Fish and Wildlife Service (USFWS) and the Bureau of Indian Affairs (BIA), both agencies within the U.S. Department of Interior, are cooperating agencies for this EIS. As cooperating agencies, the USFWS and BIA were provided opportunity to review preliminary versions of documents and provide comment throughout preparation of the Draft and Final EISs. In addition, both agencies were provided copies of the Draft EIS, although neither agency provided formal comments to the Draft EIS.

In addition, the planning process for the US 89 project included both a steering committee and an interdisciplinary team. The steering committee included representatives from various state and federal agencies and interest groups, including the BIA and the National Park Service (Glacier National Park). Seven steering committee meetings have taken place for the project. The interdisciplinary team included various technical experts and agency representatives, including the BIA, USFWS, and National Park Service (Glacier National Park). Four interdisciplinary team meetings have taken place for the project.

Summary Conclusion

Based upon the above considerations, there is no feasible and prudent alternative to the use of land from the Four Historic Road Segments (Sites 24GL846, 24GL208, 24GL209, and 24GL210); the South Fork Cut Bank Creek/Kiowa Bridge (Site 24GL212); and the South Fork Milk River Bridge (Site 24GL213). The proposed action includes all possible planning to minimize harm to the Four Historic Road Segments (Sites 24GL846, 24GL208, 24GL209, and 24GL210); the South Fork Cut Bank Creek/Kiowa Bridge (Site 24GL212); and the South Fork Milk River Bridge (Site 24GL213) resulting from such use.

Section 4(f) Documentation



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

David A. Galt, Director
Judy Martz, Governor

October 29, 2002

Mark Baumler
State Historic Preservation Office
Montana Historical Society
1410 East 8th Avenue
P.O. Box 201202
Helena, MT 59620

Subject: **BROWNING - HUDSON BAY DIVIDE**
STPP 58-1(19) 0
CONTROL NUMBER 4045

Dear Mark,

This letter and its attachments constitute Montana Department of Transportation's (MDT) determination of effect (DOE) for the above federal aid highway project. A Draft Environmental Impact Statement is (DEIS) under preparation for this project at the present time. This determination of effect is based on MDT's preferred alignment. Two alternatives have been considered, a 32 foot wide road and a 36 foot wide road. This DOE assumes that the 36 foot wide alternative is used, thus we are examining impacts to cultural resources based on the widest road footprint that is under consideration. If ultimately a 32 foot wide road is constructed then the impacts will be reduced. As yet no projects have been programmed to construct any of the highway segments that are being examined under the auspices of the DEIS.

Steve Aaberg conducted the cultural resource inventory report for this project (Aaberg, Kipp, Walker-Kuntz and Crofut 2001). The report is dated 3/01. MDT consulted with Montana SHPO regarding this report on 7/10/01 and SHPO subsequently replied on 7/17/01. Aaberg identified 58 cultural loci along the project corridor. Property types include stone circle sites, lithic scatters, cairn sites, buried campsites, historic roads and bridges and a large number of contemporary Blackfeet cloth offering locations.

On 8/14/01 MDT met with Skillings-Connolly and the Blackfeet Tribe in Browning to discuss the cultural sites identified along the project corridor and determine the Tribe's priorities for site avoidance. Joyce Spoonhunter provided input from the Blackfeet Cultural Program and Ramona Hall represented the Bureau of Indian Affairs at the meeting. At that meeting it was decided that several sites which local informants stated might contain human burials were the most important priority to avoid.

In December 2001, Joyce Spoonhunter conducted elder interviews and site visits along the Browning - Hudson Bay Divide project corridor. The elders recommended that the Blackfeet Cultural Program move several tipi rings and a couple of cairns that appeared to be in conflict with the road. With regard to the cloth offering locations, the Blackfeet Cultural Program agreed to "find a qualified person" to move any offerings that have not deteriorated away prior to construction of the highway reconstruction project. On 1/17/02 the Blackfeet Tribal Business Council passed a resolution approving the Blackfeet Cultural Program's report and recommendations. Attachment #2 is the Blackfeet Cultural Program report and Council Resolution.

As of a few weeks ago the plans for this project called for impacts to 24GL942, a significant stone circle site located at stations 82 through 84 on the north side of U.S. Highway 89. Since that time MDT's consultant, Skillings Connolly, has redesigned the road adjacent to 24GL942 in such a way that the preferred alignment will avoid the site and have no effect upon it. See Attachment #1.

Other eligible or unresolved sites that will be avoided include 24GL943 and 24GL944, both cairn sites, the Eagle Child Family Burial Area (See Attachment #3), and 24GL948, which consists of cairns and a grave (See Attachment #4).

Also to be avoided are, 24GL951, which consists of cairns and possibly burials (See Attachment #5), and 24GL952, a buried campsite located on the south bank of the South Fork of the Milk River (See Attachment #6).

The cloth offering sites were noted on the plans but not given Smithsonian numbers. Thirty two cloth offering loci were identified along the US 89 project corridor. Of these, twelve cloth offering loci will be impacted by construction of MDT's preferred alignment. The Blackfeet Cultural Program has agreed to move the offerings that fall in the path of the new road.

The four historic road segments and two historic bridges all fall under MDT's PMQA on Historic Roads and Bridges. The bridges are concrete structures with beautiful stone facades. One of these bridges, 24GL213, is located over the South Fork of the Milk River. It is in good shape and will be rehabilitated and maintained in place as part of the reconstruction of this portion of US 89. The other bridge, 24GL212, is located over the South Fork of Cut Bank Creek. The Cut Bank Creek Bridge is in poor condition and has been slated for replacement. See Attachment #7.

Also included in the DEIS under preparation is an option to upgrade the Duck Lake Road. The plan is to reconstruct Duck Lake Road to a 32 foot top width and flatten slopes alongside the road to meet federal safety standards. Although Aaberg surveyed the entire length of the Duck Lake Road alternative, MDT plans to reconstruct only the western 10 miles of the road. There is one archaeological site, 24GL956, located along this stretch of Duck Lake road. The site is a buried lithic scatter located on the north side of the road along an un-named tributary of the St. Mary's River. It has not been formally

evaluated. MDT plans to avoid the site by realigning the road south of its present location.

Browning-Hudson Bay Divide is a NEPA project addressing anticipated impacts to reconstruction of Highway 89 and 10 miles of Duck Lake Road on the Blackfeet Indian Reservation. As yet no monies have been appropriated to build any of the road segments under examination in the DEIS. It may be several years before MDT programs the dollars to construct what is currently being examined under the NEPA process, and several more years of project development work before any road segments will be ready to go to contract. We will make every effort to see that the final design is consistent with the design upon which this determination of effect is based. However, since final plans may not be available for parts of the road for many years it is possible that this effect determination will need to be updated at some unknown point in the future.

If you have questions about this matter please contact me at 406-444-0455 or splatt@state.mt.us.



Steve Platt, Archaeologist
Environmental Services

Cc: Gordon Stockstad, Resources & Permitting w/attach.
Joyce Spoonhunter, Blackfeet Cultural Program w/attach.
Ramona Hall, BIA, Blackfeet Indian Reservation w/attach.
Marvin Keller, BIA, Billings Area Office w/attach.
Karl Helvik, P.E., Consultant Design w/attach.
File w/attach.

References:

Aaberg, Stephen A., George Kipp III, Patrick Walker-Kuntz, and Chris Crofut
2001 *U.S. 89 Browning-Hudson Bay Divide and Duck Lake Road
Archaeological and Cultural Investigations, Blackfeet Reservation,
Glacier County, Montana Volumes I and II*, report prepared for
Skillings-Connolly, Inc. Lacey, Washington.

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RECEIVED
NOV 04 2002
ENVIRONMENTAL

Thursday, October 31, 2002

Steve Platt
MT DOT
POB 201001
Helena 59620-1001

RE: Browning Hudson Bay Divide
STPP 58-1(19) 0
Control 4045

Steve:

Thank you for requesting our comment regarding impacts to cultural resources associated with the above referenced federal aid highway project. We have reviewed the submitted reports: Aaberg 2002 and Blackfeet Culture Department 2001.

Based on that review and the supporting resolution from the Blackfeet Tribal Business Council we agree that significant impacts to a) Historic Properties, b) resources with unresolved National Register Eligibility or c) places of on going cultural practice are not expected as long as the preliminary plan sheets and special provisions for protection for the preferred alternative (dated 07/18/2002 and 10/02/2002) are followed. We did not see a special provision on the preliminary plans specifying culturally appropriate removal of the contemporary prayer offerings as found in the Blackfeet Culture Department report and BTBC resolution 53-2002, and believe it would be appropriate to make a clear stipulation for following those findings in the ROD. We also believe the potential for significant impacts to cultural resources and Historic Properties would require supplemental assessment should the preferred alignment change. If avoidance of Eligible or unresolved properties cannot be accomplished as final designs are proposed further consultant under 36 CFR 800 would also be warranted.

We would like to express our appreciation to MT DoT, and Skillings Connolly, their consultant, for the sincere and effective efforts to redesign this project to avoid significant cultural resources.



Stan Wilmoth, Ph.D.
State Archaeologist/Deputy, SHPO

MASTER FILE COPY

Appendix 1: The 1989 Historic Roads and Bridges Programmatic Agreement.

PROGRAMMATIC AGREEMENT

Among the Federal Highway Administration (FHWA), the Montana State Historic Preservation Office (MSHPO), and the Advisory Council on Historic Preservation (ACHP), to develop a historic preservation plan to establish processes for integrating the preservation and use of historic roads and bridges with the mission and programs of the FHWA in a manner appropriate to the nature of the historic properties involved, the nature of the roads and bridges in Montana, and the nature of the FHWA's mission to provide safe, durable and economical transportation.

WHEREAS, Congress has mandated that highway bridges be evaluated, and where found substandard, be rehabilitated or replaced and has provided funding for these purposes, to insure the safety of the traveling public (through the Highway Bridge Replacement and Rehabilitation Program); and

WHEREAS, the American Association of State Highway and Transportation Officials (AASHTO) has standards regulating the construction and the rehabilitation of highways and bridges that must be met by the FHWA to insure the safety of the traveling public; and

WHEREAS, Congress declares it to be in the national interest to encourage the rehabilitation, reuse and preservation of bridges significant in American history, architecture, engineering and culture; and

WHEREAS, the FHWA proposes to make Federal funding available to the Montana Department of Highways (MDOH) for its ongoing program to construct and rehabilitate roads and bridges, and MDOH concurs in and accepts responsibilities for compliance with this Agreement; and

WHEREAS, the FHWA has determined that the construction and improvement of

highways may have an effect on historic roads and bridges that are listed in the National Register of Historic Places, or may be determined eligible for listing, and have consulted with the ACHP and the MSHPO pursuant to Section 800.13 of the regulations (36CFR800) implementing Section 106 of the National Historic Preservation Act (16U.S.C. 470f); and

WHEREAS, the parties understand that not all historic roads and bridges fall under the jurisdiction of sphere of influence of the FHWA, and that to encourage other parties to participate in preservation efforts, an education to foster a preservation ethic is needed; and

NOW THEREFORE, FHWA, MSHPO, and ACHP agree, and MDOH concurs, that the following program to enhance the preservation potential of historic roads and bridges, and to promote management and public understanding of and appreciation for these cultural resources will be enacted in lieu of regular Section 106 procedures as applied to historic roads and bridges only.

Stipulations

The Federal Highway Administration will ensure that the following program is carried out:

The Federal Highway Administration, in cooperation with the Montana Department of Highways, will develop a preservation plan to ensure the preservation and rehabilitation of the states [sic] significant historic roads and bridges, and will develop and on-going educational program to interpret significant historic roads and bridges that illustrate the engineering, economic, and political development of roads in Montana. Specifically:

A. For Public Education

1. MDOH will prepare technical documentation of the history of roads and road construction, and of the history of bridge building in the state, according to a format developed by MDOH in consultation with the MSHPO and in compliance with the Secretary of the Interior's Standards for Preservation Planning. From this documentation, MDOH will prepare narrative histories suitable for publication for the general public. Draft copies of the documentation and the narrative histories will be submitted to the FHWA, MSHPO and a list of qualified reviewers to be determined by FHWA, MDOH and MSHPO by December 1, 1990, and 45 days will be allowed for reviewers to comment. MDOH will prepare final documentation and histories by May 1, 1991. Final copies will be distributed to the district, area, and field offices of the MDOH, to the County Commissioners, county road and bridge departments, and county historical societies, to the owners of significant roads and bridges identified in the documentation, to the Montana Historical Society Library and the Montana State Library, and to the general public as requested.
2. MDOH will develop and make available to newspapers and publishers of historical and of engineering journals articles suitable for public information on historic roads and bridges and on their construction and significance.

3. MDOH will augment its historic sign program by developing interpretation for the traveling public at existing rest areas or pull-overs to explain Montana's road construction and bridge engineering. It will develop on-site interpretation for significant resources that can be viewed and appreciated by the public.
4. By April 15, 1990 MDOH will develop and circulate a traveling exhibit that portrays the history of the development of transportation in Montana.
5. By December 1, 1991 MDOH will develop and circulate a public program (slide/tape or video) of approximately 20 minutes, suitable for use at public or organization gatherings, classrooms, etc.

B. For Historic Road and Bridge Preservation

1. The FHWA, in co-operation with the MDOH, will prepare a plan for the preservation of significant and representative road segments and bridge types around the state as identified in the research in Part A. of this Agreement. The Historic Preservation Plan (HPP) will be presented to the FHWA, MSHPO, the ACHP and [a] list of qualified reviewers by September 1, 1991, and 45 days comment period will be allowed for discussion and adoption. FHWA will work to resolve disagreement on the proposed HPP. If agreement cannot be reached by December 1, 1991, all FHWA undertakings affecting historic roads and bridges will again become subject to 36 CFR 800 procedures.

The HPP for historic roads and bridges shall be prepared in accordance with the following guidelines:

- a. The essential purpose of the HPP will be to establish processes for integrating the preservation and use of historic roads and bridges with the mission and programs of the FHWA and the MDOH in a manner appropriate to the nature of the historic properties involved, the nature of the roads and bridges in Montana, and the nature of FHWA's mission, to provide safe, durable and economical transportation;
- b. In order to facilitate such integration, the HPP, including all maps and graphics, will be made consistent with the Federal Aid road and bridge numbering systems;
- c. The HPP will be prepared in consultation with the owners, managers, caretakers, or administrators of historic roads and bridges, including county governments, city governments, federal agencies, and private individuals or corporations, and with interested parties or organizations, including the American Society of Civil Engineers - Montana Section, and the Montana Society of Engineers;
- d. The HPP will be prepared with reference to the Secretary of Interior's Standards and Guidelines for Preservation Planning (48

FR 44716-20); and

- e. The HPP will be prepared by or under the supervision of an individual who meets, or individuals who meet, at a minimum, the "professional qualifications standards" for historian and archaeologist in the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9).
2. The contents of the HPP will be developed in conjunction with the MSHPO, and will include, but not be limited to, a schedule for the anticipated implementation of the various elements, plus the formulation and presentation of programs to:
 - a. Preserve historic bridges that do not meeting safety rating standards by rehabilitation in a manner that would preserve important historic features while meeting as many AASHTO standards as can be reasonable met;
 - b. When a historic bridge must be replaced, give full consideration and demolition savings to reuse of the historic bridge in place by another party.
 - c. When a historic bridge must be replaced and in place preservation is not feasible, give full consideration and financial assistance to relocating and rehabilitating the historic bridge as a part of the replacement project;
 - d. Develop and implement a program to encourage relocation and reuse of bridges of historic age that cannot be preserved in place or used on another location by the state or county;
 - e. Provide a financial incentive by offering demolition savings on all relocation and reuse of bridges of historic age;
 - f. Develop a list of historic roads and bridges that can be preserved. The list should include the variety available to reflect Montana highway construction history, while considering current condition and use. The list should be presented to and discussed with managing units to solicit their cooperation and/or participation in the preparation of the HPP; and
 - g. Devise a program to pursue the preservation of the state's representative and outstanding examples of road and bridge technology. A list of historic roads and bridges shall be preserved will be developed to implement this program, given currently known commitments to do so by property managers and subject to change by obtaining future commitments for other properties covered by this Agreement.
 3. The HPP will not include information developed in Part A. above, narrative histories, but will be guided by and used in conjunction with Part A. above,

and will be distributed to the same parties.

4. MDOH will prepare a report annually on its implementation of the HPP, and provide this report to the FHWA, the SHPO, and the ACHP for review, comment, and consultation as needed.

C. Other Legal and Administrative Concerns

1. FHWA will continue to inventory, evaluate and seek determinations of eligibility, and fully comply with 36 CFR 800 for all undertakings with the potential to affect historic properties besides roads and bridges which are hereby excluded from such consideration.
2. The MSHPO, and the ACHP may monitor FHWA and MDOH activities to carry out this PA, by notifying FHWA in writing of their concerns and requesting such information as necessary to permit either or both MSHPO and ACHP to monitor the compliance with the terms of this Agreement. FHWA will cooperate with the SHPO, and the ACHP in carrying out their monitoring and review responsibilities.
3. FHWA will carry out the existing MOA's to preserve or record historic bridges that are now scheduled for replacement.
4. If a dispute arises regarding implementation of this PA, FHWA will consult with the objecting party to resolve the dispute. If any consulting party determines that the dispute cannot be resolved, FHWA will request further comments of the ACHP.
5. During any resolution of disagreements on the PA, and/or in the event MDOH does not carry out the terms of the PA, FHWA will carry out the procedures outlined in 36 CFR 800 for all undertakings otherwise covered by this agreement.

Execution of this PA evidences that FHWA has afforded the ACHP a reasonable opportunity to comment on FHWA's program to construct and improve Montana highways when those undertakings affect historic roads and bridges, and that FHWA has taken into account the effects of these undertakings on significant historic roads and bridges.

BY: FEDERAL HIGHWAY ADMINISTRATION

[Roger K. Scott] [May 11, 1989]
Roger K. Scott Date
Division Administrator

BY: MONTANA STATE HISTORIC PRESERVATION OFFICER

[Marcella Sherfy] [May 11, 1989]
Marcella Sherfy, MSHPO Date

BY: ADVISORY COUNCIL ON HISTORIC PRESERVATION

[Robert D. Bush] [June 1, 1989]
Executive Director Date

CONCUR

BY: MONTANA DEPARTMENT OF HIGHWAYS

[Stephen C. Kologi] [May 11, 1989]
Stephen C. Kologi, P.E., Chief Date
Preconstruction Bureau

**Amendment To The Programmatic Agreement Regarding
Historic Roads and Bridges In Montana**

We are hereby amending the following stipulations in the Programmatic Agreement.

A. For Public Education

1. In the third sentence December 1, 1990 becomes December 1, 1992. In the fourth sentence, May 1, 1991 becomes May 1, 1993.
5. December 1, 1991 becomes December 1, 1993.

B. For Historic Road and Bridge Preservation

1. September 1, 1991 becomes September 1, 1993 and December 1, 1991 becomes December 1, 1993.

By: Federal Highway Administration

[D. C. Lewis for] Date [February 27, 1992]
Hank Honeywell
Division Administrator

By: Montana State Historic Preservation Officer

[Marcella Sherfy] Date [February 27, 1992]
Marcella Sherfy, MSHPO

By: Advisory Council on Historic Preservation

[Robert D. Bush] Date [March 16, 1992]
Robert D. Bush, Executive Director

Concur

By: Montana Department of Transportation

[Edrie Vinson] Date [February 25, 1992]
Edrie Vinson
Environmental & Hazardous Waste Bureau



Montana Fish, Wildlife & Parks

1420 East Sixth Avenue
P O Box 200701
Helena MT 59620-0701
June 10, 2005

Julie Kightlinger
Herrera Environmental Consultants, Inc.
101 East Broadway, Suite 610
Missoula, MT 59802

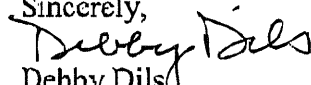
RE: US 89 Right of Way Request

Dear Ms Kightlinger:

In response to your letter regarding the above project, Montana Fish, Wildlife & Parks (FWP) does not own any property in the project vicinity nor is any new acquisition in Glacier County anticipated by this agency at this time. I will, however, forward your notice to the FWP Regional office in Great Falls in case they have additional comments on the proposed project.

In regard to other potential 4(f) properties, we do not keep information on lands owned or operated by others that would qualify for 4(f) treatment. This part of your inquiry would be better addressed through property ownership records or on the ground research.

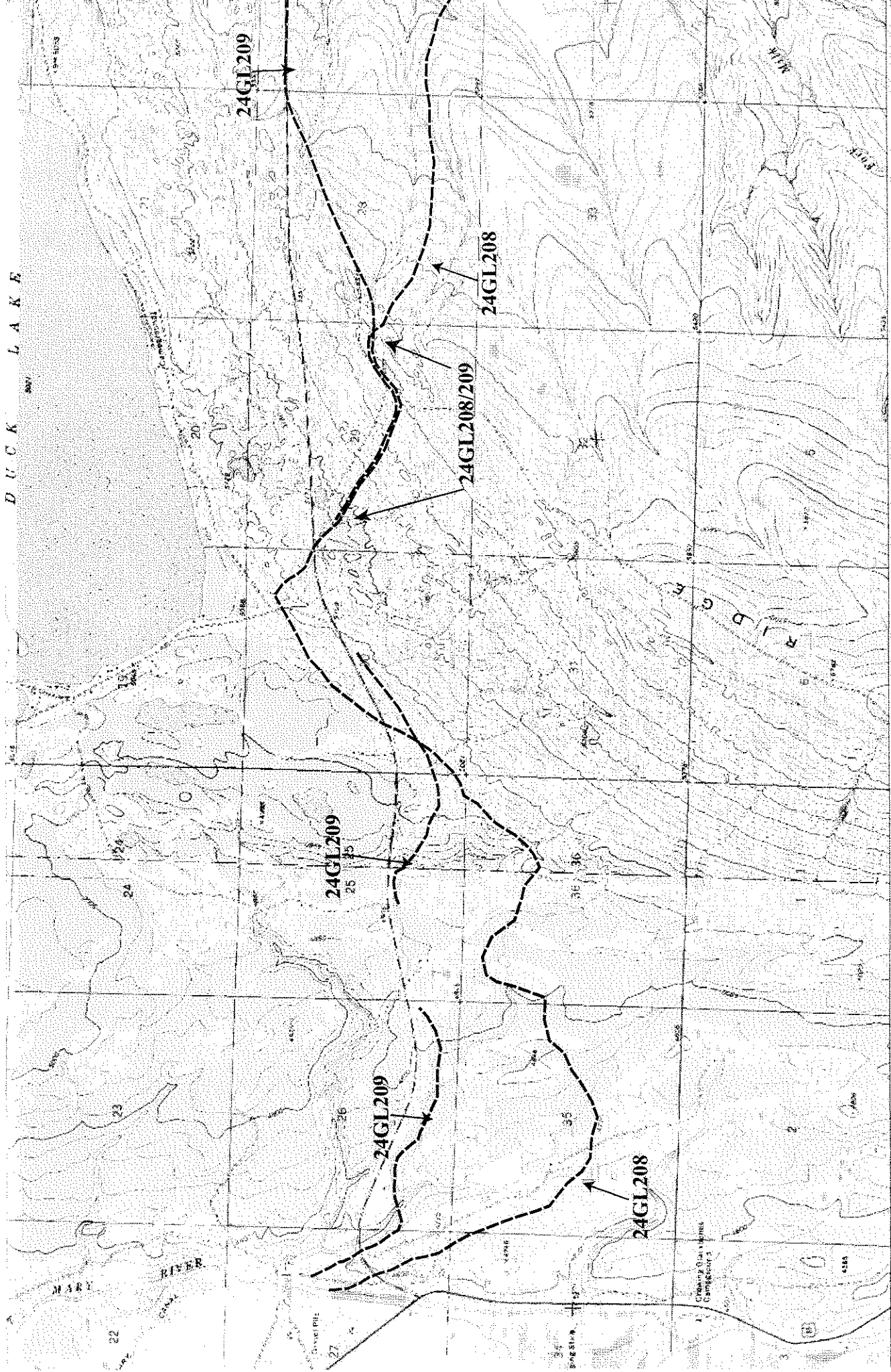
FWP is also responsible for oversight of the state side of the Land and Water Conservation Fund (LWCF). There are many local municipalities with LWCF-assisted outdoor recreation sites. If proposed construction or land acquisition activities would affect such locally owned recreation or park facilities, please contact Walt Timmerman of the Helena FWP office (444-3753) with site names. Walt will be able to check LWCF database files and provide the LWCF status of each named site. Any such site would need to be addressed as a 6(f) property and appropriate mitigation measures coordinated through his office. Thank you for the opportunity to comment.

Sincerely,

Debby Dils
Land Section Supervisor

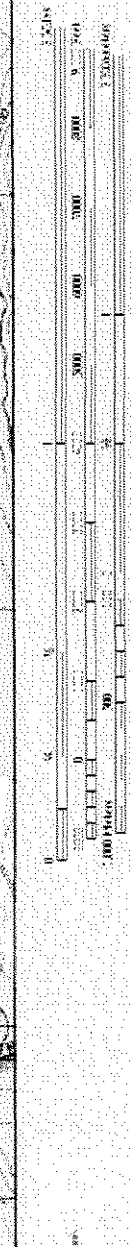
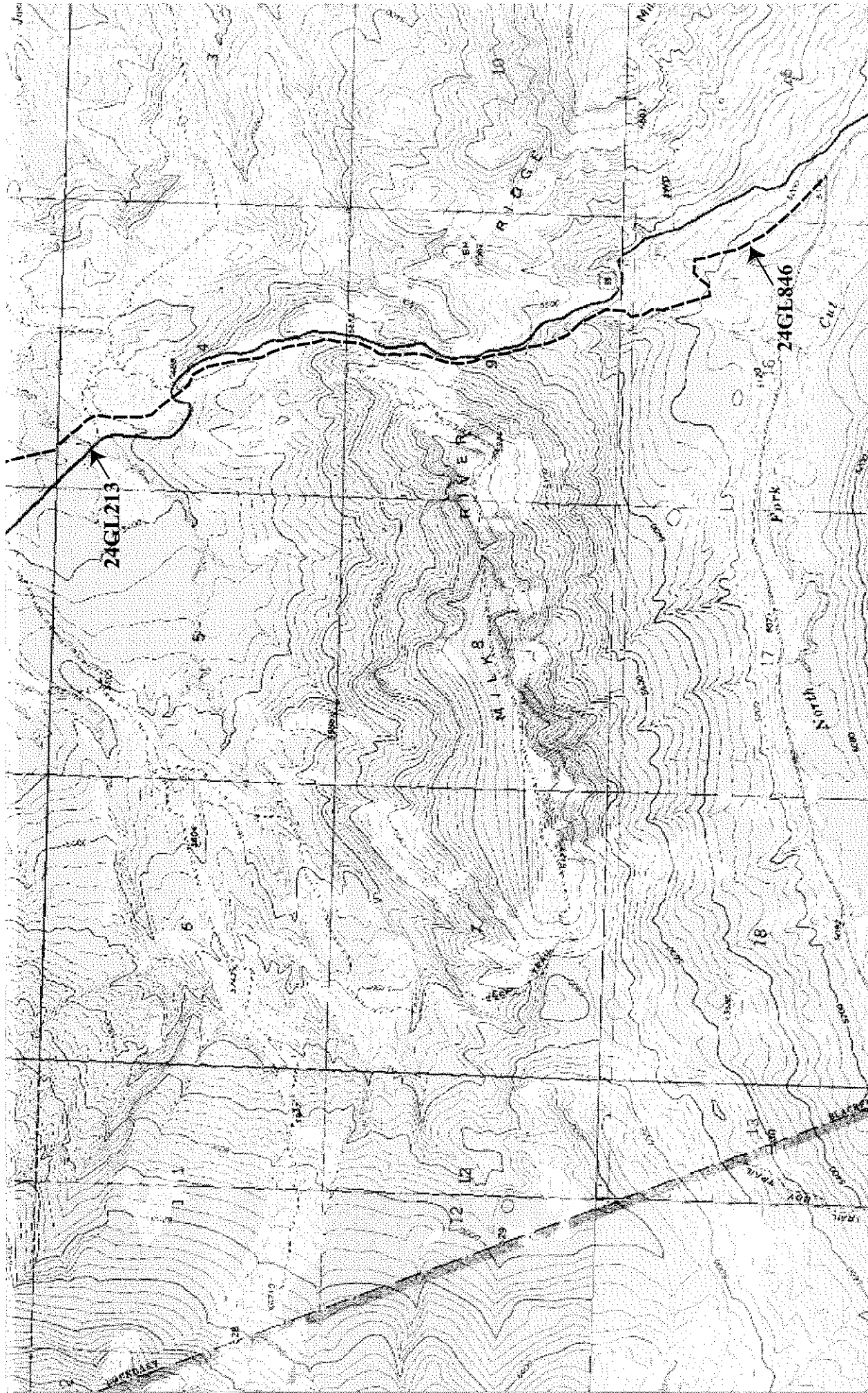
Cc: R4, Walt Timmerman

Maps Showing Locations of Historic Road Segments and Bridges Within Project Corridor

From Aaberg, Stephen A, George Kipp III,
Patrick Walker-Kuntz, and Chris Crofutt. 2001.
U.S. 89 Browning-Hudson Bay Divide and Duck Lake Road
Archaeological and Cultural Investigations,
Blackfeet Reservation, Glacier County, Montana.
Volume II, Site Updates, Site Forms, Isolate Forms,
and Culture Area Forms. Final Draft.
Prepared for Skillings-Connolly, Inc., Lacey, Washington.
March 2001.

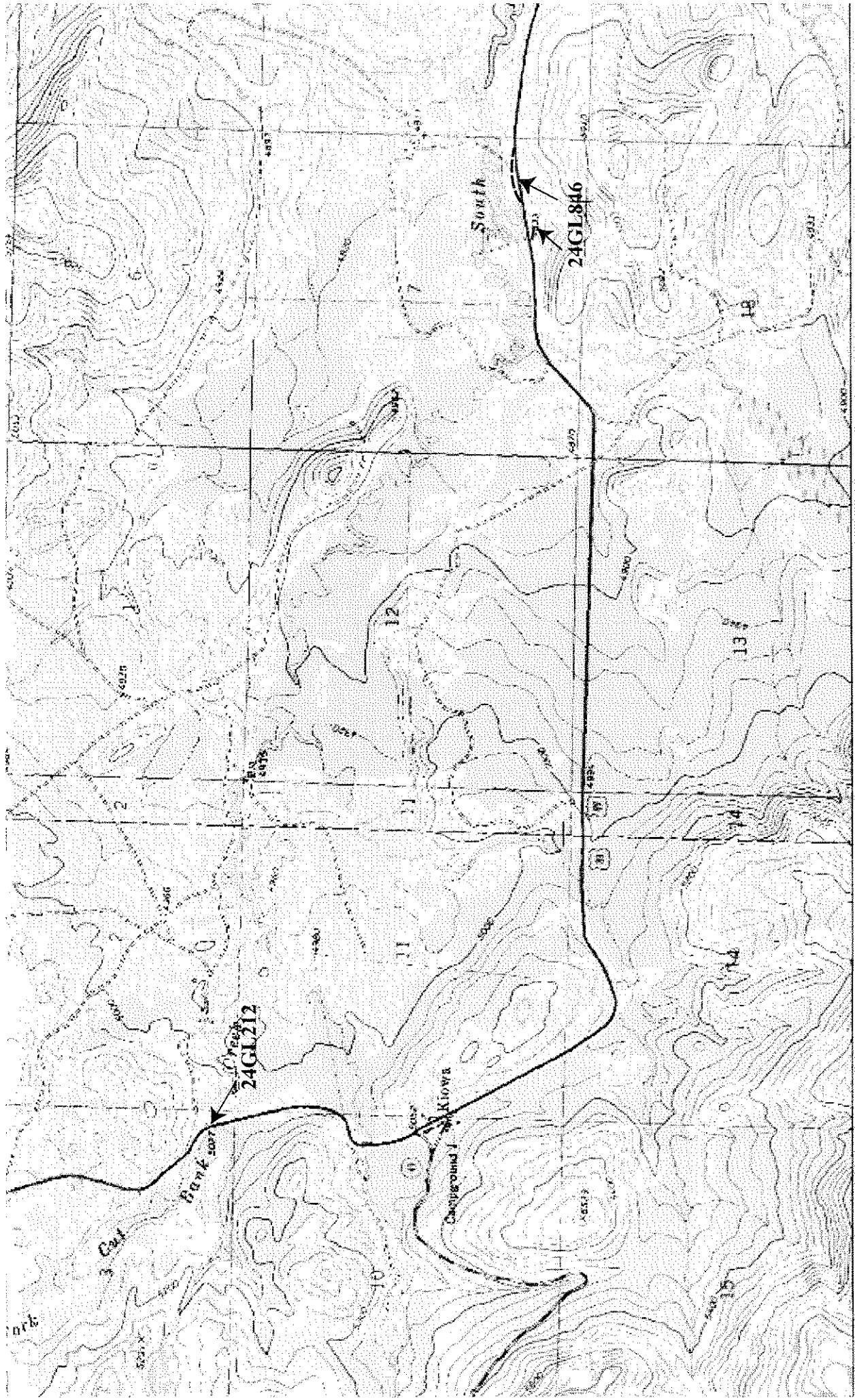


**Babb Quadrangle, Duck Lake Quadrangle, Goose Lake Quadrangle
 Pike Lake Quadrangle, Glacier County-Montana, USGS 7.5' Topographic
 with abandoned grade of old Duck Lake Road (24GL209) and GLO location
 of Browning to Babb Stage Road (24GL208)**

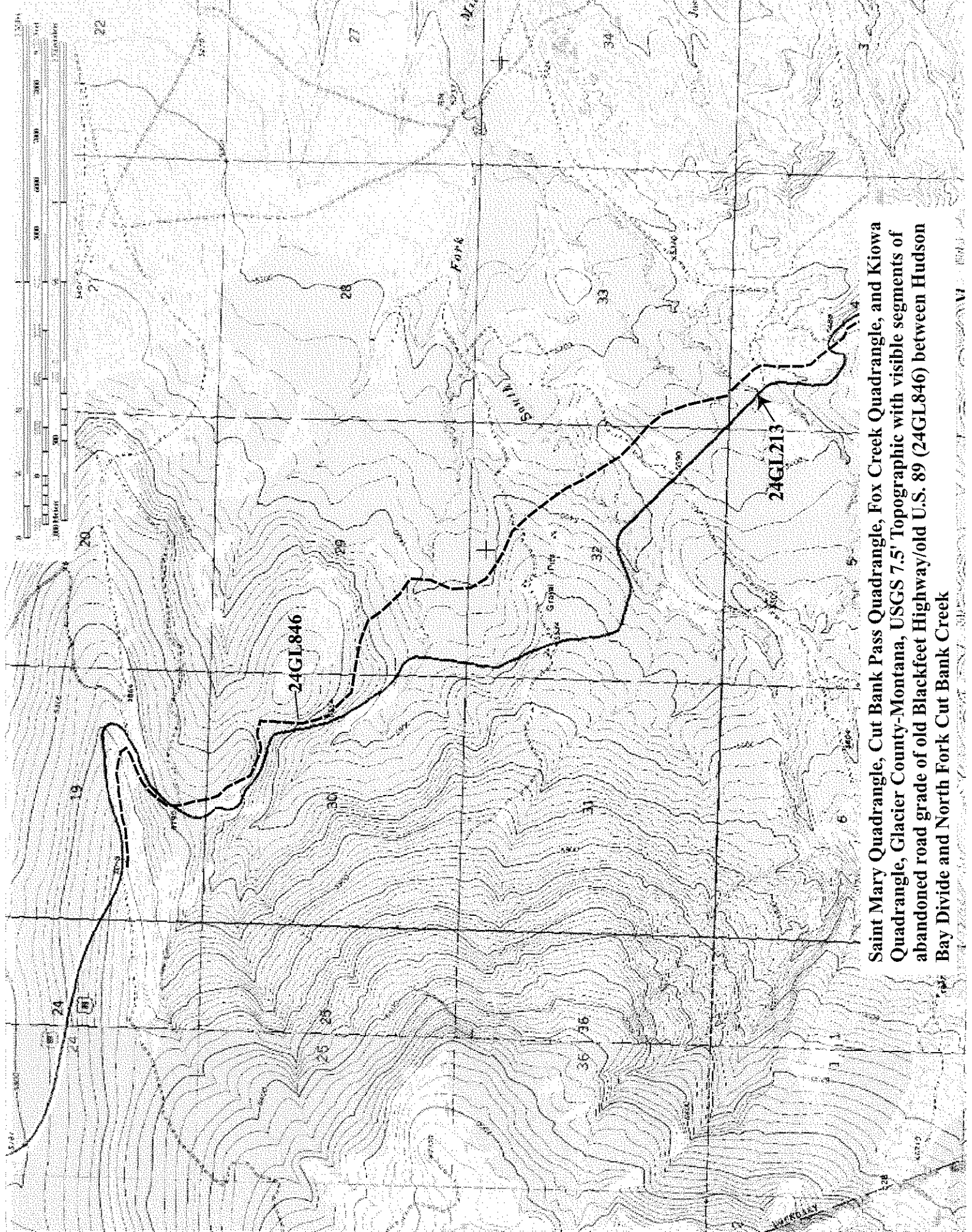


Saint Mary Quadrangle, Cut Bank Pass Quadrangle, Fox Creek Quadrangle, and Kiowa Quadrangle, Glacier County-Montana, USGS 7.5' Topographic with visible segments of abandoned road grade of old Blackfeet Highway/old U.S. 89 (24GL846) between Hudson Bay Divide and North Fork Cut Bank Creek

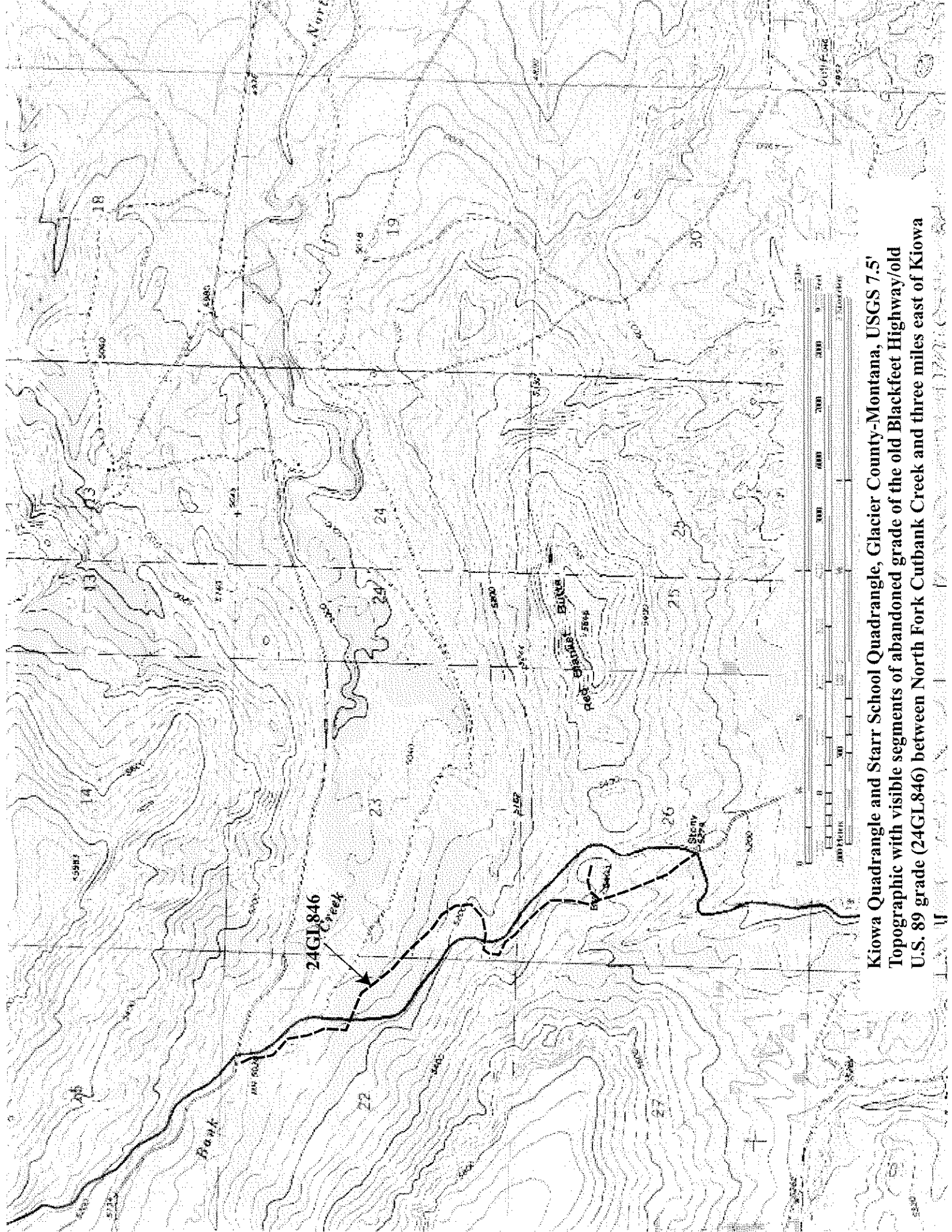
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 UTM
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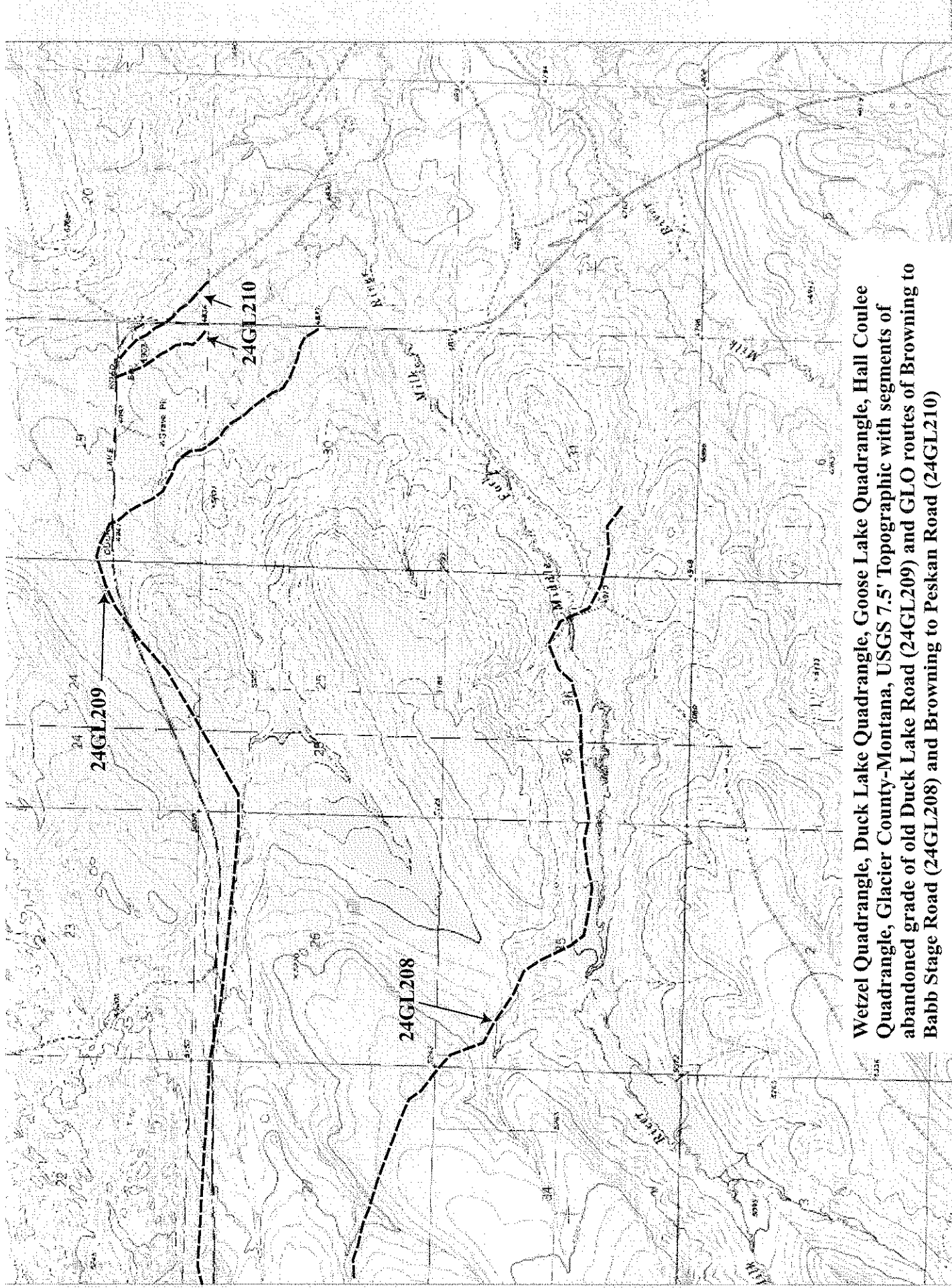
**Kiowa Quadrangle and Starr School Quadrangle, Glacier County-Montana, USGS 7.5'
Topographic with visible segments of abandoned grade of the old Blackfeet Highway/old
U.S. 89 grade (24GL846) between North Fork Cutbank Creek and three miles east of Kiowa**



Saint Mary Quadrangle, Cut Bank Pass Quadrangle, Fox Creek Quadrangle, and Kiowa Quadrangle, Glacier County-Montana, USGS 7.5' Topographic with visible segments of abandoned road grade of old Blackfeet Highway/old U.S. 89 (24GL846) between Hudson Bay Divide and North Fork Cut Bank Creek



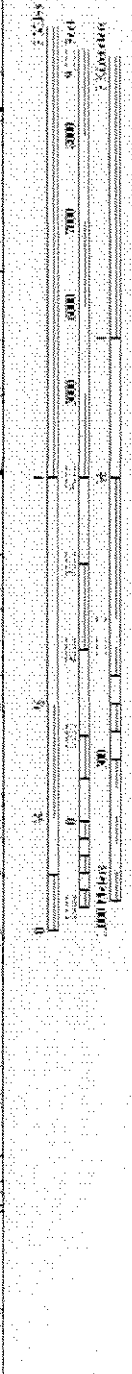
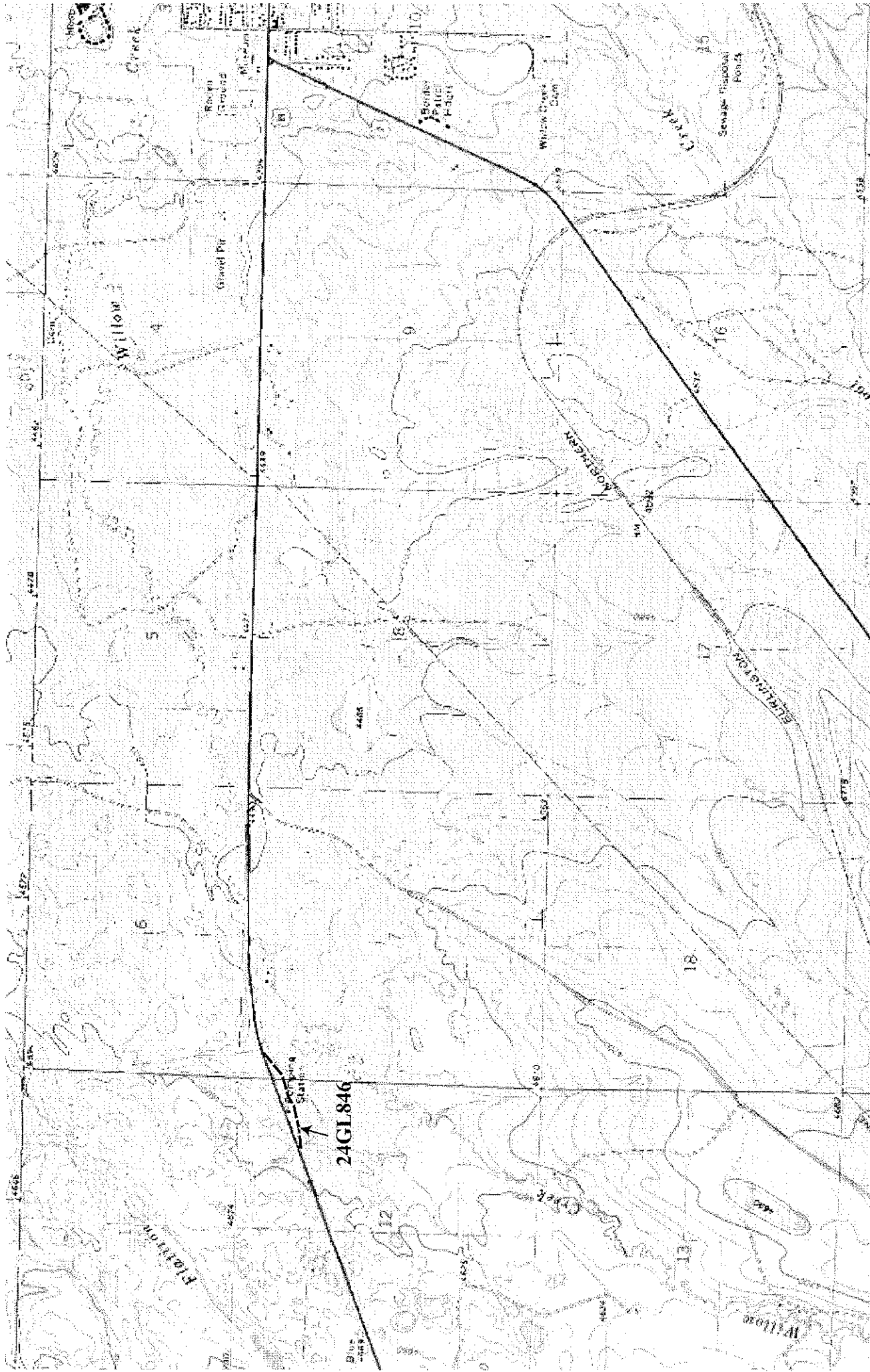
Kiowa Quadrangle and Starr School Quadrangle, Glacier County-Montana, USGS 7.5'
Topographic with visible segments of abandoned grade of the old Blackfeet Highway/old
U.S. 89 grade (24GL846) between North Fork Cutbank Creek and three miles east of Kiowa



Wetzel Quadrangle, Duck Lake Quadrangle, Goose Lake Quadrangle, Hall Coulee Quadrangle, Glacier County-Montana, USGS 7.5' Topographic with segments of abandoned grade of old Duck Lake Road (24GL209) and GLO routes of Browning to Babb Stage Road (24GL208) and Browning to Peskan Road (24GL210)



N 48° 46' 45"
W 113° 17' 00" W
USGS Topographic Edition: 1985 (with 1978 and 1987)
Compiled by R. J. Mendenhall, 1987
MTL 25. ENGLISH 25. 10000000



Browning Quadrangle, Glacier County-Montana, USGS 7.5' Topographic with segment of abandoned grade of old Blackfoot Highway/old U.S. 89 (24GL846)

24GL846
 1:50,000
 7.5' Series
 1987
 1:50,000
 7.5' Series
 1987

APPENDIX E

Section 404 (b)(1) Evaluation

404(b)(1) EVALUATION

US 89 Browning to Hudson Bay Divide

Montana Department of Transportation
Project Number STPP 58-1(19)0~CN 4045

Prepared for
Montana Department of Transportation

Prepared by
Skillings-Connolly, Inc.

Final
July 2006

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Section 1: Introduction

The 404(b)(1) Guidelines, found in Title 40 of the Code of Federal Regulations, Part 230, are the substantive criteria used in evaluating discharges of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act and are applicable to all 404 permit decisions. Fundamental to these Guidelines is the precept that dredged or fill material should not be discharged into the aquatic ecosystems unless it can be demonstrated that such discharges would not have unacceptable adverse impacts, either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern.

Subpart B of the Guidelines establishes four conditions which must be satisfied to make a finding that a proposed discharge complies with the Guidelines. Paragraph 230.10 provides that:

- a) Except as provided under Section 404(b)(2), no discharge of dredged material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.
- b) No discharge of dredged or fill material shall be permitted if it violates state water quality standards, Section 307 of the Clean Water Act, or the Endangered Species Act of 1973.
- c) No discharge of dredged or fill material shall be permitted which would cause or contribute to significant degradation of the waters of the United States.
- d) Except as provided under Section 404(b)(2), no discharge shall be permitted unless appropriate and practicable steps have been taken which will minimize adverse impacts of the discharge on the aquatic ecosystem.

Mitigation to offset significant and insignificant adverse impacts may be developed which could result in bringing a project into compliance with the guidelines. Impacts must be avoided to the maximum extent practicable and remaining unavoidable impacts will then be mitigated to the extent appropriate and practicable by requiring steps to minimize impacts and finally, by compensation for loss of aquatic resource values.

Section 230.11 sets forth the factual determinations which are to be considered in determining whether a discharge satisfies the four conditions of compliance. These determinations are contained in the following evaluation.

Section 2: Project Description

A: LOCATION

US Highway 89 (US 89) is a minor arterial that provides one of the primary north-south routes connecting Alberta, Canada and central Montana. The project termini are US 89 at its junction with US Highway 2 (US 2) in Browning and US 89 approximately 8.7 km (5.4 miles) south of St. Mary at the height of land at Hudson Bay Divide. The highway runs primarily parallel to the eastern boundary of Glacier National Park from Hudson Bay Divide to Kiowa Junction and then easterly to the edge of Browning. Figure 1 in this report shows the project location. Broad rolling hills and grasslands dominate the project corridor in the lower elevations with mountainous terrain in the higher elevations.

B: GENERAL DESCRIPTION

A Final Environmental Impact Statement (EIS) was prepared concurrently with this evaluation. The Final EIS examines various alternatives for improving transportation in



Figure 1. Vicinity map of the US 89 corridor improvement project, Montana.

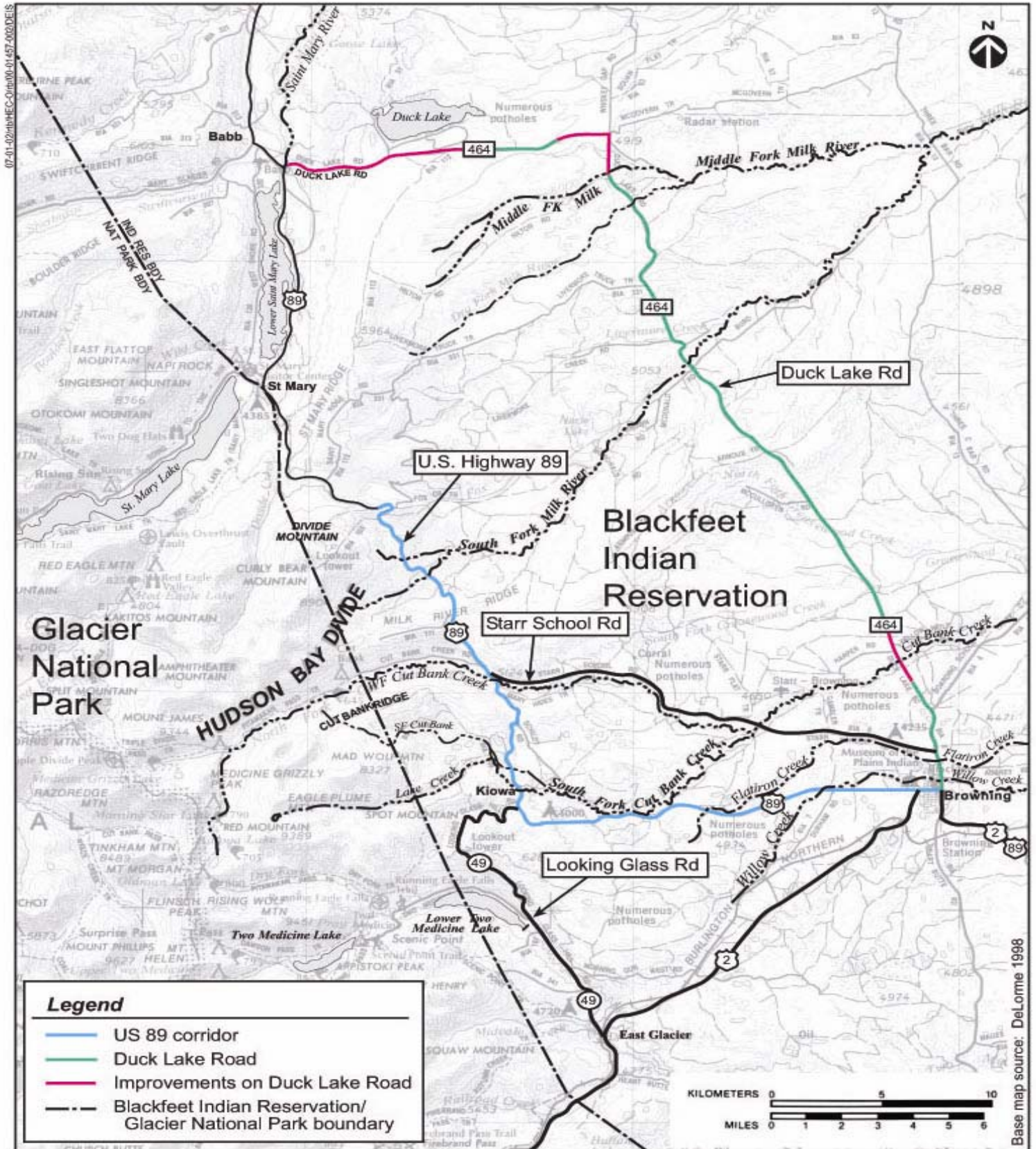


Figure 2. Location of US 89 corridor improvement project.

the project corridor and identifies the associated environmental impacts. The Final EIS evaluates the following alternatives:

- Alternative A – No-build
- Alternative B – Improve US 89 to 9.8 meter (32-foot) width
- Alternative C – Improve US 89 to 11 meter (36-foot) width (preferred alternative)
- Option – Spot improvements to Duck Lake Road, alternate truck route (selected option)

The proposed preliminary alignment for either of the “build” alternatives would generally follow the existing US 89 alignment with a few exceptions. In a few locations, the alignment will be shifted in order to improve roadway geometry and to bring the alignment up to current Montana Department of Transportation (MDT) standards. In addition, the proposed preliminary alignment has been shifted away from the existing alignment in five (5) locations in order to avoid or minimize impacts to wetlands and surface waters. The preliminary alignment was also shifted to avoid impacts to culturally sensitive sites. Table 1 details the proposed realignments. During the final design stages, all Category I wetlands and streams will be further investigated to determine if it is practicable and feasible to make the roadway fill slopes steeper at these locations. If it is determined that these areas can be safely steepened, they would be incorporated into the proposed project’s plans.

Table 1: Aquatic Resource Avoidance and Minimization Measures Incorporated into the Preliminary Roadway Design for US 89.

Wetland	Milepost Location	Problem Statement	Proposed Realignment	Associated Water Body	Wetland Impact Avoided (≈)
W8	14	Proposed alignment crossing is located at a bend in the riparian system, increasing the amount of effected acreage.	Realign the highway to the north approximately 26 meters (80 feet).	Isolated	0.1 hectares/ 0.3 acres
W18	12	Existing alignment contains a sharp curve.	Shift alignment to the north and use a bridged crossing rather than culverts.	Lake Creek	0.7 hectares/ 1.7 acres
W21	11	Roadway confined by moderate slope to the north and riparian system to the south.	Widen along the north side of the roadway and avoid stream channel impacts.	Tributary to South Fork Cut Bank Creek	0.2 hectares/ 0.5 acres
W28	8	Roadway confined by wetland to the north and irrigation ditch to the south.	Widen or shift roadway to the south 30 meters (100 feet).	Flatiron Creek	0.3 hectares/ 0.7 acres
W45 and W46	3	Willow Creek closely parallels the roadway.	Shift construction to the north side of the roadway and modify construction limits to avoid stream channel.	Willow Creek	0.1 hectares/ 0.2 acres
All Category I wetlands		Road designers typically prefer to scale road fill embankments at a 6:1 slope to eliminate steep embankments and minimize the need for guardrail.	Modify the recommended fill slope beyond clear zones from a 6:1 slope to a steeper slope as long as guardrail would not be required.		0.8 hectares/ 2.0 acres

1. These measures have been incorporated into the proposed preliminary design. During final design, these areas will be further investigated to determine if the proposed preliminary design is practicable and feasible.

Alternative C with the Duck Lake Road Option has been selected as the preferred alternative. The selection of a preferred alternative is based on several factors, including how well it meets the purpose of, and need for, the project and the nature and extent of environmental impacts. Roadway safety and traffic flow are two key components for selection of Alternative C as the preferred alternative. The width of the paved shoulders is one of the components that affect the safety and traffic flow of the highway.

Implementing the Duck Lake Road Option in conjunction with Alternative C would provide a suitable alternate route for truck traffic. The proposed improvements to Duck Lake Road would make it a more attractive route for trucks because it does not have steep road grades like US 89. By reducing truck traffic on US 89, conflicts with other traffic would decrease and traffic flow and safety on US 89 would be enhanced.

Although Alternative C has slightly greater environmental impacts due to its wider footprint, the differences are minor and can be mitigated by grade/slope adjustments in sensitive areas. These impacts are offset by the greater improvements to roadway safety and traffic flow rules.

C: AUTHORITY AND PURPOSE

MDT proposes the improvement of a 41-km (25.5-mi) segment of US 89. As a result of identified roadway deficiencies, MDT sought and received funding from the Federal Highway Administration (FHWA) to analyze the environmental impacts of improving the segment of US 89 between Browning and Hudson Bay Divide.

Several deficiencies of the existing transportation system in this corridor have been identified. The following is a brief summary of the purpose and need for improvement:

- US 89 is a minor arterial that provides one of the primary north-south routes connecting Alberta, Canada and central Montana.
- The existing two-lane roadway, particularly the section of US 89 from Kiowa to Hudson Bay Divide, has few pull-outs and is narrow with sharp curves, providing few opportunities for passing slow-moving vehicles or bicyclists.
- Due to roadway characteristics and the variety of vehicles using the roadway, vehicles cannot travel at the designated speed limits.
- Average daily traffic volumes are projected to increase substantially over the next 25 years, exacerbating the effects of the roadway configuration on traffic flow.
- Sharp curves, narrow shoulders, and numerous roadside obstacles such as steep cut and fill slopes reduce the overall safety of the roadway.
- None of the existing US 89 roadway between Browning and the Hudson Bay Divide meets all current state and federal roadway design requirements.
- The roadway is not safe for bicycle, pedestrian, and equestrian use due to the lack of sufficient roadway shoulders and pull-off areas.
- The accident rate on US 89 from 1994-1999 was 1.81 accidents per million vehicle miles of travel, compared with a Montana state average accident rate of 1.55 for similar roads.
- Pavement overlays are no longer a viable option for roadway maintenance because the paved surface, which becomes narrower with each successive overlay, is already not meeting MDT standards.

The draft and final EIS for the proposed project also reviewed the environmental impacts of proposed spot improvements on Duck Lake Road. Duck Lake Road extends north from Browning to Babb within the project area. Duck Lake Road provides an alternative to US 89 south of Babb for traffic traveling between the Canadian border and Browning. This alternate route is available year-round, and preferred by commercial vehicles because of its flatter and straighter alignment. Improvements to Duck Lake Road are expected to lead to its increased use as an alternate route, reducing truck traffic on US 89 between Browning and Hudson Bay Divide. The option of spot improvements to Duck Lake Road can be included with either of the build alternatives or the no-build alternative.

D: GENERAL DESCRIPTION OF THE DREDGED OR FILL MATERIAL

1) General Characteristics of Material

Fill material will be excavated locally and will be similar in physical and chemical characteristics to substrate in wetlands that are filled. Material used in wetland fill is likely to be some sort of AASHTO-approved fill material with no organics, more granular soils, etc. Also, some sub-excavation may be needed for construction of the road base. While excavation and borrow sites have not been identified at this time, the site will be chosen, in part, on certain characteristics. Borrow or excavation sites will not be allowed if they have high levels of salinity, acid-generating materials, heavy metals, pesticides or other elements or substances potentially harmful to fish, wildlife, or other aquatic organisms. General fill material may be suitable soils, including earth and crushed or naturally occurring sands and gravels. Some fill material may be concrete, steel, or similar materials that could be used for culvert or bridge construction. Rock riprap may be used to resist erosion around flowing water or where wave action is likely to occur.

In accordance with MDT's standard specifications, the contractor would be required to secure the necessary permits associated with material source sites, including those permits required to prevent a violation of water quality standards.

2) Quantity of Material

Quantities of fill material will depend upon the build alternative that is selected and specific topographical features of affected wetlands. Quantities of fill material to be placed will be determined during the final design phase of the project. Quantities will be sufficient to construct the roadway and appurtenant features.

3) Source of Material

The locations of the borrow pits that will be used as fill material for the proposed project have not yet been finalized. The source of fill material to be placed will be determined during the final design phase of the project. Borrow or excavation sites will not be allowed if they have high levels of salinity, acid-generating materials, heavy metals, pesticides or other elements or substances potentially harmful to fish, wildlife, or other aquatic organisms. Development of borrow sites will not have any adverse effects on aquatic resources, cultural or historic resources, or any threatened or endangered species.

E: DESCRIPTION OF THE PROPOSED DISCHARGE SITES

A Biological Resource Report was prepared for this study by Herrera Environmental Consultants (Herrera 2001). The report documents the methodology used in the

wetland determination, describing the location, overall size, and type of wetlands identified within the project corridor. The report also describes the potential impacts to site wetlands that are associated with the build alternatives, and the proposed mitigation for each alternative. Table 2 (Wetland Location and Classification) is a summary of the wetland occurrence, wetland classification, and associated water bodies.

Table 2: Wetland Location and Classification

Wetland	Station ^a	Hydrogeomorphic ^b	USFWS ^c	State ^d	Associated Water Body	Size (ha/acre)
W1 ^e	390+00-393+00	Riverine (upper perennial)	PSS/R3UBH	I	South Fork Milk River, north branch	8/20
W2 ^e	385+50-386+50	slope	PSS	III	South Fork Milk River, north branch	40/100
W3 ^e	369+50-375+00	riverine (upper perennial)	PSS	I	South Fork Milk River, middle branch	121/300
W4 ^e	358-362+50	riverine (upper perennial)	PSS/R2UBH	I	South Fork Milk River, south branch	405/1000
W5 ^e	354-356	slope	PSS	III	drains to South Fork Milk River, south branch	0.4/1
W6	352	depression (closed)	PEM	IV	isolated	0.2/0.50
W7 ^e	296-297	depression (groundwater)	PEM	IV	Seep that drains to North Fork Cut Bank Creek	0.04/<0.1
W8 ^e	269-273+50	depression (open)	PSS	IV	Likely draining to South Fork Cut Bank Creek	<0.04/0.1
W9	266	depression (closed)	PEM	IV	isolated	<0.04/0.1
W10	261	depression (closed)	PSS	IV	isolated	<0.04/0.1
W11	260	depression (closed)	PEM	IV	isolated	0.008/0.02
W12	259	depression (closed)	PEM	IV	isolated	<0.04/0.1
W13	255	depression (closed)	PEM	IV	isolated	<0.04/0.1
W14	246	depression (closed)	PEM	IV	isolated	0.02/0.04
W15	245	depression (closed)	PEM	IV	isolated	0.0080.02
W16	244	depression (closed)	PEM	IV	isolated	0.008/<0.01
W17 ^e	232-241+50	riverine (upper perennial)	PSS/PEM	I/III	South Fork Cut Bank Creek	809/2000
W18 ^e	228-232	riverine (upper perennial)	PSS	I	Lake Creek	40/100
W19	228	depression (closed)	POW	IV	isolated	0.04/0.11
W20 ^e	216+50-222+50	slope	PFO	III	South Fork Cut Bank Creek	0.11/0.28
W21 ^e	209+50-216+50	riverine (upper perennial)	PSS	I	tributary to South Fork Cut Bank Creek	81/200
W22	191-192	slope	PSS	III	isolated drainage	8/20
W23 ^e	181-187	riverine (upper perennial)	PSS	I	tributary to South Fork Cut Bank Creek	40/100
W24A ^e / W24B ^e / W24C ^e / W24D ^e	175+50-183	riverine (lower perennial)	PSS	I	South Fork Cut Bank Creek	809/2000
W25 ^e	161+50-162+50	riverine (nonperennial)	PSS	III	tributary to South Fork Cut Bank Creek	10/25

Wetland	Station ^a	Hydrogeomorphic ^b	USFWS ^c	State ^d	Associated Water Body	Size (ha/acre)
W26 ^e	133-136+50	riverine (upper perennial)	PSS/PEM/POW	III	Flatiron Creek	81/200
W27 ^e	122+50	depression (open)	PEM	IV	drains to Flatiron Creek	0.01/0.03
W28 ^e	113-116+50	riverine (upper perennial)	PSS/PEM PAB	III	Flatiron Creek	81/200
W29	111-112	depression (closed)	PEM	IV	isolated	0.6/1.4
W30	111	depression (closed)	PEM	IV	isolated	<0.05/0.12
W31	111	depression (closed)	PEM	IV	isolated	<0.05/0.12
W32	108	depression (closed)	PEM	IV	isolated	<0.08/0.20
W33	105	depression (closed)	PEM	IV	isolated	0.01/0.03
W34	104	depression (closed)	PEM	IV	isolated	<0.12/0.30
W35	104	depression (closed)	PEM	IV	isolated	<0.08/0.20
W36	103	depression (closed)	PEM	IV	isolated	<0.08/0.20
W37	102+50	depression (closed)	PEM	IV	isolated	<0.08/0.20
W38	97+50-98+50	depression (closed)	PEM	IV	isolated	<0.20/0.50
W39	97+50-98+50	depression (closed)	PEM	IV	isolated	<0.20/0.50
W40	97	depression (closed)	PEM	IV	isolated	<0.08/0.20
W41	95+50	depression (closed)	PEM	IV	isolated	<0.05/0.12
W42	92+50	depression (closed)	PEM	IV	isolated	<0.08/0.20
W43	90-90+50	depression (closed)	PEM	IV	isolated	<0.41/1.0
W44	85	depression (closed)	PEM	IV	isolated	<0.08/0.20
W45 ^e	80-85	riverine (upper perennial)	PSS/PEM	III	Willow Creek	10/25
W46A ^e / W46B ^e	72-79+50	riverine (upper perennial)	PSS/PEM	III	Willow Creek	10/25
W47	52-55	depression (open)	PEM	IV	isolated drainage	0.2/0.5
W48A / W48B / W48C	35+50-40	depression (open)	PSS/PEM	IV	isolated drainage	0.3/0.75
W49 ^e	107+20	riverine (lower perennial)	PSS/R3USC	I	Cut Bank Creek	>800/2000
W50	597+60	depression (closed)	PSS/PEM	IV	isolated	0.2/0.5
W51	600+00	depression (closed)	PSS/PEM	IV	isolated	0.8/2.0
W52A ^e / W52B ^e	627+40/635+40	riverine (upper perennial)	PSS/PEM/POW/R3USC	III	tributary to St. Mary River	>50/120
W53 ^e	645+20	riverine (upper perennial)	PAB/R3USC	III	tributary to St. Mary River	>50/120
W54 ^e	654+40	riverine (nonperennial)	PSS/R4SB	III	tributary to St. Mary River	>50/120

- a. Stationing indicated is the location along the proposed realignment of US 89 and Duck Lake Road. Milepost measurements are not available for the proposed realignment.
- b. The wetland group is based on three hydrogeomorphic categories: riverine, depression, and slope.
- c. USFWS classification of wetland vegetation in the project corridor is based on the following classes: palustrine open water (POW), palustrine aquatic bed (PAB), palustrine emergent (PEM), palustrine scrub/shrub (PSS), palustrine forested (PFO), riverine lower perennial perennially flooded (R2UBH), riverine upper perennial perennially flooded (R3UBH), riverine upper perennial unconsolidated shore seasonally flooded (R3USC), and riverine intermittent stream bed (R4SB) (Cowardin et al. 1979).
- d. The state of Montana divides wetlands into four hierarchical categories based on the physical attributes analyzed in the function assessment form. The state classification hierarchy ranges from category I wetlands, which exhibit outstanding features (i.e., uniqueness, threatened and endangered species habitat) to category IV wetlands, which exhibit minimal attributes or uniqueness.
- e. Jurisdictional wetlands, regulated by the U.S. Army Corps of Engineers (see Attachment A).

1) Location of Sites

Wetlands and surface waters (measured by area) impacted by the build alternatives are located within the Milk River drainage basin (HUC 10050001) and the Cut Bank Creek drainage basin (HUC 10030202). Prairie potholes account for less overall wetland area, but the largest number of individual wetlands. Prairie potholes are isolated depressional wetlands that are located within, but not tributary to, a specific drainage basin. The locations of wetland sites are described and identified in the Biological Resources Report, which was prepared for the study corridor, and are also listed in Table 2. Of the 54 wetlands that were identified in the project corridor, six (6) are located along Duck Lake Road. 31 of the 54 identified wetlands are isolated.

2) Size of Sites

The wetland boundaries were determined using the U.S. Army Corps of Engineers' Wetlands Delineation Manual (1987). A project corridor width of 60 meters (200 feet) both directions from centerline of the existing and proposed alignments was inventoried for streams and wetlands. Wetland determinations were made based on both field data and literature review, with the approximate wetland boundaries detailed on project base maps.

Table 2 shows the estimated overall acreage of each wetland within the corridor at each specific location. The estimated size has been determined for the overall size of each wetland, not just for the portion in the project corridor.

3) Type of Sites

Wetlands in the project area are divided into four hydrogeomorphic categories: large riverine systems, small riverine systems, depressional systems (prairie potholes), and slope systems. The majority of individual wetlands identified in the project corridor are prairie potholes. However, riverine wetland systems comprise the majority (~97%) of delineated acreage. Riverine systems are wetlands that are associated with rivers and streams, which are the primary hydrological source for these wetlands. Prairie potholes are depressions in the landscape that are fed by surface water or groundwater. These depressional areas were formed by glaciation. Slope wetlands are located on slopes that contain groundwater seeps, which are the hydrological source for the wetland. Wetlands that are associated with waters of the United States, either through direct connection or through adjacency, are considered waters of the United States, and are therefore considered jurisdictional wetlands (regulated by the U.S. Army Corps of Engineers) (see Attachment A).

In addition to the wetlands in the project corridor, there are two unnamed drainages that are regulated by the Corps of Engineers as waters of the United States. These systems are located at reference post 7 and 18.5 (see Attachment A).

4) Types of Wetland Habitats

Table 2 gives the type of wetland at each determined site including the hydrological category, vegetation dominance type (Cowardin, et al. 1979), and the associated water body.

5) Timing and Duration of Discharge

The timing and duration of construction activities will depend on the alternative chosen for that specific location and the type of construction (bridge, road widening, road

realignment, and culvert installation). Detailed schedules and phasing plans will be prepared during the final design. The timing and duration will be determined to minimize turbidity and other disturbances in the wetlands and streams. Construction schedules will be specified to not conflict with spawning and migration periods.

F: DESCRIPTION OF DISPOSAL METHOD

The type of disposal methods will depend on the type of construction that is undertaken in a specific location. The following sections describe the general construction methods, which would be used for build alternatives selected to widen the existing US 89 highway, or construct a bridge or culvert in the vicinity of surface waters and wetlands.

Roadway widening: When widening the highway, it would be necessary to place fill in wetlands that are encountered along the highway. The fill material would be placed in the wetlands by large earth-moving and excavating equipment. The material would likely be from a nearby source (borrow) pits or excess material from other areas in the project corridor. The fill would be necessary to construct the proper side slopes and adjust the roadway elevation. Some removal of the existing roadway surface, topsoil, and structures will be necessary. Disposal of the material would be determined prior to construction of the project.

Bridge and Culvert Construction: Bridge construction would require that the streambed be excavated to construct the footings, piers and abutments for the structure. Where feasible, bridges would be built such that footings are outside of the wetland or stream area, effectively spanning the water body. New bridge footings and abutments will be outside ordinary high water. Only the historic bridge that is being widened will be within the channel. Culvert construction would also require excavation in the streambed or wetland to lay the pipe or box culvert. Some bridge piers and abutment footings use driven piling or drilled shafts, which result in minimal disturbance to the streambed and banks. Also, existing structures will likely require removal, except in cases where they are preserving part, or all, of an historic bridge.

To minimize impacts, the contractor would isolate the construction activities from the stream channel. This can be accomplished using cofferdams. Cofferdams are temporary structures, which are constructed in the streambed and enclose the construction activities. After they are in place, the river water trapped within the dam is pumped out to expose the riverbed and facilitate the excavation and construction activities. The excavated materials and pumped water from within the cofferdams would be transferred to a temporary settling pond to remove the sediment. The sediment would be disposed of in proper locations and the water would be returned to the stream. The locations of the settling ponds would be identified before the construction permits were obtained.

Cofferdams can be constructed by wrapping sheet pile or heavy plastic around steel piles, which are driven into the streambed. For piers and abutments, a concrete base is usually poured to seal the cofferdam. Temporary ladders and scaffolding would be required for workers to use during construction. Again, piling or drilled shafts would preclude the need to use cofferdams, if they are technically feasible given the geotechnical conditions.

Section 3: Factual Determinations (Section 230.11)

A: PHYSICAL SUBSTRATE DETERMINATIONS

1) Substrate Elevation and Slope

The elevation and slope of the streambeds, which will be impacted by the proposed project, would be adversely affected by any of the proposed build alternatives. A few of the streams will be re-aligned, depending on which build alternative is preferred.

Road widening would result in direct impacts on stream channel habitat at South Fork Cut Bank Creek (Wetland 17 [W17] and Wetland 24 [W24]) and Willow Creek (W46A). Two roadway realignments are under consideration at the South Fork Cut Bank Creek site (W17). Under the first option, the road would follow the existing alignment. The existing bridge would be replaced and the widened road would require relocation of approximately 396 meters (1,300 feet) of stream channel on the west side of the highway. Under the second option, the road would be realigned about 25 meters (82 feet) east of the existing bridge alignment and a new crossing would be established. The impacts associated with each option are summarized in Table 3. Road widening in the vicinity of South Fork Cut Bank Creek (W24) would require the relocation of two short segments of stream channel located on the north side of the US 89 corridor. Road widening in the vicinity of Willow Creek (W46A) would require relocation of two short segments of stream channel on the north side of the US 89 corridor.

Changes to natural surface flow patterns and changes in the natural erosion and accretion patterns will be avoided. The relocated streams would be configured to match appropriate natural conditions.

Table 3: Estimated Wetland Impacts

US 89 Study Area							
Wetland	Wetland Group	Associated Waterbody	USFWS	State Classification	Affected Area	Affected Area	Affected Area
					(ha/acre) Alternative B	(ha/acre) Alternative C	(ha/acre) Duck Lake Road Option
W1 ^a	large riverine (upper perennial)	South Fork Milk River, north branch	PSS/R3UBH	I	0.1/0.3	0.2/0.4	
W2 ^a	slope	South Fork Milk River, north branch	PSS	II	0.1/0.3	0.1/0.3	
W3 ^a	large riverine (upper perennial)	South Fork Milk River, middle branch	PSS	I	0.5/1.2	0.5/1.2	
W4 ^a	large riverine (upper perennial)	South Fork Milk River, south branch	PSS/R2UBH	I	1.2/2.9	1.2/3.0	
W5 ^a	slope	drains to South Fork Milk River, south branch	PSS	III	0.2/0.6	0.2/0.6	
W6	depression (closed)	isolated	PEM	III	<0.1/<0.1	<0.1/<0.1	

US 89 Study Area							
Wetland	Wetland Group	Associated Waterbody	USFWS	State Classification	Affected Area (ha/acre)	Affected Area (ha/acre)	Affected Area (ha/acre)
					Alternative B	Alternative C	Duck Lake Road Option
W7	depression (ground water)	isolated	PEM	III	0.0	0.0	
W8	depression (open)	isolated	PSS	III	<0.1/0.1	<0.1/0.1	
W9	depression (closed)	isolated	PEM	III	0.0	0.0	
W10	depression (closed)	isolated	PSS	III	0.0	<0.1/<0.1	
W11	depression (closed)	isolated	PEM	III	<0.1/0.1	<0.1/0.1	
W12	depression (closed)	isolated	PEM	III	0.0	0.0	
W13	depression (closed)	isolated	PEM	III	0.1/0.2	0.1/0.2	
W14	depression (closed)	isolated	PEM	III	0.0	0.0	
W15	depression (closed)	isolated	PEM	III	0.0	0.0	
W16	depression (closed)	isolated	PEM	III	<0.1/0.1	<0.1/0.1	
W17 ^a	large riverine (upper perennial)	South Fork Cut Bank Creek	PSS/PEM	I	1.0/2.6	1.4/3.6	
W18 ^a	large riverine (upper perennial)	Lake Creek	PSS	I	0.4/0.9	0.5/1.2	
W19	depression (closed)	isolated	POW	III	0.0	0.0	
W20 ^a	slope	South Fork Cut Bank Creek	PFO	III	0.3/0.8	0.4/0.9	
W21 ^a	large riverine (upper perennial)	tributary to South Fork Cut Bank Creek	PSS	I	0.1/0.3	0.2/0.4	
W22	slope	isolated drainage	PSS	II	<0.1/0.1	<0.1/0.1	
W23 ^a	large riverine (upper perennial)	tributary to South Fork Cut Bank Creek	PSS	I	0.1/0.2	0.1/0.2	
W24A ^a / W24B ^a / W24C ^a / W24D ^a	large riverine (lower perennial)	South Fork Cut Bank Creek	PSS	I	0.4/1.0	0.4/1.0	
W25 ^a	small riverine (nonperennial)	tributary to South Fork Cut Bank Creek	PSS	III	0.2/0.4	0.2/0.4	

US 89 Study Area							
Wetland	Wetland Group	Associated Waterbody	USFWS	State Classification	Affected Area	Affected Area	Affected Area
					(ha/acre)	(ha/acre)	(ha/acre)
					Alternative B	Alternative C	Duck Lake Road Option
W26 ^a	small riverine (upper perennial)	Flatiron Creek	PSS/PEM/POW	III	0.3/0.8	0.3/0.8	
W27 ^a	depression (open)	drains to Flatiron Creek	PEM	III	<0.1/0.1	<0.1/0.1	
W28 ^a	small riverine (upper perennial)	Flatiron Creek	PSS/PEM PAB	III	0.0	0.0	
W29	depression (closed)	isolated	PEM	III	<0.1/<0.1	<0.1/<0.1	
W30	depression (closed)	isolated	PEM	III	0.0	0.0	
W31	depression (closed)	isolated	PEM	III	0.0	0.0	
W32	depression (closed)	isolated	PEM	III	<0.1/0.1	<0.1/0.1	
W33	depression (closed)	isolated	PEM	III	0.0	0.0	
W34	depression (closed)	isolated	PEM	III	0.0	0.0	
W35	depression (closed)	isolated	PEM	III	<0.1/<0.1	<0.1/<0.1	
W36	depression (closed)	isolated	PEM	III	<0.1/0.1	<0.1/0.1	
W37	depression (closed)	isolated	PEM	III	0.0	0.0	
W38	depression (closed)	isolated	PEM	III	0.0	0.0	
W39	depression (closed)	isolated	PEM	III	0.0	0.0	
W40	depression (closed)	isolated	PEM	III	0.0	0.0	
W41	depression (closed)	isolated	PEM	III	0.0	0.0	
W42	depression (closed)	isolated	PEM	III	0.0	0.0	
W43	depression (closed)	isolated	PEM	III	0.0	0.0	
W44	depression (closed)	isolated	PEM	III	0.0	0.0	
W45 ^a	small riverine (upper perennial)	Willow Creek	PSS/PEM	III	0.1/0.2	0.1/0.2	
W46A ^a / W46B ^a	small riverine (upper perennial)	Willow Creek	PSS/PEM	III	<0.1/0.1	<0.1/0.1	
W47	depression (open)	isolated drainage	PEM	III	0.3/0.8	0.3/0.8	

US 89 Study Area							
Wetland	Wetland Group	Associated Waterbody	USFWS	State Classification	Affected Area	Affected Area	Affected Area
					(ha/acre)	(ha/acre)	(ha/acre)
					Alternative B	Alternative C	Duck Lake Road Option
W48A / W48B / W48C	depression (open)	isolated drainage	PSS/PEM	III	0.7/1.8	0.8/1.9	
W49 ^a	large riverine (lower perennial)	Cut Bank Creek	PSS/ R3USC	I			0.2/0.4
W50	depression (closed)	isolated	PSS/PEM	III			0.0
W51	depression (closed)	isolated	PSS/PEM	III			0.0
W52 ^a	small riverine (upper perennial)	tributary to St. Mary River	PSS/PEM/ POW/ R3USC	III			0.1/0.2
W53 ^a	small riverine (upper perennial)	tributary to St. Mary River	PAB/ R3USC	III			0.4/1.1
W54 ^a	small riverine (nonperennial)	tributary to St. Mary River	PSS/R4SB	III			0.1/0.2

a. Jurisdictional wetlands, regulated by the U.S. Army Corps of Engineers.

2) Compare Fill Material and Substrate at Discharge Site

At stream crossings, the substrate is expected to be smooth cobbles with clean gravels and fine sediments along the embankments and in the streambed. The fill used would be select granular backfill having very similar characteristics. (Fill may also be whatever is suitable given MDT or AASHTO fill requirements.)

Substrates in wetland areas could be fine sediments, organic soils (histosols), or glacial outwash that is common to many wetlands in this sort of area, supplied by feeder streams and precipitation runoff. The fill material placed in the wetlands or stream crossings would either be granular material from nearby sources or excess material from the project itself. Fill material used will be suitable for construction of a roadway.

3) Dredged/Fill Material

The fill materials used in the stream crossing would be granular materials that are not susceptible to movement by water action. Any fill that is placed in wetlands or streams for the construction of the proposed alignment will be done in such a manner as to avoid or minimize to the greatest possible extent movement due to erosion.

4) Physical Effects on Benthos Invertebrates/Vertebrates

a) *Physical Effects on Benthos*

Benthic organisms would only be impacted along the streambank or in the wetland area where fill material would be placed. (Also, sediment can be washed downstream and affect benthics downstream.) In the long term, the benthic organisms would relocate and re-establish themselves in the fill material.

Therefore, the only physical effects on benthos should be short-term localized impacts.

b) Invertebrates

Similar to the effects on benthos, the impacts to aquatic invertebrates will also primarily be short term. Fill material placed along the riverbank or in wetlands would bury existing organisms, but new organisms would be expected to quickly re-establish themselves in these areas. Additionally, construction activities could cause localized increases in suspended sediment, which would adversely effect aquatic insects that rely upon the site to find food. Increased sediment levels also clog interstitial spaces in the riverbed which invertebrates use for habitat, but such will quickly regenerate when turbidity is abated and “flushing” occurs.

c) Vertebrates

Sediment from the erosion of disturbed areas is the primary source of adverse impacts to aquatic vertebrates. For the project area, “aquatic vertebrates” applies primarily to fish. Sediment in streams affects fish by increasing sediment deposits in spawning gravel and rearing habitat. This suffocates the eggs or fry and affects the aquatic organisms that fish rely on for food. Sediment is also abrasive to fish gills. The use of Best Management Practices (BMPs) for erosion control should alleviate these adverse impacts or reduce them to short-term and tolerable levels.

Whenever possible, construction should be timed so that it does not coincide with spawning runs when migration movements could be disrupted or blocked. Also, structure types and construction methods (i.e., driven piling for piers instead of excavated and cast-in-place footings that require cofferdams) can avoid or minimize construction impacts at bridges.

Toxic materials can also cause problems for fish. Toxins can be introduced to the stream by runoff or through accidental spills or contact with hazardous materials. Again, BMPs during construction should minimize these problems.

5) Erosion and Accretion Patterns

The majority of the existing culverts and bridges along the project corridor are inadequately sized to handle high-flow conditions. The streams associated with undersized crossing structures will experience flooding upstream of the structure during high-flow conditions, causing erosion or deposition and widening of the natural channel. Eroded material may then be deposited downstream, and may potentially alter the course of the river.

The crossing structure located at MP 12.4 handles flow for Lake Creek. The structure consists of two 0.76 meter (30-inch) culverts and two 1.5 meter (5-foot) culverts, which are oriented almost perpendicular to the stream flow. This has caused the stream flow to impact the stream bank prior to making a turn to enter the culverts, causing chronic erosion.

Replacement of culverts to sizes that will accommodate the flows associated with a storm event, and re-orientation to match stream flows will reduce and minimize the impacts associated with current erosion. At the Lake Creek crossing (MP 12.4) a bridge would replace the current culverts. Hence, the impacts associated with both of the

proposed build alternatives at this stream crossing would be beneficial. Specific impacts at each of the named and unnamed drainages will be quantified and described once a design alternative has been decided upon, and final design is completed.

6) Actions Taken to Minimize Impacts

Measures can be incorporated into the proposed action to minimize the impacts to streams and wetlands. Once specific impacts are identified at each wetland or stream/drainage crossing, actions taken to minimize impacts will be described for each wetland or stream/drainage crossing. Possible actions include:

- a) Select the “no build” alternative if practicable.
- b) Design to avoid wetland or stream areas if at all possible by shifting alignment or altering grade.
- c) Place the fill in the smallest area possible.
- d) Use fill materials that are similar to the substrate whenever possible.
- e) Schedule the timing and duration of the construction activities to coincide with the lowest flows possible.
- f) Use the Montana Department of Transportation Highway Construction Standard Erosion Control Work plan to identify BMPs for erosion control that are specific to any proposed actions. The goal of the plan will be to prevent erosion of disturbed areas and minimize the discharge of pollutants and sediments into surface waters. The contractor for improvements will be required to follow the recommended BMPs. Selection of the BMPs would be done during the final design activities and at the discretion of the highway designer.

B: WATER CIRCULATION, FLUCTUATION AND SALINITY DETERMINATIONS

1) Water

The Final EIS contains a discussion of surface waters and their associated quality. The following sections discuss the proposed action’s impact on various components of the water quality.

None of the streams located within the project corridor are listed on the state 303(d) list.

a) Salinity

No site specific tests for salinity have been performed. However, observations of streams and wetlands in the project corridor showed no saline areas. Although velocities are slow, water in wetland areas is continually resupplied and drained away. There are no known impoundment areas where water could be reasonably expected to increase in salinity. Such changes would most likely result from altering the hydraulic regime and interconnection of wetlands and streams or the use of fill materials significantly different from native soils. Neither of these changes are predicted to occur as a result of the proposed action.

b) Water Chemistry

Although no site-specific tests have been performed, there is no reason to suspect that the proposed action would significantly alter the alkalinity, hardness, pH level, or mineral concentration in surface waters.

c) Suspended Sediments

Construction could cause temporary, localized, minor increases in suspended sediments during construction activities, especially near streams where fines in the new fill material are transported from the disposal sites by water currents. Stable, granular fill materials and appropriate construction methods would be used to minimize these impacts. Instream work will not be allowed during periods of expected high flow (like spring runoff).

d) Clarity

During the placement of fill materials in wetlands and streams, there may be temporary, localized increases in turbidity. These increases in turbidity would be very minor compared to the increases which naturally occur during spring run-off conditions or after heavy rainstorms. This short-term impact would be minimal. However, even minor increases that do not occur with a corresponding spike in the hydrograph can be very damaging to aquatic ecosystems (no flushing would occur, and gravels could be smothered, etc.). The use of appropriate erosion control BMPs will help to avoid or minimize temporary, localized increases in turbidity.

e) Color

The placement of fill materials in wetlands and streams could disrupt the substrate and increase the suspended sediments and turbidity in the water. This would have the effect of temporarily and locally altering the color of the waters in the vicinity of the construction activity, especially immediately following the fill placement. This change in color would be similar to the change in color during the spring runoff when high concentrations of sediments from the surrounding drainages give the water a milky color.

f) Odor

The project will not change any natural odors in the streams or wetlands.

g) Taste

The project will not significantly alter the taste of the surface water or the groundwater in the project area precluding any unknown spills or highly abnormal conditions.

h) Dissolved Gas Levels

Improvements are not expected to significantly increase the turbulence of flows, cause stagnation in streams and wetlands, or cause other changes to hydraulic regimes; therefore, it is unlikely that the existing dissolved gas levels will be altered in any way.

i) Nutrients

Current sources of nutrients such as phosphorous and nitrogen predominantly come from non-point agricultural sources, and other naturally occurring high organic loads such as decaying algae. None of these conditions are expected to be impacted by the proposed action and since the hydraulics of wetlands and surface waters throughout the project area will be maintained, there should be no impact from nutrient loading.

j) Eutrophication

The proposed action is not expected to contribute significant quantities of sediment or nutrients to project vicinity surface waters or wetlands. The waters that will be impacted by the proposed project are primarily streams and wetlands, not lakes. Streams are generally well mixed and plant growth induced by excessive nutrients is generally not a problem. Wetlands are, by their nature, already subject to eutrophication. Since there will be no significant increase in nutrients and the hydraulic regimes will be preserved, there are no anticipated impacts from increased eutrophication. When small hydrologically isolated wetlands (potholes) are partially filled, eutrophication may occur more rapidly. Once final design has been completed, potential impacts from eutrophication can be quantified.

2) Current Patterns and Circulation

a) Current Patterns, Drainage Patterns, Normal and Low Flows

All of the local cross-highway drainage crossings and patterns will be maintained if they are presently adequate to maintain natural current and drainage patterns. Hydraulic characteristics that are currently adversely affected by inadequate crossings would be restored to natural conditions under both of the proposed build alternatives. Seasonal variations in stream flow and groundwater table naturally affect flow volumes and hydraulic patterns. However, none of the proposed improvements are expected to change or alter these patterns and the total flow of water should not be altered.

b) Velocity

The intent of the new bridge design will be to maintain existing stream velocities if it is representative of a suitable natural condition. The drainage culverts will be designed to have no more than minimal effect on the hydraulic flow characteristics of the natural system, including velocity.

c) Stratification

Proposed improvements are not expected to alter the current stratification of waters in any of the streams or wetlands.

d) Hydrological Regime

The project is not expected to affect any of the existing hydrologic regimes of the streams or wetlands in the project area.

e) Aquifer Recharge

The proposed action is not expected to have any adverse affect on the quality or extent of any aquifer recharge.

3) Normal Water Level Fluctuations

Bridge openings and culverts will be sized and designed to maintain the existing natural velocities without altering the stream elevation or causing backwater problems. All crossings will be designed so that movement of aquatic life indigenous to the waterbody is not disrupted. This includes designing culverts to ensure the passage of fish. The minimum culvert size, for maintenance reasons, is a 24-inch diameter under the highway and 18-inch under road approaches. This criteria will also influence culvert sizing.

4) Salinity Gradients

Although site visits indicate locations of salinity in the extended project vicinity, none are known to occur within the project corridor (including the Duck Lake Road Option). Salinity gradients will not be affected.

5) Actions That Will Be Taken to Minimize Impacts

To minimize impacts the following measures will be taken:

- a) Bridge and culvert openings will be sized to maintain the appropriate natural water levels and velocities in the streams.
- b) Culverts and hydraulic structures will be sized to maintain natural cross-highway drainage patterns, and to allow for passage of fish and other aquatic life in fish-bearing streams.
- c) Fill material will not cause more than minimal changes to the natural hydraulic flow characteristics of the streams or increase flooding.

C: SUSPENDED PARTICULATE/ TURBIDITY DETERMINATIONS

1) Expected Changes in Suspended Particulate and Turbidity Levels in the Vicinity of the Disposal Site

The placement of fill at stream channel crossings may introduce some fine materials to the surface waters, which would cause temporary increases in the level of suspended particulates during construction. The placement of fill may re-suspend bottom sediments. As a result, turbidity levels may temporarily increase in the vicinity of stream or wetland encroachments.

Stormwater runoff from areas in the vicinity of streams and wetlands can also transport sediment to the surface waters. This would result in an increase in suspended particulates and turbidity levels. It will be necessary to ensure that a standard erosion control work plan is carefully established and followed to keep erosion at a minimum. Removal of sediment that erodes into a wetland from disturbed areas on the project will be required.

2) Effects on Chemical and Physical Properties of the Water Column

a) Light Penetration

Increased levels of suspended particulates and turbidity in the surface waters near the construction site can also decrease the amount of light penetration. These impacts would be short-term and would occur only temporarily during the construction activities.

b) Dissolved Oxygen

The suspended particulates introduced to the surface waters by the placement of soil will be for the most part inorganic. Therefore, no additional Biochemical Oxygen Demand (BOD) should occur. In addition, the proposed action should not result in any increased turbulence or stagnation of the surface waters to the point of affecting the dissolved oxygen levels.

c) Toxic Metals and Organics

Since the fill materials used for construction will be suitable for highway construction, it should be free of high organic content and toxic metals. No fill material will be taken from any hazardous material site identified in the Hazardous Material Section of the EIS.

d) Pathogens

There are no known major sources of viruses or pathogenic organisms in the project area, although livestock and wildlife waste is evident in places throughout the corridor. The use of clean, inorganic fill material would prevent the introduction of pathogens in surface waters. At this time the potential presence of Whirling disease is not known, nor is the history of botulism in wetlands associated with the project area.

e) Aesthetics

The project would affect the aesthetics of surface water in the project area in a condition similar to the spring runoff conditions, albeit at a reduced scale. The effects would be temporary, localized, and occur near or just downstream of the actual construction activities. The expected impacts are the increased suspended particulate levels in the surface waters near the placement activity, which should disperse as the distance from the source increases.

3) Effects on Biotaa) Primary Production, Photosynthesis

The project should not substantially lower the rate of photosynthesis and primary productivity in surface waters. As indicated in the previous section, changes in suspended particulates and turbidity levels are expected to be localized and temporary. These conditions should not be significant enough to affect the level of dissolved oxygen in the surface waters.

b) Suspension / Filter Feeders

Suspension and filter feeders capture and use organic particles suspended in the water current. Due to the increased levels of suspended particulates and turbidity near construction activities, these organisms would be impacted. Excessive sediment can bury organisms, abrade their gills, and damage their habitat. However, the impacts would be very localized and short-termed. The organisms would be expected to naturally repopulate the area very quickly after the construction activities have been completed.

c) Sight Feeders

Sight feeders rely on clear water to find their food. Therefore, they would be impacted by the short-term, localized increases in suspended particulates and turbidity due to the placement of fill materials. Similar to filter feeders, excessive sediment can bury these organisms, abrade their gills, and damage their habitat. Suspended particulates and turbidity should rapidly diminish after the actual placement of fill materials, allowing quick recovery for sight feeders.

4) Actions Taken to Minimize Impacts

The primary action taken to minimize impacts resulting from suspended particulates and turbidity in the surface waters is to establish an erosion control work plan. The work plan will be selected, designed, and implemented to prevent or reduce erosion and release of sediment from construction areas. For this purpose, the Standard Erosion Control Work Plan for the Montana Department of Transportation will be used. Temporary, site-specific erosion control structures or practices will be selected based on BMPs for highway construction projects.

The work plan will be used to acquire a National Pollution Discharge Elimination System permit. The goals of the erosion control plan will be to plan the development for the project setting, to avoid or minimize the extent of disturbed area and duration of exposure, to stabilize and protect disturbed areas as soon as possible in order to keep runoff velocities low, to protect disturbed areas from runoff, retain sediment within the corridor, and implement a thorough maintenance and follow-up program. BMPs used may include slope roughening, temporary seeding, mulching, erosion control blankets, straw bales, gravel filter berms, ditches, silt fences, and settling basins.

D: AQUATIC ECOSYSTEM AND ORGANISM DETERMINATIONS

1) Effects on Special Aquatic Sites

a) Sanctuaries and Refuges

State, federal, or local agencies have not designated any wildlife or waterfowl sanctuaries or refuges within the project area. Therefore, none would be impacted by this project. The proposed project should also not have any indirect affect on Glacier National Park or on any special Blackfoot areas of this type.

b) Wetlands

The amount of jurisdictional wetlands occurring within the project area is detailed in Table 2. Only those wetlands completely, or partially, located in the project corridor (about 60 meters on either side of the road) were delineated. There are a variety of wetland resources in the area. US 89 crosses perennial and intermittent streams twelve (12) times in the project corridor. Riparian communities dominate many of these crossings. Riverine wetlands comprise approximately 70% of the total impacted wetland acreage.

Alternative B and Alternative C are anticipated to impact approximately 6.4 ha/16.1 acres and 7.2 ha/17.9 acres, respectively. These amounts are reduced from the 7.9 ha/19.6 acres-11.7 ha/29.0 acres initially estimated for the build alternatives. Substantial efforts have been made to redesign the highway alignment and grade to reduce impacts to this lower level. These estimates are for impacts along US 89 only. The approximate impacts associated with

improvements to Duck Lake Road are 0.8 ha/1.9 acres. Approaches to mitigate the impacts to these wetlands will be discussed in Section 3.D.6 of this evaluation.

c) Mud Flats

There are no mud flats in the project area, and the project will not create any new mud flats.

d) Vegetated Shallows

These are areas that are permanently inundated and support rooted, aquatic vegetation. These areas are generally classified as wetlands. There are no vegetated shallows in the project corridor, and the project will not create any new vegetated shallows.

e) Riffle and Pool Complexes

Riffle and pool complexes occur when the gradient of the stream channel varies from steep to shallow. Most of the crossings associated with US 89 in the project corridor are in reaches of streams with a low gradient. The gradient of these streams is as such to form riffle/pool complexes. However, there are a few streams such as Lake Creek, Cut Bank Creek, South Fork Cut Bank Creek, and the north branch of the South Fork Milk River that have a moderate gradient. These streams are riffle dominated with infrequently spaced pools. Rapids dominate between the infrequently spaced pools. Adverse impacts on these complexes are not anticipated, as bridges and culverts will be engineered to maintain existing hydraulic characteristics. All of the riffle/pool complexes within the project corridor will need to be delineated prior to final design. After which, specific impacts to each riffle/pool complex can be quantified.

2) Effects on Threatened and Endangered Species and Their Habitats

United States Fish and Wildlife Service (USFWS) has reported that six (6) threatened and endangered species may occur in the US 89 project vicinity. While habitat for the mountain plover, grizzly bear, gray wolf, Canada lynx, and bull trout exists in the project vicinity, only the occurrence of a bald eagle has been reported. The Montana Natural Heritage Program (MNHP) identified one bald eagle nest at Two Medicine Lake approximately 5 km (3 miles) south of the US 89 corridor. The proposed action alternatives would not have a direct impact on the nesting site.

The habitat in the US 89 corridor provides important grizzly bear foraging habitat in early spring and supports grizzly bears during each month they are not in their dens. Grizzly bears are active in the project corridor and the western portion of the Duck Lake Road corridor near Babb roughly between April and November. The project area is located within the southeast Glacier bear management unit (BMU) in the northern continental divide grizzly bear recovery area. The BMU is managed by the Blackfoot Tribe under the guidelines of management situation 2. Management situation 2 areas lack distinct grizzly bear population centers and high suitability habitat generally does not occur, though the habitat in the project corridor has never been fully evaluated to confirm that the management situation 2 designation is the most appropriate management for this area. The primary effects of the proposed project on grizzly bears would be disturbance of foraging habits during construction, loss of habitat, a potential decrease in habitat value, and increased difficulty crossing the US 89 corridor. These impacts are attributed to the extent of vegetation disturbance, the wider road surface combined with reduced

vegetative cover along the roadway, and increased vehicle speeds. Since grizzly bears typically avoid habitats in close proximity to roads, this impact is not expected to adversely affect grizzly bears. However, because grizzly bears are often found in close proximity to roads at important foraging components, timing restrictions for construction would be implemented at key habitats in the corridor. The Biological Assessment section of the Biological Resource Report further details the affected grizzly bear habitat and actions taken to minimize potential impacts to grizzly habitat during construction.

Populations of bull trout in Montana are limited to the Columbia and Saskatchewan River basins. The St. Mary River, in the Saskatchewan basin, contains the only bull trout populations east of the continental divide in the United States. Sampling efforts in the St. Mary River and its tributaries, including the Duck Lake vicinity, identified no bull trout. The tributaries of the St. Mary River that cross Duck Lake Road in the project area do not provide habitat for bull trout. The Biological Resources Report, which will serve as the Biological Assessment further details potential impacts to threatened and endangered species. The Biological Assessment, prepared in compliance with the Endangered Species Act, documents project impacts on threatened and endangered species. On January 29, 2005, the USFWS issued their biological opinion for the project. The conclusions of the biological opinion are summarized in the Threatened and Endangered Species section of Chapter 4 of the Final EIS.

3) Effects on Other Animals

The US 89 project corridor contains a large diversity of mammals, birds, amphibians and fish species. The various assorted grasslands, coniferous and deciduous forests, wetlands and uplands provide excellent habitat for these species, including deer, elk, moose, migratory birds, red fox and mink.

The effects on animals that are mobile will be greatest during the construction phase of the proposed project. This will be due to the increased noise and human activity. The animals that will be affected the greatest are those that are not mobile, and will not be able to leave the project area. Impacts will be mostly associated with loss of vegetation and habitat due to construction activities, as well as impacts due to harassment by noise, dust, etc. during construction.

The Biological Resources Report will further detail potential impacts to area animals and their habitat.

4) Effects on Terrestrial Plants

Portions of plant communities will be lost as a result of wetland filling, which will locally reduce forage production and photosynthesis (primary production). This reduction will have a negligible impact on wildlife and livestock given the small acreage of plant communities that will be disturbed or destroyed, and the dispersal of the disturbance sites throughout the corridor.

One plant species that is on the candidate species list may occur in the project area. The slender moonwort (*Botrychium lineare*) occurs in nine (9) known locations in the United States, three (3) of which are in Glacier County, Montana. The population nearest the project area occurs near US 89 in St. Mary. This site is beyond the project corridor for the US 89 improvement project.

Fill of wetlands will disturb existing plant communities and enhance the possible proliferation of noxious weeds. Highway reconstruction and other activities in, or

adjacent to, wetlands or surface waters present the potential for spreading noxious weeds. Invasion of wetlands by species such as spotted knapweed, Canada thistle and purple loosestrife is a primary concern. BMPs must be used in an effort to avoid the introduction of noxious plant species into disturbed construction and fill areas.

5) Actions Taken to Avoid and Minimize Impacts

According to the Clean Water Act, Section 404 Guidelines, and the state of Montana's Interagency Memorandum of Understanding (1992), permit issuance will only be allowed for the least environmentally damaging, practicable alternative. No discharge of materials into wetlands or other waters of the United States can be permitted if there is a practicable alternative to the proposed discharge which would have less adverse effects to the aquatic ecosystem and as long as the alternative does not have other significant adverse environmental consequences. Therefore, the preferred alternative was carefully selected to represent the least damaging, practicable alternative.

Although the road footprint proposed under Alternative C is approximately 10 percent greater than that proposed under Alternative B, the total impervious (paved) surface would be only slightly greater. The potential for adverse surface water impacts would be the greatest under this alternative due to the larger amounts of runoff generated. In addition, under the Duck Lake Road Option, post-construction impacts on water quality would primarily be associated with increased stormwater runoff to wetlands and streams from more extensive impervious surface areas. However, these adverse impacts on receiving waters are expected to be minor. These minor impacts to waters of the United States are offset by the extensive improvements to pedestrian and bicycle safety.

After review of the proposed alignment by project biologists, Tribal biologists, U.S. Army Corps of Engineers regulatory staff, and representatives from MDT, suggested modifications to the alignment were made in order to avoid and minimize wetland and stream impacts. As a result of these efforts, approximately 2.1 hectares (5.2 acres) of wetland impact will be avoided. Please refer to Table 1 for specific information regarding wetland impact acreage avoidance.

Additional efforts to minimize impacts to wetlands are as follows:

- a) Whenever possible, steeper fill slopes and smaller fill volumes will be used for construction in wetlands and stream crossings.
- b) Perform work in and around wetlands from an existing roadway or uplands site.
- c) Clearly mark the limits of clearing to minimize intrusion into wetland habitats.
- d) To limit wetland disturbance, the construction plans would specify that clearing and grubbing beyond the construction limits (not the right-of-way limits) is prohibited, and any temporary clearing outside the construction limits, but within the right-of-way, necessary for culvert installation or other similar activities would be kept to the smallest area possible and would be reclaimed following construction.
- e) Phase land-disturbing activities through the project corridor to minimize the area of exposed soil at any point in time.
- f) Widen the roadway to the north at Wetland 4 (W4) to avoid higher quality, forested wetlands on the south side of the road.

- g) Increase the capacity of culvert crossings under the roadway at locations where the lack of culverts or undersized culverts currently limits the natural hydrologic regime of wetlands.
- h) Replace culverts with new culverts that will improve hydrology in wetland systems and adequately convey the entire stream channel at stream crossings.
- i) Perform culvert replacements and bridge construction at riparian crossings during the drier summer months.

Because no rare and sensitive species would be affected by the project, no mitigation measures are required. If rare and sensitive species are identified at the proposed material source sites, mitigation measures would be implemented to avoid or minimize impacts to those species.

6) Compensatory Actions Taken to Minimize Impacts

Although all possible action will be taken to avoid and minimize impacts to wetlands and surface waters, some compensatory mitigation will still be required. It is the current policy of the USEPA and the U.S. Army Corps of Engineers to provide compensatory mitigation in-kind (i.e., wetland for wetland, stream for stream) and in areas adjacent to, or within, the project area whenever possible. After these efforts are exhausted, then offsite compensatory mitigation should be pursued.

The concept of compensatory mitigation is to replace functions of wetlands that will be impacted by the proposed action. The approach to compensatory mitigation adopted by MDT policy is to follow a sequence of mitigation events. First, provide mitigation by developing replacement wetlands onsite. If onsite mitigation is not available, or does not provide compensation to the extent necessary, then offsite mitigation opportunities within the watershed should be examined. All compensatory mitigation sites must be permanently protected by a conservation easement or similar restriction.

It is recognized that replacement of a natural wetland community is a difficult and challenging process that requires a lengthy period of time, careful design, thorough development of vegetation plans, and constant monitoring to evaluate the success and to modify the plans where measures have not met with success.

While other considerations are discussed below under offsite mitigation, the key to any replacement or enhancement option is to maintain or establish a reliable source of water to the new area. Even though wetland hydrology is the most difficult parameter to replicate or create in a newly constructed wetland, it is felt that the prevailing conditions in the project area are conducive to providing both surface and groundwater sources that can be utilized to increase the chances for long-term success in compensatory wetland mitigation.

Permits for placement of fill in wetlands would be required from the Blackfeet Tribe, under Executive Order 11990, and from the U.S. Army Corps of Engineers under Section 404 of the Federal Clean Water Act. As part of the permitting process, compensatory mitigation is required when impacts can not be avoided during project design. Where impacts are unavoidable, compensatory mitigation could be provided by establishing, enhancing, and/or restoring (rehabilitation or re-establishment) wetland habitat of a similar type and function to what was lost. The U.S. Army Corps of Engineers allows wetland impacts to be compensated at a ratio of 1:1 for restoration (re-establishment) and establishment (creation) of wetlands. Larger mitigation ratios will apply for enhancement or wetland rehabilitation. The U.S. Army Corps of Engineers

does not regulate impacts on isolated wetlands (i.e., those wetlands that are isolated from waters of the United States, such as prairie potholes). Compensatory mitigation amount will be determined based on the appropriate mitigation ratios and exact impact amount after final design is complete. The Blackfeet Environmental Office has recently proposed changes to its mitigation policy. These changes have not yet been adopted by the Tribal Council. If the new policy is approved by the Tribal Council, the project would compensate for unavoidable wetland impacts in accordance with the new guidelines.

A description of the sequential considerations for compensatory wetland mitigation follows:

a) Onsite Mitigation

Onsite mitigation opportunities identified to date include the following:

- Obliterating the existing road and re-establishment of wetlands where the roadway is realigned (such as W8, W18, W21, and W23, etc., see Appendix A)
- Creating (establishing) additional wetland area at Lake Creek in conjunction with the proposed realignment
- Creating (establishing) additional wetland area at South Fork Cut Bank Creek (W17) in conjunction with the proposed stream relocation
- Replacing existing culverts with culverts that will allow for the necessary life cycle movements of aquatic species indigenous to the waterway and to increase habitat availability in the study area.

b) Offsite Mitigation

Compensatory wetland mitigation must occur in the same drainage basin as the affected wetland or resource. The U.S. Army Corps of Engineers must approve any compensatory wetland mitigation plan that is intended to satisfy Section 404 permit requirements. The compensatory mitigation plan must be developed prior to issuance of Section 404 authorization. Sites in the immediate vicinity are preferred over sites farther upstream or downstream. These criteria may be difficult to meet in the US 89 project corridor, because wetland mitigation is often incompatible with land uses in the corridor such as crop production and livestock grazing. Mitigation for unavoidable wetland impacts can also include offsite improvements, providing funding for other mitigation projects in the watershed, or the MDT Wetland Mitigation Ledger. Offsite mitigation opportunities identified to date include the following:

- Implementing one of the mitigation projects contained on the list of priorities maintained by the Blackfeet Tribe
- Purchasing and establishing protection easements on properties containing high densities of prairie potholes
- Providing funding to the Blackfeet tribal wetland mitigation program.

c) Wetland Banking

The Montana Interagency Wetlands Group sponsors the MDT Wetland Mitigation Bank Program. While no mitigation banks currently exist in the project vicinity, any future wetland mitigations banks created in the vicinity may provide an

opportunity to compensate for wetland impacts. In addition, use of the MDT Wetland Mitigation Ledger may remain an option if the use of onsite and offsite mitigation is not adequate to compensate for impacts from the proposed project. If the ledger is used, the U.S. Army Corps of Engineers will likely require higher ratios due to the temporal and spatial loss in wetland function and acreage.

As the roadway designs are advanced, additional opportunities to avoid impacts and minimize unavoidable impacts on wetlands will be explored and additional mitigation opportunities in the project corridor will be identified. Based on the wetland impacts identified to date and the resulting effects on wetland functions, the following priorities will direct the selection of mitigation for the proposed project:

- Continue to identify opportunities to avoid or minimize wetland impacts through project design.
- Attempt to provide onsite mitigation at a replacement ratio of 3:1 for all wetland impacts in the project corridor.
- Attempt to mitigate at the location of the impact or in the same localized drainage basin.
- Replace all impacted wetland functions.
- First identify sites that offer wetland restoration (re-establishment and rehabilitation) opportunities, and give secondary consideration to sites suitable for creation (establishment) and enhancement.
- Identify additional offsite or out-of-kind mitigation opportunities if onsite and in-kind mitigation cannot be achieved or is impracticable. However, out-of-kind will generally not be eligible for crediting by the U.S. Army Corps of Engineers; this will be evaluated on an as-required basis.
- When the above are not practicable, consider using MDT's wetland ledger. The ledger would allow MDT to develop wetlands in the general area, and then, as wetland losses occur, to subtract the acreage from the developed wetland.

7) Monitoring of Mitigation Actions

To ensure compliance with wetlands policy and increase the chance for successful mitigation efforts, inspections will be made by the Project Manager, MDT's Wetland Biologist, and other agency representatives before, during, and after the wetlands replacement. Protocols and forms developed by MDT in conjunction with their monitoring contract will be used. These inspections typically continue for five (5) years, with annual reporting requirements, and are likely to occur as follows:

- a) During the plan-in-hand visit prior to initiating development of the wetland.
- b) At a visit made prior to the final grading for the wetlands.
- c) When the wetland is planted.
- d) The first full summer after the completion of the wetland construction to determine the preliminary success of the mitigation project.
- e) In the fourth or fifth season after establishment of the wetland area to obtain enough data and observation to determine whether or not the mitigation has

been successful (final inspection). The mitigation will be considered successful if it meets the U.S. Army Corps of Engineers' criteria for a wetland under their Wetland Delineation Manual (1987). If not, plans can be formulated for correction or a decision made to abandon the site and try elsewhere if solutions to assure success at the site are not apparent.

- f) On a periodic basis to assure no adverse changes in groundwater hydrology (long-term monitoring).

Implementation of the proposed action will also be field-reviewed during construction by various agencies including MDT, the U.S Army Corps of Engineers, the Montana Department of Environmental Quality, and the MFWP to ensure that the construction activities will not unacceptably impact surface waters or wetlands, that additional impacts requiring additional mitigation are not being created, and that provisions of all the permits issued are being adhered to.

It will also be necessary to ensure that the mitigation sites are protected permanently with a conservation easement or similar protective covenants. If not possible on the reservation, the U.S. Army Corps of Engineers may require additional sites off of the reservation but within the watersheds to satisfy 404 obligations.

E: POTENTIAL EFFECTS ON HUMAN USE CHARACTERISTICS

Recreation associated with hunting, in the affected area, will be lost during the construction phase of the proposed project due to loss of wildlife habitat and temporary displacement of wildlife. Restricted access to the project area for hunting purposes will also affect human use.

Livestock grazing potential will be lost on areas where rangeland vegetation is destroyed or where livestock are prevented from grazing in close proximity to the highway widening project. This impact will be negligible because the project area comprises only a small portion of rangeland currently being utilized for livestock production.

The proposed project will not adversely affect municipal, private, or potential water supplies. Private wells are used for domestic and agricultural purposes within the project area. The proposed action will not affect the quality or productivity of these water supplies.

Fishing is a major recreational activity on most of the major streams in the project area. The proposed action will affect fishing activities as temporary sediment loading of the streams, downstream of the construction activities, affects resident fish populations. These impacts are expected to be temporary.

The proposed activity will affect motorists using US 89 between Browning and Hudson Bay Divide during the construction season. Highway US 89 provides access to the Blackfeet Indian Reservation and Glacier National Park's eastern entrance. Construction activities may delay motorists, who may view it as an inconvenience. These impacts are negligible, as the proposed project when completed will enhance overall traffic flow.

F: DETERMINATION OF CUMULATIVE EFFECTS ON THE AQUATIC ECOSYSTEMS

Cumulative effects are the changes in aquatic ecosystems attributable to the collective effects of a number of individual discharges of fill material. Although the impact of a

particular discharge may be a minor change in itself, the cumulative effect of many such changes can result in major impairments of water resources and interfere with the productivity and water quality of surface water and wetlands.

Losses in wetlands are anticipated from future activities to reconstruct and improve US 89 from Browning to Hudson Bay Divide. Increases in regional wetland acreage are anticipated through ongoing and planned wetland creation and enhancement projects. Cumulatively, planned and ongoing water quality and wetland projects will offset impacts that will result from temporary loss of wetlands in the project area.

Highway reconstruction and other activities in, or adjacent to, surface waters and wetlands present the potential for spreading noxious weeds. Invasion of wetlands by non-native or invasive plant species can affect native wetland communities. Noxious weeds will be controlled using MDT's standard maintenance procedures.

G: DETERMINATION OF SECONDARY EFFECTS ON THE AQUATIC ECOSYSTEMS

Secondary effects are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials but do not result from the actual placement of the dredged or fill material. The most significant secondary effect with this project would result from surface runoff. For this reason, a Highway Construction Standard Erosion Control Work Plan will be established to prevent surface runoff from transporting materials that could degrade water quality.

A secondary effect is the possibility of accidental spills of hazardous materials during construction activities and the subsequent use of the facility. Any improvements to the existing highway that increase capacity and reduce congestion would decrease the chance of these accidental spills resulting from the use of the highway by vehicles transporting hazardous materials. Other secondary or indirect effects of the project are discussed in more detail in the EIS.

Section 4: Findings of Compliance

A: ADAPTATION OF THE SECTION 404(b)(1) GUIDELINES TO THIS EVALUATION

This evaluation is based on a conceptual and preliminary design of the project alternatives and identifies and quantifies the environmental impacts associated with the proposed action insofar as present design data allows. Before the project can be advanced to the design stage, the preferred alternative must be approved and a formal design for it must be developed and approved.

Some project specific information required for the Section 404(b)(1) evaluation might not be accurately predicted until final design plans are available. This Section 404(b)(1) evaluation also details two separate build alternatives (32-foot road and 36-foot road). Alternative C (36-foot roadway) has been selected as the preferred alternative. Please reference Section 2B of this evaluation for alternative selection details.

B: EVALUATION OF AVAILABILITY OF PRACTICAL ALTERNATIVES TO THE PROPOSED DISCHARGE SITE WHICH WOULD HAVE LESS ADVERSE IMPACT ON THE AQUATIC ECOSYSTEM

Section 230.10(a) of the Guidelines states “Except as provided under 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.” A discussion of the alternatives evaluated with respect to this requirement follows:

Alternative A - No Build

Several of the culverts along the existing US 89 roadway are undersized and there are areas along the roadway where culverts are lacking. This limits the natural hydrologic regime of streams and wetlands within the road corridor. These conditions can, over time, reduce the functions and values of these wetlands systems, which would affect their ability to provide wildlife habitat. Under the no-build alternative, this impact would remain, but no new areas of wetlands habitat would be disturbed.

Alternative B - US 89 (9.75-meter, 32-foot width)

Placement of fill in wetlands causes a reduction in some functions such as wildlife habitat, flood storage capacity, and groundwater recharge capacity. The magnitude of this impact varies with the type of wetland affected, the amount of fill placed, the size of the overall wetland system, and the condition of the wetland system (disturbed or pristine). The following sections provide a brief qualitative and quantitative description of the effect of new construction on each wetland group identified in the project corridor.

Large Riverine Systems

Large riverine system wetlands, also known as large riparian systems, provide numerous important functions in the US 89 project corridor. These systems constitute the greatest amount of wetland acreage in the project corridor and, therefore, would incur the greatest impacts of the wetland groups. Under Alternative B, about 3.8 hectares (9.4 acres) of large riparian wetlands would be affected. Loss of these wetland habitats would result in a slight decrease in the function of these systems, primarily at the location of the impact. These systems are already affected by the existing road corridor, and for the most part, construction would maintain the existing alignments at these sites with a somewhat larger project footprint than the existing road.

Roadway realignments are proposed at W17, W18, W21, and W23. A slight realignment at South Fork Cut Bank Creek (W17) is required to replace the existing bridge, which currently restricts the natural width of the stream. The realignment and proposed widening would require relocation of a portion of the stream channel. The natural meandering of the channel at this location is restricted by the proximity of the existing roadway and has been affected by fill placed to provide parking. At Lake Creek (W18), the natural meandering of the stream is restricted by the alignment of the existing culverts. The realignment would include a bridged crossing and would result in an improvement over existing conditions. Realignments at W21 and W23 would relocate the roadway away from the wetland and adjacent stream channel, resulting in an improved condition at these sites.

Small Riverine Systems

Primary functions of small riverine systems include general fish/aquatic habitat, sediment/nutrient/toxicant removal, ground water discharge/recharge, and production export/food chain support. Operation of Alternative B would result in the loss of approximately 0.6 hectares (1.5 acres) of wetland habitat in this group. Impacts on the functions of these systems under Alternative B are expected to be localized at existing culvert crossings and minor when compared to the overall size of these riparian wetland systems.

Depressional Wetlands

Of the 31 depressional wetlands in the US 89 project corridor, 13 would be affected by Alternative B (W6, W8, W10, W11, W13, W16, W27, W29, W32, W35, W36, W47, and W48). Primary functions of depressional wetlands in the project area include migratory bird habitat and ground water discharge and recharge. The functions of these wetlands would be significantly decreased if one-third or more of the individual wetland is filled or excavated for the widened roadway. Under Alternative B, the widened roadway would negatively impact five (5) of the 13 depressional wetlands and would have minor effects on the remaining eight (8) depressional wetlands. Alternative B would result in the loss of approximately 1.3 hectares (3.4 acres) of wetland habitat in this group.

Slope Wetlands

Four (4) of the project wetlands are included in this group. Alternative B would result in the loss of approximately 0.7 hectares (1.8 acres) of wetland habitat in this group. The primary functions lost due to impacts on these systems include loss of secondary habitat for threatened and endangered species and loss of general wildlife habitat. Fill associated with roadway widening in W2 and W22 would have minor effects on these systems due to their large size and the location of the impact near the fringes of the existing roadway. Nearly half of W5 would be lost under Alternative B. Road widening would fill the edges of W20. Because W20 extends outside the project corridor and the system is not identified on available maps, its overall size is difficult to determine. As stated previously, this wetland has been disturbed by residential construction and firewood gathering.

Alternative C - US 89 (11-meter, 36-foot width)

Alternative C has been selected as the preferred alternative. Long-term impacts on wetlands would be similar to those described for Alternative B with the following additional impacts, discussed below.

Large Riverine Systems

Under Alternative C, about 4.5 hectares (11.0 acres) of large riparian wetlands would be affected, compared to about 3.8 hectares (9.4 acres) under Alternative B. Loss of habitat under both alternatives would have similar effects.

Small Riverine Systems

Operation of Alternative C would result in the loss of approximately 0.6 hectares (1.5 acres) of wetland habitat in this group. As described for Alternative B, impacts on the functions of these systems under both alternatives are expected to be localized at

existing culvert crossings and minor when compared to the overall size of these riparian wetland systems.

Depressional Wetlands

Of the 31 depressional wetlands in the US 89 project corridor, 13 would be affected by Alternative C (W6, W8, W10, W11, W13, W16, W27, W29, W32, W35, W36, W47, and W48). The functions of these wetlands would be significantly decreased if one-third or more of the individual wetland is filled or excavated to accommodate the new roadway. Under Alternative C, five (5) of the 13 depressional wetlands would be negatively effected by the proposed road widening. Alternative C would result in the loss of approximately 1.4 hectares (3.5 acres) of wetland habitat in this group.

Slope Wetlands

Alternative C would result in the loss of approximately 0.7 hectares (1.9 acres) of wetland habitat in this group. Impacts on slope wetlands resulting from Alternative C would be similar to those described for Alternative B. However, Alternative C would result in a slightly greater amount of disturbance to these systems.

Option - Spot Improvements to Duck Lake Road, Alternative Route

The Duck Lake Road Option has been selected in conjunction with Alternative C. Long-term impacts on wetlands would be similar to those described for Alternative B. The following sections provide a brief qualitative and quantitative description of the effect of new construction on each wetland group identified in the Duck Lake Road corridor.

Large Riverine Systems

Installation of a parking area would result in the loss of 0.2 hectares (0.4 acres) of riparian wetlands associated with W49 and Cut Bank Creek. Loss of this habitat would have effects similar to those described under Alternative B. Siting of this parking lot will be finalized during the final design stage. (Note that 0.4 acres of wetland fill for a parking area may not be eligible for a nationwide permit; also, unless there is a critical need to have a parking area in a wetland, it will be assumed that there are other locations for this non-water-dependent project feature.)

Small Riverine Systems

Improvement of Duck Lake Road would result in the loss of approximately 0.6 hectares (1.5 acres) of wetland habitat in this group. As described for Alternative B, impacts on the functions of these systems under both alternatives are expected to be localized at existing culvert crossings and minor when compared to the overall size of these riparian wetland systems.

Depressional Wetlands

Two (2) depressional wetlands (W50 and W51) were identified in the Duck Lake Road corridor. Potential impacts on these systems would be avoided.

C: COMPLIANCE WITH APPLICABLE STATE WATER QUALITY STANDARDS

Providing that the following permits are issued, the proposed project will be in compliance with the State Water Quality Standards:

- 1) A Montana Stream Protection Act Permit (124 permit) must be issued by the MFWP. The purpose of the permit is to protect and preserve fish and wildlife resources in their natural existing state. MFWP will examine application information including projected impacts and determine if the proposed action can be approved. Issuance of the permit constitutes compliance.
- 2) The USEPA is responsible for water quality on the Blackfoot Indian Reservation. The USEPA regulates Water Quality Standards and will issue this permit.
- 3) The Montana Floodplain and Floodway Management Act will require Floodplain Development permits issued by the Floodplain Administrators of Glacier County. The purpose of this Act is to restrict floodplain and floodway areas to uses that will not be seriously damaged or present a hazard to life if flooded, therefore limiting the expenditure of public tax dollars for emergency operations and disaster relief. The application for the permit provides specific engineering information to evaluate impacts.
- 4) The project will require a National Pollutant Discharge and Elimination System permit from the USEPA. The purpose of this law is to minimize soil erosion and sedimentation, therefore maintaining water quality, protecting aquatic resources, and satisfying Section 402 of the Clean Water Act. Specific plans for stormwater pollution prevention will be developed and submitted for review by USEPA, demonstrating how and where construction BMPs will be used to minimize adverse impacts to aquatic resources. Approval of the plan and establishment of such additional conditions as may be necessary through issuance of the permit constitutes compliance.
- 5) Section 401 of the Clean Water Act requires that the USEPA certify that any discharges into waters of the United States comply with water quality standards before Federal permits or licenses are granted. A 401 permit is required prior to 404 permit approval. The purpose of this law is to restore and maintain the chemical, physical, and biological integrity of surface waters. The USEPA will review plans for construction of a given project as well as reviewing the status of other permits requested from and issued by other agencies before approving the proposal. Issuance of the 401 Water Quality Certification constitutes compliance.
- 6) The project will also require an Aquatic Lands Protection Ordinance 90-A permit from the Blackfeet Tribe. Comprehensive protection of aquatic lands on the Blackfeet Reservation is critical to the preservation of fish and wildlife, the maintenance of water quality, and the maintenance of a strong and vital Reservation environment. The Ordinance 90-A permit ensures that the degradation of Reservation waters and aquatic lands be prevented or minimized through the reasonable use of available resources.

In all cases, review of proposed plans and possible impacts associated with implementation of the preferred build alternative may require agencies to request modification of the design, implement mitigation measures, or meet other specific requirements before compliance is achieved through permit issuance. Strict adherence to the permits and their associated provisions and conditions constitute compliance during construction and after for the life of the improvements. Unapproved deviations or non-adherence to these conditions would constitute non-compliance with the law, requiring the owner to take corrective action or face associated penalties or civil action.

As long as acceptable construction practices and design are followed, the acquisition of these permits should be fairly routine. BMPs will be identified using MDT's Highway Construction Standard Erosion Control Work Plan to ensure compliance with the state of Montana's Pollutant Discharge Elimination System regulations.

The project is in compliance with the following federal water quality standards:

- a) **Clean Water Act, as Amended (Federal Water Pollution Control Act), 33 USC 1251 et seq:** The project is in compliance. Although Section 404 permit processing has not been initiated, the U.S. Army Corps of Engineers and the USEPA will be contacted for early coordination to allow for proper planning in order to meet all requirements.
- b) **Fish and Wildlife Coordination Act, as Amended, 16 USC 661, et seq:** In compliance. The MFWP, the Blackfoot Tribe and the USFWS will be contacted and their comments incorporated into the EIS.
- c) **Floodplain Management (Executive Order 11988):** In compliance. The project will be designed to not have significant effects on floodplains.
- d) **Protection of Wetlands (Executive Order 11990):** In compliance. The project will involve work below the ordinary high water line. The project will take the appropriate measures to first avoid, then minimize, then to provide compensatory mitigation for all impacts that cannot be avoided.

The following federal water quality standards are not considered to be applicable to this project:

- a) **Coastal Zone Management Act, as Amended, 16 USC, 1531, et seq:** This Act is not applicable because the project does not involve a coastal zone.
- b) **Estuary Protection Act, 16 USC, 1221, et seq:** This Act is not applicable because the project does not involve an estuary.
- c) **Federal Water Project Recreation Act, as Amended, 16 USC, 460-1(12), et seq:** This Act is not applicable because the project is not considered to be a water recreation project.
- d) **Marine Protection, Research, and Sanctuaries Act 33 USC, 1401, et seq:** This Act is not applicable because the project does not involve the discharge of material into the ocean.
- e) **Rivers and Harbors Act, 33 USC, 401, et seq:** This Act is not applicable because the project would not place obstruction in a navigable waterway.
- f) **Watershed Protection and Flood Prevention Act, 16 USC, 1101, et seq:** This Act is not applicable because the project does not involve the construction of dams in an upstream watershed.

D: COMPLIANCE WITH APPLICABLE TOXIC EFFLUENT STANDARD OR PROHIBITION UNDER SECTION 307 OF THE CLEAN WATER ACT

Section 307 of the Clean Water Act imposes effluent limitations on discharge of materials containing toxic pollutants into surface waters, specifically aldrin/dieldrin, several DDT compounds, endrin, toxaphene, benzidine, and polychlorinated biphenyls (PCB). The project will not discharge any of these specified toxic pollutants; therefore it will be in compliance with Section 307 of the Clean Water Act.

E: COMPLIANCE WITH ENDANGERED SPECIES ACT OF 1973, AS AMENDED

A Biological Assessment in accordance with section 7(a) of the federal Endangered Species Act of 1973 has been completed. The Biological Assessment addresses specific impacts to threatened and endangered species, including any effect that the proposed project will have on any threatened or endangered species in the project corridor. On January 29, 2005, the USFWS issued their biological opinion for the project. The conclusions of the biological opinion are summarized in the Threatened and Endangered Species section of Chapter 4 of the Final EIS.

F: COMPLIANCE WITH SPECIFIC MEASURES FOR MARINE SANCTUARIES DESIGNATED BY THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT OF 1972

Due to the fact that this project does not involve the ocean, this Act is not applicable.

G: EVALUATION OF EXTENT OF DEGRADATION OF THE WATERS OF THE UNITED STATES

Each of the following sections have previously been discussed in this evaluation. The following statements represent the conclusions of these discussions.

- 1) **Significant Adverse Effects on Human Health and Welfare:** This project will not adversely affect municipal or private water supplies, recreation and commercial fisheries, aesthetics, or water-borne disease rates. Although temporary water quality degradation associated with turbidity and sedimentation would occur during construction, no long-term adverse impacts on water quality or the human environment are anticipated.
- 2) **Significant Adverse Effects on Life Stages of Aquatic Life and Other Wildlife Dependant on Aquatic Ecosystems:** Short-term temporary disruption to wildlife habitat, benthos, invertebrates, vertebrates, photosynthesis, plankton and sight-feeders are expected to result from the turbidity and sedimentation caused by construction. However this project will not significantly or adversely produce long-term effects on the life stages of aquatic organisms or other wildlife dependant on aquatic ecosystems.
- 3) **Significant Adverse Effects on the Aquatic Ecosystem, Ecosystem Diversity, Productivity, and Stability:** This project will not produce significant adverse effects on the diversity, productivity, or stability of the aquatic ecosystems in the project area.
- 4) **Significant Adverse Effects on Recreational, Aesthetic, and Economic Values:** This project will not have a significant adverse effect on the recreational, aesthetic, or economic value of any waters of the United States or aquatic ecosystems in the project area.

H: APPROPRIATE AND PRACTICABLE STEPS TAKEN TO MINIMIZE POTENTIAL ADVERSE IMPACTS OF THE DISCHARGE ON THE AQUATIC ECOSYSTEM

The measures taken to minimize the adverse impacts of the discharge on the aquatic ecosystems have previously been described in this evaluation. To summarize, the most

significant impact of the proposed project would be erosion of disturbed areas producing increased levels of suspended sediments and turbidity in surface waters.

Sedimentation to streams during construction can be minimized if erosion controls, BMPs, and spill control measures are properly implemented, monitored, and maintained during construction. BMPs will be implemented during construction activities, and an NPDES permit will be secured through the USEPA in accordance with Section 402 of the Clean Water Act. This permit requires the completion of a stormwater pollution prevention plan. The stormwater pollution prevention plan requires a description of BMPs and stormwater management controls appropriate for the construction site including measures to reduce soil erosion, reduce site sediment loss, and manage some of the more common construction generated wastes and construction related toxic materials. Appropriate BMPs for the project site will be selected from the current version of *Erosion and Sediment Control Best Management Practices: Field Manual*, prepared for MDT. Implementation of these measures will minimize sedimentation to streams in the project area.

The additional measure will be implemented during construction of all action alternatives to minimize disturbance to stream channels and fish habitat:

- a) The timing of in-water work will comply with applicable conditions of required permits, including:
 - Montana Stream Preservation Act (SPA) (124 Temporary Facilities Permit) issued by the MFWP
 - Short-Term Water Quality Standards for Turbidity (318 Authorization) issued by the Department of Environmental Quality
 - National Pollutant Discharge Elimination System Permit issued by USEPA
 - Section 404 permit of the Clean Water Act issued by the U.S. Army Corps of Engineers
 - Aquatic Lands Protection Ordinance 90A Permit issued by Blackfeet Environmental Office
 - 101D Permit issued by the Blackfeet Nation

Project biologists suggested several minor alignment adjustments to avoid and reduce stream impacts in the US 89 project area. Impacts on stream channels will be mitigated onsite by creating a new channel with dimensions, pattern, profile, and length the same as that of the existing channel. To recreate the channel that would be lost, the affected stream reach will be mapped and photographed prior to construction, noting habitat type (riffle, pool, run), substrate size, width, depth, and dimensions of the thalweg (i.e., the longitudinal profile of the stream; a line connecting the deepest points along the streambed). In addition to mapping the affected stream channel, streamflow data will be collected in order to adequately size, locate, and reconstruct the new stream channel.

I: CONCLUSIONS

The proposed project evaluates two build alternatives. Additional alternatives that were considered are detailed in the Final EIS. A preferred alternative was chosen after issue of the Final EIS and input was received from the public and involved agencies. Alternative C with the Duck Lake Road Option was selected as the preferred alternative

due to the greater roadway safety and traffic flow improvements. Environmental impacts were only slightly greater than the other action alternatives and can be mitigated.

The proposed project will not violate state water quality standards, Section 307 of the Clean Water Act, or water quality standards for the Blackfeet Tribe. The proposed project will not violate the Endangered Species Act of 1973 (ESA). The Biological Resource Report, which will serve as the Biological Assessment under Section 7(a) of the ESA, further details potential impacts to federally listed threatened and endangered species.

No discharge of dredged or fill material would cause significant degradation to waters of the United States. Any impacts would be temporary, and limited to the time of construction.

This evaluation and the Final EIS detail all appropriate and practicable steps that have been taken to first avoid, then minimize, then compensate for all areas of wetlands that would be impacted by the proposed project.

On the basis of the guidelines, the proposed disposal sites for the direct discharge of dredged or fill material are specified as complying with the requirements and the guidelines, with the inclusion of appropriate and practicable conditions to minimize pollution or adverse effects on the aquatic ecosystem.

ATTACHMENT A



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
HELENA REGULATORY OFFICE
10 WEST 15TH STREET, SUITE 2200
HELENA MT 59628

Karl Helvik - Consultant Design

REPLY TO
ATTENTION OF

July 19, 2005

Helena Regulatory Office
(406) 441-1375 Phone
(406) 441-1380 Fax

Subject: Corps File Number 2000-90-010
US 89 - Browning to Hudson Bay Divide
Project Numbers STTP 58-1(19)0 and STTP 58-1(20)12
MDT Control Numbers 4045 and 4047
Jurisdictional Determination

Jean A. Riley, P.E. - Engineering Section Supervisor
Environmental Services Bureau
Montana Department of Transportation
2701 Prospect Avenue
PO Box 201001
Helena, Montana 59620-1001

RECEIVED

JUL 19 2005

ENVIRONMENTAL

Date	7/19/05	Pages	2
From	TULLIN G&E		
To	Corps		
Co.	Corps		
Phone #	441-1375		
Fax #	441-1380		
Post-Net Fax Note	7671		
To	Tom G. Ksch, MDT		
Card/Dept	ENV, SPY		
Phone #	441-7412		
Fax #	441-7245		

Dear Ms. Riley:

Reference is made to your December 14, 2004 request for the U.S. Army Corps of Engineers (Corps) to provide a jurisdictional determination for the US 89 - Browning to Hudson Bay Divide proposed highway reconstruction project and Environmental Impact Statement. The project is located near Browning on US Highway 89, and is located entirely on the Blackfeet Indian Reservation in Glacier County, Montana.

Under the authority of Section 404 of the Clean Water Act, Department of the Army permits are required for the discharge of fill material into waters of the United States. Waters of the U. S. include the area below the ordinary high water mark of stream channels and lakes or ponds connected to the tributary system, and wetlands adjacent to these waters. Isolated waters and wetlands, as well as man-made channels and ditches, may be waters of the U. S. in certain circumstances, which must be determined on a case-by-case basis.

Based on the information provided, the project corridor includes jurisdictional waters of the United States under the authority of Section 404 of the Federal Clean Water Act. There are also isolated waters not under the authority of Section 404 present within the project corridors. This is an Approved Jurisdictional Determination.

In your December 14, 2004 letter (copy enclosed) you included preliminary determinations regarding the jurisdictional status of wetland, ditches, and tributary areas present in the project corridors. Our review of those determinations and our conclusions regarding the jurisdictional status of the waters described in that letter are as follows:



Jurisdictional Waters of the United States:

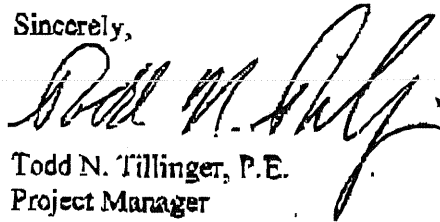
The Corps concurs with the determination that all waters listed in Table 1 of your December 14, 2004 letter are jurisdictional waters of the United States (WUS) under the authority of Section 404 of the Federal Clean Water Act. Further, the unnamed tributaries identified at project stations 145+65 (Section 9, Township 32 North, Range 12 West) and 323+70 (Section 9, Township 33 North, Range 13 West) are also jurisdictional WUS.

Non-Jurisdictional Waters:

The Corps concurs with the determination that the isolated slope wetlands and depressional waters identified in Table 2 of your December 14, 2004 letter are not jurisdictional waters. The Corps also concurs that drainages identified at stations 65+60, 105+90, 311+10, and the canal crossed at stations 114+00 and 115+40, are not jurisdictional waters.

If you disagree with this jurisdictional determination, you have the right to appeal the decision. If you would like more information on the jurisdictional appeal process, contact this office. If you have questions please contact me at (406) 441-1375, and reference Corps File Number 2000-90-010.

Sincerely,



Todd N. Tillinger, P.E.
Project Manager

Enclosure:

Letter from MDT to Corps, dated December 14, 2004

Copies furnished, with enclosure:

Mary Clare Weatherwax, Blackfoot Tribal Wetlands Program
Karl Helvik, Montana Department of Transportation - Consultant Design Section, Helena
Thomas Gocksch, Montana Department of Transportation - Environmental Services, Helena
Kristine Knutson, US Environmental Protection Agency, Helena



Montana Department of Transportation

December 14, 2004

2701 Prospect Avenue
PO Box 201001
Helena MT 59620-1001

Mr. Allan Steinle, State Program Manager
U.S. Army Corps of Engineers
Helena Regulatory Office
10 West 15th Street, Suite 2200
Helena MT 59626

Design		Design	Design
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DEC 23 2004

Skiffings-Connolly, Inc.
Consulting Engineers

SUBJECT: US 89 DEIS Browning to Hudson Bay Divide
Corps File Number 2000-90-01 0
STPP 58-1(19) 0
CN 4045

Dear Mr. Steinle:

The Montana Department of Transportation (MDT) is evaluating wetland and Waters of the U.S. impacts associated with the proposed US 89 Browning to Hudson Bay Divide project.

The project will impact a number of pothole wetlands and roadside ditches, as well as one irrigation canal. Most of the pothole wetlands were identified in the DEIS published on August 11, 2004 as non-jurisdictional under Section 440 of the Clean Water Act, but subject to a Corps of Engineers jurisdictional determination. Canals were identified in the Biological Resources Report (published August 9, 2002) as drainages, although impacts on these systems were not addressed. No formal request was made to the Corps of Engineers (COE) to verify our jurisdictional determinations. In addition, the Omaha District of the COE has recently issued additional unpublished guidance for making jurisdictional determinations based on the Talent Decision (2001). The guidance indicates that excavated irrigation and drainage ditches may be considered jurisdictional if they have a downstream surface connection to other waters of the US (WUS) and/or jurisdictional wetlands. The Corps has stated that they will not regulate canals or ditches that do not have a downstream surface water connection to a WUS or do not have an OHW or continuum of wetlands.

Therefore, we are submitting this letter to request your formal concurrence on our jurisdictional determinations for the irrigation ditches and canals and wetland areas described below. Our jurisdictional determinations below are based on the analysis conducted in support of the US 89 Draft Environmental Impact Statement (DEIS), and the new directive related to the recent court decision, *Headwaters, Inc. v. Talent Irrigation District*, 243 F.3d 526 (9th Cir. 2001) (Talent Decision).

Wetlands in the project area were determined to be jurisdictional areas or non-jurisdictional areas.

Jurisdictional Wetlands in the US 89 Project Area

Jurisdictional wetlands include those wetlands that meet the definition of a wetland as defined in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and do not fall under any of the criteria for non-jurisdictional wetlands. Wetlands are defined by the COE as areas which possess the three mandatory parameters, including hydrophytic vegetation, hydric soils, and wetland hydrology (Environmental Laboratory 1987).

Jurisdictional wetlands in the US 89 project area are identified in Table I and are described in greater detail in the US 89 Biological Resources Report (BRR) published on August 9, 2002. The amount of wetland impact associated with jurisdictional wetlands for Alternative B (including the Duck Lake Road option) is estimated to be 5.7 hectares (14 acres) and for Alternative C (including the Duck Lake Road option) is estimated to be 6.5 hectares (16 acres). This estimate differs from the estimate provided in the BRR and DEIS.

Table 1. Jurisdictional wetlands identified in the US 89 project area.

Wetland	Wetland Group ^a	Classification		Associated Water Body
		USFWS ^b	State ^c	
1	large riverine (upper perennial)	PSS/R3UBH	I	South Fork Milk River, north branch
2	Slope	PSS	II	South Fork Milk River, north branch
3	large riverine (upper perennial)	PSS	I	South Fork Milk River, middle branch
4	large riverine (upper perennial)	PSS/R2UBH	I	South Fork Milk River, south branch
5	Slope	PSS	III	Drains to South Fork Milk River, south branch
7	Depressional (ground water)	PEM	III	Seep that drains to North Fork Cut Bank Creek
8	depressional (open)	PSS	III	Drainage feature, likely draining to South Fork Cut Bank Creek
17	large riverine (upper perennial)	PSS/PEM	I	South Fork Cut Bank Creek
18	large riverine (upper perennial)	PSS	I	Lake Creek
20	Slope	PFO	III	Drains to a tributary to South Fork Cut Bank Creek
21	large riverine (upper perennial)	PSS	I	Tributary to South Fork Cut Bank Creek
23	large riverine (upper perennial)	PSS	I	Tributary to South Fork Cut Bank Creek
24A/24B /24C/24 D	large riverine (lower perennial)	PSS	I	South Fork Cut Bank Creek
25	small riverine (nonperennial)	PSS	III	Tributary to South Fork Cut Bank Creek
26	small riverine (upper perennial)	PSS/PEM/PO W	III	Flatiron Creek
27	depressional (open)	PEM	III	Drains to Flatiron Creek
28	small riverine (upper perennial)	PSS/PEM/PAB	III	Flatiron Creek
45	small riverine (upper perennial)	PSS/PEM	III	Willow Creek
46A/46B	small riverine (upper perennial)	PSS/PEM	III	Willow Creek
49	large riverine (lower perennial)	PSS/R3USC	I	Cut Bank Creek
52A/52B	small riverine (upper perennial)	PSS/PEM/ POW/R3USC	III	Tributary to Saint Mary River
53	small riverine (upper perennial)	PAB / R3USC	III	Tributary to Saint Mary River
54	small riverine (nonperennial)	PSS/R4SB	III	Tributary to Saint Mary River

a. The wetland group is based on three hydrogeomorphic categories: riverine, depressional, and slope.

b. USFWS classes include: palustrine open water (POW), palustrine aquatic bed (PAB), palustrine emergent (PEM), palustrine scrub/shrub (PSS), palustrine forested (PFO), riverine lower perennial perennially flooded (R2UBH), riverine upper perennial perennially flooded (R3UBH), riverine upper perennial unconsolidated shore seasonally flooded (R3USC), and riverine intermittent streambed (R4SB) (Cowardin et al. 1979).

c. The state of Montana divides wetlands into four hierarchical categories based on the physical attributes analyzed in the function assessment form. The state classification hierarchy ranges from Category I wetlands, which exhibit outstanding features (e.g., uniqueness, threatened and endangered species habitat) to Category IV wetlands, which exhibit minimal attributes or uniqueness.

Non-Jurisdictional Wetlands in the US 89 Project Area

At the time the US 89 Biological Resources Report and DEIS were prepared, the following guidelines were used in making non-jurisdictional determinations:

- Isolated wetlands were defined as wetlands not connected to waters of the U.S. or to other jurisdictional wetlands by surface water or ground water based on the United States Supreme Court ruling of the Solid Waste Agency of Northern Cook County vs. U.S. Army Corps of Engineers (SWANCC Decision), No. 99-1178, January 9, 2001.

Ditches excavated on dry land were not considered as jurisdictional waters of the U.S based on COE guidance.

Ditches

No ditch wetlands were identified in the project corridor; therefore, the only systems identified as non-jurisdictional included isolated wetlands that do not discharge to other wetlands or waters of the U.S. through a surface water connection.

Drainages

There are a few drainages in the project corridor that are intermittent and do not support wetland vegetation. They are located at the following stations on the new alignment: 325+70, 311+10, 145+65, 105+90, and 65+60; and the existing culverts at these locations would either be replaced or extended. Based on our review of NWI maps and field observations, these systems do not discharge to other wetlands or waters of the U.S. through a surface water connection and do not display an OHW.

Canals

Only one canal was identified in the US 89 project area and it is crossed by US 89 in two locations: approximately station 114+00 and 115+40. The proposed design would re-route 150 meters (490 feet) of the canal along the north edge of the fill slope and eliminate both crossings. The canal appears to have been excavated within upland and does not support wetland vegetation. Based on our review of NWI maps and field observations, this system does not return flows to waters of the U.S.

Isolated Wetlands

For the US 89 project, non-jurisdictional isolated wetlands largely consist of prairie pothole wetlands. The following guidelines were used in this assessment to determine if a wetland was isolated and non-jurisdictional:

- No apparent surface or wetland connection with any water of the U.S. and not directly adjacent to any water of the U.S.;
- No actual link between the water body and interstate or foreign commerce based on the factors mentioned above;
- Individually and/or in the aggregate, the use, degradation or destruction of the isolated water would have no substantial effect on interstate or foreign commerce, i.e. the wetland does not have a "significant nexus" to navigable waters.

Table 2 provides a summary of the non-jurisdictional wetlands in the US 89 project areas as presented in the BRR and DEIS. Hydrology in these areas is provided by groundwater, precipitation, and runoff. These areas are still considered to be non-jurisdictional. No new wetlands have been added to this list at this time. The amount of wetland impact associated with non-jurisdictional wetlands for Alternative B is estimated to be less than 1.6 hectare (4 acre) and for Alternative C is estimated to be 1.6 hectare (4 acre).

Table 2. Non-jurisdictional wetlands identified in the US 89 project area.

Wetland	Wetland Group ^a	Classification	
		USFWS ^b	State ^c
6	Depressional (Closed)	PEM	III
9	Depressional (Closed)	PEM	III
10	Depressional (Closed)	PSS	III
11	Depressional (Closed)	PEM	III
12	Depressional (Closed)	PEM	III
13	Depressional (Closed)	PEM	III
14	Depressional (Closed)	PEM	III
15	Depressional (Closed)	PEM	III
16	Depressional (Closed)	PEM	III
19	Depressional (Closed)	POW	III
22	Slope	PSS	II
29	Depressional (Closed)	PEM	III
30	Depressional (Closed)	PEM	III
31	Depressional (Closed)	PEM	III
32	Depressional (Closed)	PEM	III
33	Depressional (Closed)	PEM	III
34	Depressional (Closed)	PEM	III
35	Depressional (Closed)	PEM	III
36	Depressional (Closed)	PEM	III
37	Depressional (Closed)	PEM	III
38	Depressional (Closed)	PEM	III
39	Depressional (Closed)	PEM	III
40	Depressional (Closed)	PEM	III
41	Depressional (Closed)	PEM	III
42	Depressional (Closed)	PEM	III
43	Depressional (Closed)	PEM	III
44	Depressional (Closed)	PEM	III
47	Depressional (Closed)	PEM	III
48	Depressional (Open)	PSS/PEM	III
50	Depressional (Closed)	PSS/PEM	III
51	Depressional (Closed)	PSS/PEM	III

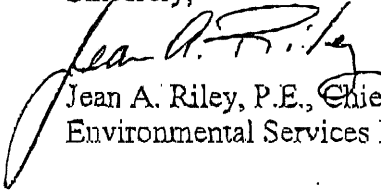
a. The wetland group is based on three hydrogeomorphic categories: riverine, depressional, and slope.

b. USFWS classes include: palustrine emergent (PEM) and palustrine scrub/shrub (PSS).

c. The state of Montana divides wetlands into four hierarchical categories based on the physical attributes analyzed in the function assessment form. The state classification hierarchy ranges from Category I wetlands, which exhibit outstanding features (e.g., uniqueness, threatened and endangered species habitat) to Category IV wetlands, which exhibit minimal attributes or uniqueness.

In summary, MDT requests COE concurrence with the jurisdictional determinations presented in the letter for the project area's wetlands, ditches, and canals. Upon concurrence from the COE MDT will finalize the EIS to identify the estimated project impacts, to ditches and canals and wetland.

Sincerely,


Jean A. Riley, P.E., Chief
Environmental Services Bureau

cc: Paul R. Ferry, P.E. – MDT Highways Engineer
Michael P. Johnson – MDT District Administrator, Great Falls
Tom S. Martin, P.E. – MDT Consultant Design Engineer
Jean A. Riley, P.E. – Bureau Chief, MDT Environmental Services
Robert Seliskar – FHWA Operations Engineer
file

APPENDIX F

Cooperating Agency Correspondence

99089-116



RECEIVED
APR 29 2003
ENVIRONMENTAL

U.S. ARMY CORPS OF ENGINEERS
HELENA REGULATORY OFFICE
10 WEST 15TH STREET, SUITE 2200
HELENA, MONTANA 59626

MASTER FILE COPY

REPLY TO
ATTENTION OF

April 24, 2003

Helena Regulatory Office
(406) 441-1375 Phone
(406) 441-1380 Fax

RECEIVED

MAY 07 2003

Skilling-Connolly, Inc.
Consulting Engineers

Subject: Corps File Number 2000-90-010
US 89 - Browning to Hudson Bay Divide
Project Numbers STTP 58-1(19)0 and STTP 58-1(20)12
MDT Control Numbers 4045 and 4047

Jean A. Riley, P.E. - Engineering Section Supervisor
Environmental Services Bureau
Montana Department Of Transportation
2701 Prospect Avenue
PO Box 201001
Helena, Montana 59620-1001

Dear Ms. Riley:

Reference is made to your April 22, 2003 request for the US Army Corps of Engineers to be a Cooperating Agency on the proposed US 89 - Browning to Hudson Bay Divide highway reconstruction project. The project is located near Browning on US Highway 89, and is located entirely on the Blackfeet Indian Reservation in Glacier County, Montana.

Under the authority of Section 404 of the Clean Water Act, Department of the Army permits are required for the discharge of fill material below the ordinary high water mark of our nation's rivers, streams, lakes or in wetlands.

Based on the information provided, we have agreed to be a cooperating agency on this project. Our involvement will be limited to project features that will or may affect Waters of the United States.

As a reminder, because this project is located on the Blackfeet Indian Reservation, the United States Environmental Protection Agency will be responsible for providing Section 401 Water Quality Certification for this project.

Please direct all future inquiries and any questions you may have to Todd Tillinger of this office at (406) 441-1375, and reference Corps File Number 2000-90-010.

Sincerely,

Allan Steinle
Montana Program Manager



United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
 Rocky Mountain Regional Office
 316 North 26th St.
 Billings, Montana 59101

99089-116

RECEIVED

MAY 02 2003

Skilling-Cannolly, Inc.
Consulting Engineers

IN REPLY REFER TO: Environmental Services - 160

APR 25 2003

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

Dear Ms. Riley:

The Bureau of Indian Affairs will participate as a cooperating agency in the US 89, Browning to Hudson Bay Divide highway project. We strongly suggest that notification be provided to the Blackfeet Tribe and Blackfeet Agency Office.

The contacts for these entities are shown below. I will remain the contact for the Regional Office and my address remains as per the letterhead.

Blackfeet Tribal Business Council
 P.O. Box 850
 Browning, MT 59417

Ross Denny, Superintendent
 Blackfeet Agency
 Box 880
 Browning, MT 59417

Sincerely,

Chief, Environmental Services

cc: Superintendent, Blackfeet Agency
 Chairman, Blackfeet Tribal Business Council

APPENDIX G

Wildlife Occurrence in the US 89 Project Area

Table G-1. Wildlife occurrence in the US 89 project area.

Common Name	Latin Name	Temporary / Permanent Ponds	Wetlands			Uplands		
			Riparian / Shrub-scrub	Forested	Grasslands	Shrubs	Aspen Grovelands	Conifer and Mixed Forests
AMPHIBIANS								
Northern leopard frog	<i>Rana pipiens</i>	E			E			
Spotted frog	<i>Rana pretiosa</i>	E		E			E	
Western chorus frog	<i>Pseudacris triseriata</i>	E			E		E	
Tiger salamander	<i>Ambystoma tigrinum</i>	E	E		E			
Western toad	<i>Bufo boreas</i>	E	E		E		E	E
REPTILES								
Common garter snake	<i>Thamnophis sirtalis</i>	E	E	E	E		E	E
Gopher snake	<i>Pituophis catenifer</i>				E			E
Rubber boa	<i>Charina bottae</i>			E			E	E
Western rattlesnake	<i>Crotalus viridis</i>				E			E
Western terrestrial garter snake	<i>Thamnophis elegans</i>	E	E	E	E		E	E
Short-horned lizard	<i>Phrynosoma douglasi</i>				E		E	
BIRDS								
American bittern	<i>Botaurus lentiginosus</i>		O					
Great blue heron	<i>Ardea herodias</i>	E	E					
Canada goose	<i>Branta canadensis</i>		O					
Wood duck	<i>Aix sponsa</i>	E	E	E				
Gadwall	<i>Anas strepera</i>	E						
American wigeon	<i>Anas americana</i>	O						
Mallard	<i>Anas platyrhynchos</i>	E	E					
Blue-winged teal	<i>Anas discors</i>	E						
Cinnamon teal	<i>Anas cyanoptera</i>	E						
Northern shoveler	<i>Anas clypeata</i>	E						
Northern pintail	<i>Anas acuta</i>	E						
Green-winged teal	<i>Anas crecca</i>	E						

Note: E indicates expected species; O indicates observed species or recent evidence of species presence.

Table G-1 (continued). Wildlife occurrence in the US 89 project area.

Common Name	Latin Name	Temporary / Permanent Ponds	Wetlands			Uplands		
			Riparian / Shrub-scrub	Forested	Grasslands	Shrubs	Aspen Grovelands	Conifer and Mixed Forests
BIRDS (continued)								
Canvasback	<i>Aythya valisineria</i>	E						
Redhead	<i>Aythya americana</i>	E						
Ring-necked duck	<i>Aythya collaris</i>	O						
Lesser scaup	<i>Aythya affinis</i>	E						
Bufflehead	<i>Bucephala albeola</i>	E						
Barrow's goldeneye	<i>Bucephala islandica</i>	E	E	E				
Common merganser	<i>Mergus merganser</i>	E	E					
Ruddy duck	<i>Oxyura jamaicensis</i>	E						
Osprey	<i>Pandion haliaetus</i>	O	E					
Bald eagle	<i>Haliaeetus leucocephalus</i>	E						
Northern harrier	<i>Circus cyaneus</i>		O					
Northern goshawk	<i>Accipiter gentilis</i>							O
Sharp-shinned hawk	<i>Accipiter striatus</i>			E			E	E
Cooper's hawk	<i>Accipiter cooperii</i>			E			E	E
Swainson's hawk	<i>Buteo swainsoni</i>				E			
Red-tailed hawk	<i>Buteo jamaicensis</i>				O			
Ferruginous hawk	<i>Buteo regalis</i>				E			
Rough-legged hawk	<i>Buteo lagopus</i>				E			
Golden eagle	<i>Aquila chrysaetos</i>				E			
American kestrel	<i>Falco sparverius</i>				O			
Merlin	<i>Falco columbarius</i>				E			
Prairie falcon	<i>Falco mexicanus</i>				E			
Gyrfalcon	<i>Falco rusticolus</i>				E			
Ring-necked pheasant	<i>Phasianus colchicus</i>				E			
Ruffed grouse	<i>Bonasa umbellus</i>			E				

Note: E indicates expected species; O indicates observed species or recent evidence of species presence.

Table G-1 (continued). Wildlife occurrence in the US 89 project area.

Common Name	Latin Name	Temporary / Permanent Ponds	Wetlands			Uplands		
			Riparian / Shrub-scrub	Forested	Grasslands	Shrubs	Aspen Grovelands	Conifer and Mixed Forests
BIRDS (continued)								
Blue grouse	<i>Dendragapus obscurus</i>							E
Sharp-tailed grouse	<i>Tympanuchus phasianellus</i>		E		E			
Sora	<i>Porzana carolina</i>		O					
American coot	<i>Fulica americana</i>	E						
Killdeer	<i>Charadrius vociferus</i>	E			E			
American avocet	<i>Recurvirostra americana</i>	E						
Willet	<i>Catoptrophorus semipalmatus</i>	E			E			
Spotted sandpiper	<i>Actitis macularia</i>		O					
Upland sandpiper	<i>Bartramia longicauda</i>				E			
Long-billed curlew	<i>Numenius americanus</i>				O			
Common snipe	<i>Gallinago gallinago</i>		O					
Wilson's phalarope	<i>Steganopus tricolor</i>	O						
Black tern	<i>Chlidonias niger</i>	E	E					
Rock dove	<i>Columba livia</i>				E			
Mourning dove	<i>Zenaida macroura</i>				E			
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>		E					
Great horned owl	<i>Bubo virginianus</i>				E	E	E	
Northern pygmy-owl	<i>Glaucidium gnoma</i>					E	E	
Common nighthawk	<i>Chordeiles minor</i>				E	E		
Calliope hummingbird	<i>Stellula calliope</i>					E	E	
Rufous hummingbird	<i>Selasphorus rufus</i>		O					
Belted kingfisher	<i>Ceryle alcyon</i>		O					
Red-naped sapsucker	<i>Sphyrapicus nuchalis</i>		O	E				
Downy woodpecker	<i>Picoides pubescens</i>		O	E				
Hairy woodpecker	<i>Picoides villosus</i>							E
Northern flicker	<i>Colaptes auratus</i>		O					

Note: E indicates expected species; O indicates observed species or recent evidence of species presence.

Table G-1 (continued). Wildlife occurrence in the US 89 project area.

Common Name	Latin Name	Temporary / Permanent Ponds	Wetlands			Uplands		
			Riparian / Shrub-scrub	Forested	Grasslands	Shrubs	Aspen Grovelands	Conifer and Mixed Forests
BIRDS (continued)								
Olive-sided flycatcher	<i>Contopus cooperi</i>							E
Western wood-pewee	<i>Contopus sordidulus</i>			E			O	
Willow flycatcher	<i>Empidonax traillii</i>		O					
Least flycatcher	<i>Empidonax minimus</i>		E					
Hammond’s flycatcher	<i>Empidonax hammondi</i>							E
Dusky flycatcher	<i>Empidonax oberholseri</i>						E	
Say’s phoebe	<i>Sayornis saya</i>				E			
Western kingbird	<i>Tyrannus verticalis</i>				E			
Eastern kingbird	<i>Tyrannus tyrannus</i>		O		O			
Northern shrike	<i>Lanius excubitor</i>		E		E			
Loggerhead shrike	<i>Lanius ludovicianus</i>		E		E			
Cassin’s vireo	<i>Vireo cassinii</i>						E	E
Warbling vireo	<i>Vireo gilvus</i>		E	E				
Red-eyed vireo	<i>Vireo olivaceus</i>		E					
Gray jay	<i>Perisoreus canadensis</i>							O
Steller’s jay	<i>Cyanocitta stelleri</i>							E
Black-billed magpie	<i>Pica pica</i>				O			
American crow	<i>Corvus brachyrhynchos</i>				O		O	
Common raven	<i>Corvus corax</i>						O	
Horned lark	<i>Eremophila alpestris</i>				E			
Tree swallow	<i>Tachycineta bicolor</i>	E	O					
Violet-green swallow	<i>Tachycineta thalassina</i>	E	E					
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>		E					
Bank swallow	<i>Riparia riparia</i>		E					
Barn swallow	<i>Hirundo rustica</i>	O	E					
Cliff swallow	<i>Hirundo pyrrhonota</i>		O					

Note: E indicates expected species; O indicates observed species or recent evidence of species presence.

Table G-1 (continued). Wildlife occurrence in the US 89 project area.

Common Name	Latin Name	Temporary / Permanent Ponds	Wetlands			Uplands		
			Riparian / Shrub-scrub	Forested	Grasslands	Shrubs	Aspen Grovelands	Conifer and Mixed Forests
BIRDS (continued)								
Black-capped chickadee	<i>Poecile atricapillus</i>						E	
Mountain chickadee	<i>Poecile gambeli</i>						E	E
Boreal chickadee	<i>Poecile hudsonicus</i>							O
Red-breasted nuthatch	<i>Sitta canadensis</i>							O
Brown creeper	<i>Certhia americana</i>						O	
House wren	<i>Troglodytes aedon</i>		E	E				
Marsh wren	<i>Cistothorus palustris</i>		E	E				
American dipper	<i>Cinclus mexicanus</i>		E					
Golden-crowned kinglet	<i>Regulus satrapa</i>							E
Ruby-crowned kinglet	<i>Regulus calendula</i>							O
Mountain bluebird	<i>Sialia currucoides</i>				O			
Townsend's solitaire	<i>Myadestes townsendi</i>							E
Veery	<i>Catharus fuscescens</i>		O				O	
Swainson's thrush	<i>Catharus ustulatus</i>			E			E	
Hermit thrush	<i>Catharus guttatus</i>							O
American robin	<i>Turdus migratorius</i>			E			O	E
Gray catbird	<i>Dumetella carolinensis</i>		O	E				
European starling	<i>Sturnus vulgaris</i>				O			
American pipit	<i>Anthus rubescens</i>				E			
Cedar waxwing	<i>Bombycilla cedrorum</i>		O					
Orange-crowned warbler	<i>Vermivora celata</i>						O	
Nashville warbler	<i>Vermivora ruficapilla</i>		O					
Yellow warbler	<i>Dendroica petechia</i>		O					
Yellow-rumped warbler	<i>Dendroica coronata</i>							E
Townsend's warbler	<i>Dendroica townsendi</i>							E
American redstart	<i>Setophaga ruticilla</i>						E	

Note: E indicates expected species; O indicates observed species or recent evidence of species presence.

Table G-1 (continued). Wildlife occurrence in the US 89 project area.

Common Name	Latin Name	Temporary / Permanent Ponds	Wetlands			Uplands		
			Riparian / Shrub-scrub	Forested	Grasslands	Shrubs	Aspen Grovelands	Conifer and Mixed Forests
BIRDS (continued)								
Ovenbird	<i>Seiurus aurocapillus</i>						E	
Northern waterthrush	<i>Seiurus noveboracensis</i>		E	E				
MacGillivrays's warbler	<i>Oporornis tolmiei</i>		E	E				
Common yellowthroat	<i>Geothlypis trichas</i>		O					
Wilson's warbler	<i>Wilsonia pusilla</i>		O	E			O	
Western tanager	<i>Piranga ludoviciana</i>							E
Spotted towhee	<i>Pipilo maculatus</i>		E	E			E	
Chipping sparrow	<i>Spizella passerina</i>						E	E
Clay-colored sparrow	<i>Spizella pallida</i>				O			
Brewer's sparrow	<i>Spizella breweri</i>				E			
Vesper sparrow	<i>Pooecetes gramineus</i>				O			
Lark sparrow	<i>Chondestes grammacus</i>				E			
Lark bunting	<i>Calamospiza melanocorys</i>				E			
Savannah sparrow	<i>Passerculus sandwichensis</i>				O			
Fox sparrow	<i>Passerella iliaca</i>		E	E				
Song sparrow	<i>Melospiza melodia</i>		O	E				
Lincoln's sparrow	<i>Melospiza lincolnii</i>		O					
White-crowned sparrow	<i>Zonotrichia leucophrys</i>		O					O
Dark-eyed junco	<i>Junco hyemalis</i>						E	E
McCown's longspur	<i>Calcarius mccownii</i>				E			
Lapland longspur	<i>Calcarius lapponicus</i>				E			
Chestnut-collared longspur	<i>Calcarius ornatus</i>				E			
Snow bunting	<i>Plectrophenax nivalis</i>				E			
Rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>		O					
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>		E	E			E	
Lazuli bunting	<i>Passerina amoena</i>						E	

Note: E indicates expected species; O indicates observed species or recent evidence of species presence.

Table G-1 (continued). Wildlife occurrence in the US 89 project area.

Common Name	Latin Name	Temporary / Permanent Ponds	Wetlands			Uplands		
			Riparian / Shrub-scrub	Forested	Grasslands	Shrubs	Aspen Grovelands	Conifer and Mixed Forests
BIRDS (continued)								
Red-winged blackbird	<i>Agelaius phoeniceus</i>		O		O			
Western meadowlark	<i>Sturnella neglecta</i>				O			
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>		E					
Brewer's blackbird	<i>Euphagus cyanocephalus</i>				O			
Brown-headed cowbird	<i>Molothrus ater</i>		O					
Bullock's oriole	<i>Icterus bullockii</i>		E	E				
Gray-crowned rosy-finch	<i>Leucosticte tephrocotis</i>				E			
Cassin's finch	<i>Carpodacus cassinii</i>							E
Red crossbill	<i>Loxia curvirostra</i>							E
Pine siskin	<i>Carduelis pinus</i>							O
American goldfinch	<i>Carduelis tristis</i>		E	E				
Evening grosbeak	<i>Coccothraustes vespertinus</i>					E		E
House sparrow	<i>Passer domesticus</i>				E			
MAMMALS								
Bobcat	<i>Lynx rufus</i>							E
Canada lynx	<i>Lynx canadensis</i>							
Mountain lion	<i>Felis concolor</i>		E	E				E
Northern flying squirrel	<i>Glaucomys sabrinus</i>					E		E
Red squirrel	<i>Tamiasciurus hudsonicus</i>							E
Southern red-backed vole	<i>Clethrionomys gapperi</i>			E		E		E
Meadow vole	<i>Microtus pennsylvanicus</i>		E		E	E		E
Western heather vole	<i>Phenacomys intermedius</i>							E
Water vole	<i>Arvicola terrestris</i>		E					
Beaver	<i>Castor canadensis</i>		O					
Bushy-tailed woodrat	<i>Neotoma cinerea</i>				E	E	E	E
Northern short-tailed shrew	<i>Blarina brevicauda</i>							

Note: E indicates expected species; O indicates observed species or recent evidence of species presence.

Table G-1 (continued). Wildlife occurrence in the US 89 project area.

Common Name	Latin Name	Temporary / Permanent Ponds	Wetlands			Uplands		
			Riparian / Shrub-scrub	Forested	Grasslands	Shrubs	Aspen Grovelands	Conifer and Mixed Forests
MAMMALS (continued)								
Deer mouse	<i>Peromyscus maniculatus</i>				E		E	E
Western jumping mouse	<i>Zapus princeps</i>		E		E		E	
Badger	<i>Taxidea taxus</i>				E			
Muskrat	<i>Ondatra zibethicus</i>		E					
Long-tailed vole	<i>Microtus longicaudus</i>		E		E		E	E
House mouse	<i>Mus musculus</i>				E		E	E
Pacific jumping mouse	<i>Zapus trinotatus</i>							E
Porcupine	<i>Erethizon dorsatum</i>						E	E
Snowshoe hare	<i>Lepus americanus</i>							O
Dusky shrew	<i>Sorex obscurus</i>			E				
Masked shrew	<i>Sorex cinereus</i>				E			E
Northern water shrew	<i>Sorex palustris</i>		E					
Pygmy pacific water shrew	<i>Sorex hoyi</i>			E	E		E	E
Dwarf shrew	<i>Sorex trowbridgei</i>							E
Vagrant shrew	<i>Sorex vagrans</i>		E					
Big brown bat	<i>Eptesicus fuscus</i>							E
California myotis	<i>Myotis californicus</i>				E			E
Hoary bat	<i>Lasiurus borealis</i>						E	E
Little brown myotis	<i>Myotis lucifugus</i>		E	E	E	E	E	E
Long-legged myotis	<i>Myotis volans</i>							E
Silver-haired bat	<i>Lasionycteris noctivagans</i>							E
Townsend's big-eared bat	<i>Plecotus townsendi</i>							E
Yuma myotis	<i>Myotis yumanensis</i>				E	E		
Black bear	<i>Ursus americanus</i>					E	E	E
Grizzly bear	<i>Ursus arctos horribilus</i>		E		E	E	E	E
Wolverine	<i>Gulo gulo</i>							E

Note: E indicates expected species; O indicates observed species or recent evidence of species presence.

Table G-1 (continued). Wildlife occurrence in the US 89 project area.

Common Name	Latin Name	Temporary / Permanent Ponds	Wetlands			Uplands		
			Riparian / Shrub-scrub	Forested	Grasslands	Shrubs	Aspen Grovelands	Conifer and Mixed Forests
MAMMALS (continued)								
Wolf	<i>Canis lupus</i>				E			E
Porcupine	<i>Erethizon dorsatum</i>						E	E
Long-eared bat	<i>Myotis evotis</i>							E
Raccoon	<i>Procyon lotor</i>		E	E			E	
Fisher	<i>Martes pennanti</i>							E
Long-tailed weasel	<i>Mustela frenata</i>		E	E	E		E	
Marten	<i>Martes americana</i>							E
Mink	<i>Mustela vison</i>		E	E				
River otter	<i>Lutra canadensis</i>		E					
Short-tailed weasel	<i>Mustela erminea</i>	E	E	E	E		E	
Striped skunk	<i>Mephitis mephitis</i>		E	E	E	E	E	
Coyote	<i>Canis latrans</i>		E	E	O	E	E	E
Red fox	<i>Vulpes fulva</i>		E	E	E	E	E	
Yellow pine chipmunk	<i>Eutamias amoenus</i>	E	E					E
Red-tailed chipmunk	<i>Eutamias ruficaudus</i>	E						E
Columbian ground squirrel	<i>Spermophilus columbianus</i>				O		O	
Elk	<i>Cervus canadensis</i>				E	E		E
Moose	<i>Alces alces</i>		E			E	E	E
Mule deer	<i>Odocoileus hemionus</i>		E			E		E
White-tailed deer	<i>Odocoileus virginianus</i>		O		E	E	E	

Note: E indicates expected species; O indicates observed species or recent evidence of species presence.

APPENDIX H

Draft EIS Public Hearing and Agency Comments and Responses

Introduction

This appendix describes the activities conducted during the 45-day public comment period for the Draft EIS and contains the comments received during that time period as well as the project proponents' responses to those comments.

The public had numerous opportunities to comment on the draft EIS. The first opportunity included the public hearings, where written comment forms were obtained; verbal comments were recorded on tape; and questions were raised during the Q&A sessions at both hearings. Additional comments were received during the comment period via email submitted to MDT. Written letters were received from the resource agencies. In addition, in-person meetings were held with Tribal staff to record their comments on the draft EIS.

This appendix describes the public hearing format and contains the public hearing comments, along with responses to those comments (pages H-1 through H-13). This is followed by written comments received from the resource agencies via email or letter. Commenting resource agencies included:

- U.S. Corps of Engineers (letter 4)
- John Murray, Blackfoot Tribal Historic Preservation Officer (letter 5)
- Montana Department of Environmental Quality (letter 6)
- U.S. EPA (letter 7)
- U.S. Department of Interior (letter 8).

Additionally, the project proponents and their consultant met with Tribal staff to receive comments on the Draft EIS. These meetings are summarized in comment 9 from a February 16, 2005 meeting at the Blackfoot Council Chambers and in comment 10 from an April 12, 2005 at the Blackfoot Council Chambers.

Public Hearing Summary

The Federal Highway Administration and the Montana Department of Transportation propose to improve a 41 kilometer (25.5 mile) segment of US 89 east of Glacier National Park in Glacier County, Montana.

In August 2004 the Draft EIS for the US 89 Browning to Hudson Bay Divide project was released for review and comment.

An essential part of the environmental review process is public involvement. Montana Department of Transportation hosted public hearings in two cities along the corridor to gather comment on the DEIS. The first was held on September 21, 2004 at the Eagle Shield Senior Center in Browning, from 6:00pm to 8:30pm. There were 13 citizens in attendance. The second

hearing was held on September 22, 2004 at the Babb Elementary School in Babb, from 6:00pm to 8:30pm, with 10 citizens in attendance. Attendees at both public hearings were encouraged to voice their opinions by recording their comments on tape, mailing in comment forms, or submitting their comments online before the close of the comment period on October 12, 2004.

Display and Handout Materials

- Presentation boards included a project vicinity map; purpose and need; project timeline; threatened and endangered species impacted by the proposed improvements; and the roadway alternatives under consideration.
- A corridor map of the proposed highway alignment (approximately 25 feet long) was unrolled and placed on several tables. People gathered around the map, discussed the alignment with staff members and asked many questions.
- Comment forms and a project fact sheet were made available.

Publicity and Notification

- An advertisement was placed in five local newspapers (including Cut Bank Pioneer Press, Glacier Reporter, Great Falls Tribune, Shelby Promoter, and The Valerian) announcing the release of the DEIS, the 45-day comment period, availability of copies for public review, and explaining how citizens could submit comments.
- Press releases were distributed to 27 media outlets (including newspapers and radio stations) announcing the release of the DEIS, the 45-day comment period, availability of copies for public review, and explaining how citizens could submit comments.
- Postcard invitations were mailed to 128 addresses along the project corridor.
- Meeting flyers were posted in Blackfeet Nation community buildings.
- A separate letter of invitation was mailed to Steering Committee and Interdisciplinary Team members.
- The project website was updated: www.skillings.com/US89.

Project Proponent Participants

Karl Helvik, MDT
Mick Johnson, MDT
Carl James, FHWA
Dale Paulson, FHWA
Todd Tillinger, Army Corps of Engineers
Art Campbell, Herrera Environmental Consultants
Tom Skillings, Skillings-Connolly
Kelly Harris, Skillings-Connolly
Darryl Tinnerstet, Skillings-Connolly
Meg O'Leary, Skillings-Connolly

Comments Gathered at the Hearings

The comments gathered at the public hearings are contained on pages H-1 through H-13 and include verbal comments recorded on tape at the September 22nd public hearing; questions raised during the Q&A sessions at both hearings; written comment forms submitted at both September public hearings; and comments received via email following the hearing.

Nearly all of the comments summarized on pages H-1 through H-8 are direct transcriptions, however in some cases, minor edits were made for clarity and spelling.

Public Hearing and Agency Comments and Responses

Public Comments

1—The purpose of this project is to improve traffic flow, roadway safety, and roadway maintenance on US 89. As a result of the analysis of US 89, portions of Duck Lake Road were identified for spot improvements so that Duck Lake Road could serve as a suitable alternative for truck traffic, which would enhance the overall function of US 89 by reducing the truck traffic on US 89. Spot improvements to Duck Lake Road would improve the primary substandard portions of Duck Lake Road and would improve the safety of the road in all seasons. One of the improvements to Duck Lake Road would moderate the right angle curve at DLR-24, which is currently too abrupt.

Verbal Comments Recorded on September 22, 2004 (Babb, MT)

Carol Taylor, Babb, MT

"I think Duck Lake should be treated as well as 89 as we use both roads depending on the winds... out of the north you go 89, the winds out of the west you go 464. You have to use both roads... you can't just say, 'I'm going that way', because you get to the cut off across the bridge and decide which way you are going in the winter. Working on the ambulance for 18 years I'm pretty sure which way I'm going to go. 89 is actually too curvy. We have some bad curves on 464, but if these could be fixed it would really, really help us just living here other than the ambulance."

Ron Crossguns, Bureau of Indian Affairs, Blackfeet Agency, Browning, MT

Ron is also a member of the Blackfeet Indian Tribe. Ron brought a map of ownership along and referenced it while he spoke.

2a—Under all action alternatives, the roadway width of US 89 would be increased and the curves would be brought up to current highway design standards. A passing lane/truck climbing lane for the northbound traffic traveling uphill on US 89 was considered but there is not enough vehicle or truck traffic volume to meet the criteria for a passing lane/truck climbing lane. In addition, the extra width would cut further into the hillside imposing unnecessary impacts upon the surrounding environment. See response to comment 2b, page H-11.

2b—Visual quality along US 89 will be improved for residents and tourists alike by mitigation which includes planting adjacent cut-and-fill slopes with grasses and other low-profile plants, and providing scenic pullouts in areas with exceptional opportunities for views and minimizing fill that would block unique views.

2c—The EIS examines landownership in the road corridor in Chapter 3, Displacements and Right-of-way. We acknowledge that much of the ownership is allotment or trust ownership. Chapter 4, Displacements and Right-of-way states that “All privately-owned property to be acquired for the project, whether residential or commercial, would be purchased by the Montana Department of Transportation for fair market value, regardless of land ownership type. An easement would be purchased for all tribal-owned lands.” The acquisition of lands for right-of-way will be conducted in accordance with state and federal laws.

We have conducted public meetings, hearings, interviews, etc. to provide an opportunity for landowners to provide input and participate in the project’s development.

2d—Once the Record of Decision has been written, the project can move forward. The timing of highway improvements would depend on the availability of funding. The needs of all users, including local residents, have been considered throughout the planning and design process. The improvements would increase the safety and functioning of the road in all seasons and would benefit all users, those that live there year-round as well as tourists and commercial traffic. The EIS analyzes impacts on local ownership in the land use and socioeconomics sections.

All roadway projects within a defined MDT district are nominated for construction based on the consideration of numerous factors including roadway performance, safety, congestion, condition, and age of the roadway surface, and cost of maintenance. The District Administrator and others review the needs within the district and prioritize the roads based on the factors listed above. Ultimately, it comes down to taking all of the information and making the best decision possible. The District Administrator is one of the key players in that decision.

2a	<p>"Looking at your DEIS we just drove the highway as it exists and we looked at your map of the proposed changes and these are our suggestions:</p> <p>1. We got up on top of the Divide and drove down to St. Mary's and we looked at that portion of the construction. We recommend that this construction be similar to that and have passing lanes... take out the curves where they say and widen it.</p>
2b	<p>2. What they should be looking at is the visibility of the highway—not only for the tourist who only use it from one month to three months at the most, and only travel it one time in their life—but also the people that live within the area and own land and their access.</p>
2c	<p>3. If you look at the ownership, it is within the Blackfeet Indian Reservation and 80% of the land is owned by Indians on this Reservation through allotment ownership which is in Trust, either owned by one Indian or else a group of Indians as an undivided estate and the Blackfeet Tribe as a whole. There are only three miles of it owned by the Blackfeet Tribe but they seem to be making most decisions on it when they don't really look at the allottees that own this land and need to get right-of-way from them. I will leave with the highway department, the actual ownership of where the route is going and they can look at it. Also the numbers of existing right-of-ways and their numbers."</p>
2d	<p>"...okay now, under this written record of decision, does that department say, 'yes this is a go, or no?' What would influence that body to say 'yes, let's do something with the road?' Would it be this tourist thing, everybody seems to think..."</p> <p>(An explanation was given but not audible)</p>
2e	<p>"What I'm getting is that this is the Blackfeet Indian Reservation and the stretch of roadway you are talking about encompasses about maybe three miles of Blackfeet Tribal land which is controlled by the Blackfeet Tribe."</p>
2f	<p>"...the remainder of it is probably five miles of fee land. The rest of it is owned by one Indian or a group of Indians in Trust. These people use this road twelve months out of the year. The tourists use it maybe three months out of the year at the most. Most of those tourists only travel it once in their life. The people that own that land travel it almost every day. You don't seem to be looking at the need of the local people. You are stressing more about this tourist thing and about them looking at those mountains up there and the clear sky, or the birds and wildlife. The reservation is 1.5 million acres and right across the line is one million acres which is Glacier National Park. These 1.5 million acres are for the benefit of the Blackfeet Tribe and their economic livelihood. We can't do anything to Glacier National Park but everything they decide, or take another 1/3 of the reservation for environmental aspects, but it's supposed to be for the people first and their benefit. If we just look at environmental things like the wetlands and</p>

US-89 Public Hearing on DEIS, Section 4(f) Evaluation, and 404(b)(1) Evaluation
Public Comments

2e—See response to comment 2c, page H-2.

2f—See response to comment 2c, page H-2.

3a—Comments noted. The visual character of the road corridor is presented in Chapter 3, Visual Quality. Impacts on aesthetics and measures to reduce impacts and enhance views, including proposed scenic pullouts, are presented in Chapter 4, Visual Quality. Chapter 3, Socioeconomics, presents the current economic status of the corridor. The same section in chapter 4 discusses the potential impacts and opportunities for economic development associated with the roadway. Existing historic and cultural resources are described in Chapter 3 and impacts on these resources are discussed in Chapter 4 of the EIS. Recognizing the importance of these features, the project incorporates many impact avoidance and minimization measures, including the retention of the historic bridge at South Fork Milk River as long as the structure is sound.

3b—MDT has been coordinating and will continue to coordinate with the Blackfeet Nation concerning signage at roadside pullouts.

2f	<p>wildlife I don't think you are looking at the needs of the individuals that own this land that this road traverses through."</p> <p>"I really think you guys should be looking at the local ownership. If you owned a piece of that land and it changes around and the highway is coming through it, you would look at it differently other than worrying about the tourist or that grizzly bear."</p>
3a	<p>Alex Gladstone, resident of East Glacier, MT</p> <p>"We've got a discussion happening at the meeting right now between a group of tribal people and Skillings-Connolly. Today is the 22nd of September and it's approximately 6:12 p.m. I've just come down from working today and stopped into this meeting. The one thing that I'm concerned about is economic development and the esthetic value of US 89. There's going to be some big changes in it and there is historic value that's operating with the present road. You can see where the road from East Glacier and Browning to St. Mary's valley has changed three times in the last century, from Horse Trail to Wagon Trail to an old paved road that was cut and then changed and you can still see pieces of it along Lake St. Mary's. My family is actually from St. Mary's Valley. Before that, actual remains of the old north trail. In 2004 we are seeing an additional construction taking place. The purpose of this project is stated to be for the benefit of traffic flow, driving safety and opportunity for economic development.</p> <p>The one thing that I would support in this is economic development for the Blackfeet Nation. We have seen a lot of economic development for some of the other enterprises on the Reservation here. A lot of sensitivity in this project for the Reservation is my primary concern. Secondary, is the aesthetic value and that would be for myself being a stonemason and seeing the natural material around here. I'm going to put in a stick for continuing the historic values that are present in Glacier National Park and that was promoted there because that, in my opinion, would support the tourism industry moving from spending their money in Glacier Park to spending it on the reservation as well. The talk about location, location, location, a comfortable corridor for moving the 2.1 million to 2.5 million visitors that come through Glacier Park to spend money are going right past the reservation. Anything that can be done to support moving the traffic flow to Browning, Babb, East Glacier and the Reservation and getting that cash on here is my interest. I reserve the right to make additional comments before the meeting is out."</p>
3b	<p>"...so that any of the turn outs that are in there follow the concepts that the Park has been using for its turn outs for user sensitive. You can see some of that when you get in to the park kind of by the Goat Look out at Highway 2 up there. Where you have Park themes, stone, timbers, something that supports the Lewis and Clark aspects. There is a heavy emphasis on the Lewis and Clark Bicentennial this year. There is no reason that aspect can't be carried through to Lewis and Clark Grizzly Blackfeet Country. I like to think of Blackfeet Country as the home of the Lewis and Clark strategic retreat. They were here so we can continue a little bit with that."</p>

US-89 Public Hearing on DEIS, Section 4(f) Evaluation, and 404(b)(1) Evaluation
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4—Safety reflectors will be placed along the corridor as needed according to current MDT design practice.

5—Please refer to “Selection of the Preferred Alternative” found in Chapter 2.

6—Comment noted. Refer to the response to comment 2b, page H-11.

7—Comment noted. See response to comment 3b, page H-4.

8—The Record of Decision is expected to be issued in spring 2007.

9—The timing of construction will depend on funding, but currently, construction is expected to begin by 2010.

10—Construction would likely be phased over a period of 5 to 10 years.

11—The Tribe has participated throughout the life of this project as a resource agency and the BIA has served as a cooperating agency on the project. The Tribe has participated in Steering Committee meetings, public meetings, and as references on local issues. The Tribe will continue to be involved in the project as final designs are developed, permits are sought, and the project is let for construction. Ultimately, FHWA

is responsible for approving the project, but they will consider all concerns raised by the Blackfeet Nation prior to any decision. Chapter 5, Consultation and Coordination, in the EIS describes the Tribe’s involvement in the project.

Based on preliminary designs, yes, the stream channel north of Kiowa would be moved as described in Chapter 4, Fisheries Resources, Beneficial Effects, of the EIS.

12—Six preliminary pullouts have been identified by the Tribe. The final location would be confirmed during the design phase of the project. Refer to Chapter 4, Visual Quality, Post-construction, for further information.

MDT will coordinate closely with the Tribe to determine what information would be placed at each marker.

13—The following text was inserted into Chapter 2, Alternatives Discussed in Detail, of the FEIS in the discussion of features common to both Alternative B and C: “Snow fences would be used prudently in limited locations to reduce snow drifting on the highway where snow drifting is a known problem.”

Based on preliminary investigations, the historic bridge at South Fork Milk River would be left in place and widened. However, if the bridge cannot be brought to current standards through modification of the existing structure, it would be replaced. The historic bridge at South Fork Cut Bank Creek would be removed because it is

Comments Gathered at Q&A Session on September 21, 2004 (Browning, MT)

- Hurry up and build the road!
- 4 | ○ Place as many safety reflectors along roadway as possible. The situation now is dangerous, especially in winter months.
- 5 | ○ Need more reasons and rationale for preferring and selecting Alternative C over Alternative B.
- Blackfeet Nation Tribal Council is working to open the US-Canadian border for 24-hour crossing access.
- Tribal Council members in attendance feel that the Preliminary Preferred Alternative [Alternative C with Duck Lake Road Option] could be the best option for the Blackfeet Nation.
- 6 | ○ Most local residents use Duck Lake Road year round much more than US-89. Most locals avoid US-89 because of lack of passing options along roadway.
- 7 | ○ Tribal Council has been brainstorming ideas about how best to deal with Glacier National Park tourist overflow. Some ideas include establishing camp grounds and historical/cultural markers and pullout areas along US-89.
- 8 | ○ What is the target date for the Record of Decision?
- 9 | ○ When is construction expected to begin?
- 10 | ○ How long would construction take?
- 11 | ○ What role does the tribe play in approval of the project? Will the South Fork Cut Bank Creek stream channel north of Kiowa be moved or altered?
- 12 | ○ Have locations for pullouts been identified? Who decides what information is placed at each historical/cultural marker?
- 13 | ○ Are fences planned to help block snow and wind along roadway? What is planned for the two existing rock bridges? Do any of the alternatives include passing lanes?
- 14 | ○ Do any of the alternatives include cattle guards? Has the team considered data on fatalities along roadway? Will proposed alternatives improve safety?
- 15 | ○ Will the speed limit remain the same once the roadway is improved?
- 16 | ○ A lot of local residents say 'add speed limit signs' but there is no one to enforce it. We worry that new roadway will only encourage increased speeds.

Comments gathered at Q&A Session on September 22, 2004 (Babb, MT)

- 17 | ○ Don't save stone bridges—they create roadway that is too narrow and difficult for snowplows to maneuver.
- 18 | ○ Have passing lanes been considered?
- 19 | ○ Who decides what and where pullouts are located and what kind of historical/cultural marker is designed?
- 20 | ○ The fewer guardrails that are placed along the new road, the better.
- Shoulders and pullouts are critical.
- 21 | ○ Consider occasional pullouts or brief passing lanes for slower traffic.
- Pullouts are important—accidents along roadway tie up traffic for hours because there is no room on shoulder to pass.
- 22 | ○ Cattle and other livestock road crossings happen more often than wildlife crossings and it therefore a bigger, more important issue to consider.

US-89 Public Hearing on DEIS, Section 4(f) Evaluation, and 404(b)(1) Evaluation
Public Comments

not strong enough to be brought to current bridge design standards and currently constricts the natural streamflow of the river. Refer to Appendix D Section 4(f) Evaluation page D-13.

No they do not, see response to 2a, page H-2.

14—The proposed improvement project would include fencing to keep cattle off the highway with cattle guards or gates on private highway accesses. The property owner will be consulted on the use of cattle guards or gates.

Yes, fatality data is discussed in the Purpose and Need section of Chapter 1. By bringing the highway up to current design standards, we anticipate the number of accidents would be greatly reduced.

Yes, the project is expected to improve safety by reducing curves and improving sight distance, as discussed in Chapter 4, Transportation Systems, Post-construction of the EIS.

15—At this time, it is expected that the posted speed limit would remain the same. In the future, MDT could re-examine the posted speed limit using MDT procedures and could change the speed limit only with transportation commission approval.

16—This is a legitimate concern. However we cannot speak for the law enforcement practices on US 89. The road improvements would bring the roadway up to current design standards and improve the safety at the posted speed limit.

17—The bridges are historical and have to be treated as such. If one of the bridges is incorporated into the roadway as proposed, this will not result in a deviation from the proposed roadway standards, so that snowplows and other wide vehicles will not be impeded. Refer to response to comment 13, page H-5.

18—Refer to the response to comment 2a, page H-2.

19—Refer to the response for questions within comment 12, page H-5.

20—Comment noted. Refer to the response for question 2e, page H-11.

21—Refer to the response for question 2b, page H-11. Comment noted.

22—We agree that collisions with livestock are an important issue. The project purpose and need does identify collisions with domestic animals as an issue and the wildlife section notes that the majority of the recorded collisions with animals were with livestock.

To address this recognized issue, the project proposes to fence the corridor to keep livestock off the roadway thereby enhancing traffic safety.

23—Views of and from US 89 were evaluated in Chapter 4, Visual Quality in the EIS. MDT will coordinate with the Blackfeet Nation to determine signage at roadside pullouts.

24—The purpose of this project is to improve traffic flow, roadway safety, and roadway maintenance on US 89. Currently, US 89 is narrow, with sharp curves and few turnouts. The road serves local traffic as well as truck traffic and provides the primary access to the east entrances of Glacier National Park. As a result, there is a wide variety of vehicles types and users with a diverse mix of needs that are currently not being met on US 89. Portions of Duck Lake Road were identified for spot improvements so that Duck Lake Road could serve as a suitable alternative for truck traffic, which would enhance the overall function of US 89 by reducing the truck traffic on US 89. Nevertheless, improvements are still needed on US 89 to improve traffic flow and safety and to reduce the long-term maintenance costs in the corridor.

25—The US Department of Transportation Federal Highway Administration signs the ROD. The decision to approve or disapprove would be based upon the information provided in the EIS and public input.

26—See responses to comments 2a through 2d, page H-2. The highway improvements are intended for all users, those that live there year-round as well as for the tourists. The EIS analyzes impacts on local ownership in Chapter 4, Land Use and Chapter 4, Socioeconomics.

23 | ○ Part of US-89 is used as continuation of US-2 highway loop, and many motor homes use it as scenic route. Have you evaluated impact on tourists seeking those views? Right now there's historic appeal to roadway; will roadway improvements create too much efficiency and take that appeal away? We should support tourists' needs along the St Mary to Browning section of roadway. MDT should consider maintaining "theme" of Going to the Sun Road for that section of US-89, using similar pullout designs and road materials.

24 | ○ Why not consider leaving US-89 as is and just improve Duck Lake Road? MDT should do the least amount of disruption to the existing US-89 roadway.

25 | ○ Which agencies are involved in signing and approving the ROD? What would influence those agencies to approve or disapprove a given alternative?

26 | ○ Tourism shouldn't be primary concern. Folks living along US-89 corridor use it everyday. Analysis to date doesn't seem to take those folks into consideration. They should be as important as environmental considerations. Improvements should consider how best to benefit local residents, users and landowners—the people who live along corridor and stake their economic livelihood there.

-- END --

US-89 Public Hearing on DEIS, Section 4(f) Evaluation, and 404(b)(1) Evaluation
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Public Hearing on September 21, 2004 in Browning, MT

1a—The No Build is always an option, but does not meet the purpose and need and would not be selected unless the impacts or costs of the build alternatives are determined to be prohibitive.

1b—Comment noted. See Chapter 2, Selection of the Preferred Alternative.

1c—Comment noted. Alternative C, which is the wider of the two build alternatives under consideration, is the preferred alternative.

1d—Comment noted.

US-89 DEIS Public Hearing
SEPTEMBER 21, 2004

D Entered
 Submitted Sept 21, 2004
 at public hearing in Browning, MT.

<p>Comments on Alternative A: No Build</p> <p>1a <u>NOT A OPTION.</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>Comments on: Duck Lake Road Option</p> <p>1d <u>THIS ROAD WOULD BE A</u> <u>PREFERRED COMMERCIAL ROUTE,</u> <u>TAKING TRUCKS OFF THE US 89</u> <u>ROUTE WHICH ACCOMMODATES</u> <u>RECREATION TRAFFIC.</u></p> <p>_____</p> <p>_____</p>
<p>Comments on Alternative B: Widen roadway width to 9.8 meters (32 feet)</p> <p>1b <u>THIS WIDTH DOES NOT ACCOMMODATE</u> <u>VEHICLES PULLING OFF ROAD VERY</u> <u>WELL.</u></p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>Additional Comments:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Comments on Alternative C: Widen roadway width to 11 meters (36 feet)</p> <p>1c <u>THIS ROAD BEING ADJACENT</u> <u>TO GLACIER NATIONAL PARK SERVES</u> <u>A LOT OF RECREATIONAL TRAFFIC.</u> <u>A WIDER ROAD FOR BICYCLES!</u> <u>PEDESTRIANS IS PREFERRED.</u> <u>ALSO MAKES PASSING OF BIG</u> <u>VEHICLES A LOT EASIER</u></p>	<p>Thank you for taking the time to comment on the DEIS!</p> <p><small>Please mail your comments to: Jean Riley, MDT, PO Box 201001, Helena, MT 59620. All comments on the DEIS must be received by MDT no later than October 12, 2004.</small></p>

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Public Hearing on September 22, 2004 in Babb, MT

2a—Comment noted.

2b—Passing lanes were considered but because the two-lane alternatives meet MDT's criteria (MDT Design Manual, Sec. 8.6.3) for a desired level of service C without them, they were not deemed prudent. See Table 17 of Appendix A in the EIS. Scenic pullouts are planned as part of the project as an opportunity for motorists to learn and experience the area. However, slow-moving vehicles may choose to use the pullouts to allow faster vehicles to pass.

2c—The goal is to provide wider shoulders for safety reasons and possible bicycle use. Deviations from the selected alternative can be addressed during the design phase of the project. In general, however, to create the safest driving situation, MDT's preference is to maintain a consistent roadway section throughout the project corridor.

2d—Guardrails are typically used when a roadside hazard is too close to the road, such as within the clear zone. For example, they may be used to prevent out of control vehicles from leaving the roadway where sideslopes are overly steep. Alternatives to guardrail include designing recoverable slopes,

moving obstructions outside the clear zone, or realigning the roadway to avoid the hazard where possible. The roadway would be designed in a manner to minimize the need for guardrails.

2e—1). The roadway would be designed in a manner to minimize the use of guardrails wherever possible. 2). SF Cut Bank Creek presents numerous design challenges due to the proximity of the stream channel to the high cut slope. Preliminary designs require some relocation of the stream channel. As the designs are finalized, additional opportunities to avoid both the stream channel and the high slope would be sought. Ultimately, it is likely that some changes would occur at this location. 3). Comment noted. It is not known if both roads will be constructed at the same time. Both roads will remain open during construction and the contractor would be required to prepare a traffic control plan to minimize delays.

Centered
Submitted Sept 22, 2004
at public hearing in Babb, MT.

US-89 DEIS Public Hearing
 GARDEN VALLEY

2a	Comments on Alternative A: No Build _____ _____ _____ _____ _____ _____ _____ _____	2d	Comments on: Duck Lake Road Option Add guardrails where needed. _____ _____ _____ _____ _____ _____ _____
2b	Comments on Alternative B: Widen roadway width to 9.8 meters (32 feet) _____ _____ _____ _____ _____ _____ _____ _____	2e	Additional Comments: ① Add Guardrails where needed. ② Do not change the character of the south fork of Cut Bank Creek. ③ Do not construct both roads at the same time. (Duck Lake Rd and US 89). _____ _____ _____ _____ _____
2c	Comments on Alternative C: Widen roadway width to 11 meters (36 feet) _____ _____ _____ _____ _____ _____ _____ _____		

Thank you for taking the time to comment on the DEIS!

Please mail your comments to: Jean Riley, MDT, PO Box 201001, Helena, MT 59620. All comments on the DEIS must be received by MDT no later than October 12, 2004.

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Letter #3, Colleen Barcus, MSIS, Colleen's Computer Corner, LLC

3—An update on the project status and a description of the alternative selected for implementation will be provided when the Final Environmental Impact Statement for the project is approved and published.

-----Original Message-----

From: colleen@colleenscomputercorner.net [mailto:colleen@colleenscomputercorner.net]
Sent: Monday, October 11, 2004 11:11 PM
To: mdteiscommentsus89@state.mt.us
Cc: kharris@skillings.com; acampbell@herrerainc.com; moleary@skillings.com
Subject: Comment on US 89 EIS

Good evening. In commenting on the EIS US 89 project I am excited to see that this much needed highway replacement is going to be done to our area. I attended your last meeting in Browning in September and was pleased at your reception and the information you presented.

I do not agree with Alternative A nor Alternative B. I agree 100% with Alternative C including the Duck Lake Option. The Cut Bank Creek Bridge, the large curve and where it meets US 89 are all bad spots on Duck Lake. I think it is a good idea to have commercial traffic use this route more and keep 89 as a scenic route. People do NOT need to drive 70 mph on Highway 89. The preservation of the beauty, the wildlife and the cultural aspects of the Blackfeet people regarding the surrounding landscape is far more important, especially since it also borders Glacier National Park.

I think a wider road would be beneficial as the future only anticipates increased visitation to our area. I am extremely interested in the tourism factor and the impact this development will have on our location and the prosperity of the Blackfeet Nation. I truly hope the selection is Alternative C with the Duck Lake Option so those who live here and those who visit this pristine country will have safer options for travel.

In closing I wanted you to know that I have joined your Corridor Study mailing list. Will there be further study or any information that you will send out in the future?

Colleen M. Barcus, MSIS
Colleen's Computer Corner, LLC
<http://www.colleenscomputercorner.net>
PO Box 1123
125 North Public Square
Browning, Montana 59417
Phone & Fax 406-338-7217

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Letter #4, Todd N Tillinger, USACE

4a—The 404(b)(1) evaluation has been revised to provide justification regarding why it is acceptable for the preferred alternative to have more impact on WUS than the other alternatives. These changes are reflected in section B: General Description of the 404 (b)(1) evaluation.

4b—Comment noted.

4c—We agree with your suggestions. MDT would attempt to reduce the amount of riprap or other “hard” engineering required in the stream relocation process. Due to the extent of relocation currently anticipated, complete avoidance of these measures may not be feasible or prudent. As the final designs are developed for the roadway, additional opportunities to avoid the stream or minimize the length of channel requiring relocation would be sought.

4d—It is expected that final design and construction is several years away; therefore during final design, MDT will coordinate with the Tribal authorities to determine whether relocation of beavers is practicable and feasible or whether extermination is deemed necessary based upon conditions at the time of construction.

There are currently no beaver management plans in place. The MDT maintenance department has standard operating procedures to address beaver activities causing flooding on the roadway.

Impacts to Corps jurisdictional wetlands that require mitigation under Section 404 of the Clean Water Act would be mitigated in a manner agreed upon by MDT, the Corps, and FHWA.

4e—This measure is identified in the document as potential on-site mitigation and would be implemented if feasible and practicable.

4f—Comment Noted. Currently, there are no sites where a structure is no longer needed; however, MDT would review opportunities to remove such structures as the final designs progress. The project will design culverts to provide passage for the anticipated flows using standard engineering methods. In areas where past construction activities have restricted or cut off historic drainages within the corridor, MDT will attempt to restore historic drainage patterns by installing properly sized culverts or bridges with adequate hydraulic capacity to pass historic flows across the roadway where practicable.

-----Original Message-----
From: Tillinger, Todd N NWO [mailto:Todd.N.Tillinger@nwo02.usace.army.mil]
Sent: Tuesday, October 12, 2004 4:42 PM
To: 'Helvik, Karl'; Riley, Jean A.
Cc: Tillinger, Todd N NWO; Steinle, Allan E NWO
Subject: US89 Browning-Hudson Bay Divide DEIS Comments, Corps # 2000-90-01 0

Karl,

We are providing comments via this e-mail on the DEIS for the US89 Browning-Hudson Bay Divide project. Comments were requested by October 12, 2004. No letter providing these comments will be provided, so the Corps respectfully requests your acceptance of our comments in this manner.

4a | 1. Alternative C has more Waters of the US impact than Alternative B, but it appears from the narrative in the document that Alternative C does a much better job of meeting the overall transportation needs along the corridor, particularly the needs of pedestrians and bicyclists. The marginal increase in wetland fill area of Alt. C over Alt. B is acceptable to the Corps, based on the information presented. The 404(b)(1) evaluation needs to include a clear and specific discussion and justification regarding why it is acceptable for the preferred alternative to have more impact on WUS than the other alternatives.

4b | 2. Improvements to Duck Lake Road that are proposed as part of the preferred alternative are also acceptable.

4c | 3. Stream modifications associated with the proposed relocation of the South Fork Cutbank Creek and other waterways must be done in a manner that provides for natural stream functions and processes. Successful revegetation of the streambanks and associated wetland and riparian areas with appropriate native species is essential to the success of the project. The relocated channel should not include riprap revetments, rock drop structures, or other engineered features. Relocation of the SF Cutbank Creek channel avoids impacting a large hill on the other side of the road, and will move the channel farther from the roadway which will fix a long-term maintenance problem and locate more of the channel away from the stream corridor.

4d | 4. The DEIS mentions in several places that beaver will be removed from the corridor during construction. After numerous reviews of the area it seems that beaver are an important component of the aquatic ecosystem in some of the areas along the project corridor. Will beaver be relocated or exterminated? Are there permanent beaver management plans? Any temporary or permanent draining of beaver ponds along the corridor is a direct impact on waters of the United States (WUS) attributable to the project and must be accounted for in any forthcoming permit applications. If it is expected that some or all of the area will recover, your mitigation for those beaver-pond draining effects could be allowing them to re-colonize the area and allowing the wetland areas to re-establish after construction. If there is a loss in wetland area and/or function as a result of beaver relocation, compensatory mitigation would be required for that lost area and function.

4e | 5. In areas along WUS where the existing roadway (PTW) is to be abandoned, please remove it and reclaim the area to the surrounding natural ground elevations and revegetate with appropriate native species. Some of these areas, if adequately protected, may serve as on-site compensatory mitigation sites.

4f | 6. If a drainage bridge or culvert is no longer needed in WUS, it should be removed from the stream corridor, unless there are other overwhelming cultural or historic reasons for keeping it in place.

4g—Through the final design process, MDT will provide passage of aquatic life where practicable and feasible.

4h—MDT has conducted additional analysis to identify all jurisdictional systems in the corridor and correspondence was sent to your office on December 14, 2004. Based on your concurrence with that document, the permit applications would include any additional ditches and canals in the corridor that are determined to be jurisdictional. Jurisdictional waters of the U.S. are identified in Chapter 3, Physical Environment, Water Resources and Chapter 3, Biological Environment, Wetlands in the EIS and impacts on those systems are described in Chapter 4, Physical Environment, Water Resources and Chapter 4, Biological Environment, Wetlands in the EIS. Additionally, the 404(b)(1) evaluation contained in Appendix E of the EIS also describes these systems.

4i—It is MDT's standard practice to develop mitigation plans and monitoring plans and to coordinate those activities directly with the Corps.

- 4g | 7. During construction, passage of all aquatic life (not just fish) indigenous to regulated waterways must be provided.
- 4h | 8. All streams and drainages and their tributaries and adjacent wetlands are regulated by the Corps under Section 404 of the Clean Water Act. Further, some ditches and canals that act as tributaries are also regulated. This needs to be reflected in any subsequent applications for Department of Army permits.
- 4i | 9. A compensatory mitigation plan that provides mitigation for unavoidable impacts to all WUS must be included with any permit application. At a minimum, before a project can be approved under Section 404, the Corps requires a Corps-approved mitigation plan, a secured mitigation project site, appropriate financial assurances must be in place, and legally protected water rights must be secured where necessary (Corps Regulatory Guidance Letter 02-02). Compensatory mitigation for all project impacts must be located within the same watersheds as the impacts.
- 10. Feel free to contact me if you have any questions. Have a good week.

Todd N. Tillinger, P.E., Project Manager
US Army Corps of Engineers - Omaha District
Montana Field Office
phone 406-441-1375
fax 406-441-1380


Letter #5, John Murray, Blackfeet Tribal Historic Preservation Officer

5a—Comment noted.

5b—Please refer to “Socioeconomic Considerations” found in Chapter 4. In accordance with the July 2001 memorandum of understanding, hiring requirements would be determined through a project specific agreement between the Blackfeet Nation and the MDT. Hiring of a THPO representative for this project would fall under this memorandum of understanding. Any mitigation and/or recovery of inadvertent cultural discoveries would follow standard MDT policy procedures.

5c—Comment noted.

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(406) 338-7521 FAX (406) 338-7530
ENVIRONMENTAL

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JIMMY ST. GODDARD - VICE CHAIRMAN
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CLIFFORD TAILFEATHERS - ACTING SECRETARY
JOE A. GERVAIS - TREASURER

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FRED GUARDIPEE
EARL OLD PERSON
WILLIAM "ALLEN" TALKS ABOUT
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HUGH MONROE

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COPY**

John Murray
Blackfeet Tribal Historic Preservation Office
Blackfeet Tribe: Planning Department
PO Box 2809
Browning, MT. 59417
(406) 338-7181

Jean A. Riley
Montana Department of Transportation
2701 Prospect Avenue
PO Box 201001
Helena, MT. 59620-1001

RE: Blackfeet Tribal Historic Preservation Office comments on the US 89 Draft Environmental Impact Statement
Browning-Hudson Bay Divide


March 10, 2005

Dear Jean A. Riley:

As per your letter of March 1, 2005, to Marilyn Parsons, I feel it is imperative that you are made aware that the Blackfeet Tribe recently created a Tribal Historic Preservation Office (THPO) certified by the National Park Service to assume the duties of the Montana State Historic Preservation Office on Indian lands. This office is guided and governed by Blackfeet Tribal Ordinance 100, which is enclosed for your reference.

The Blackfeet Tribe has already commented on your draft EIS. However, the THPO would like to request a representative of this office be on site during construction because of the cultural/historic richness of the proposed corridor. It will be the responsibility of the contractor to compensate this individual as well as to pay for any mitigation and/or recovery of inadvertent cultural discoveries.

Please direct any correspondence about this and future projects on the Blackfeet Reservation and/or relative to the Blackfeet Tribe to this office. This office looks forward to working with you in your future endeavors.

Sincerely,

John Murray, Blackfeet Tribal Historic Preservation Officer

Cc: Marilyn Parsons, Blackfeet Tribal Planning
William "Allen" Talks About, Blackfeet Tribal Chairman
✓ Karl Helvic - consultant - Design

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Letter #6, Montana Department of Environmental Quality, Tom Ellerhoff, Environmental Program Manager

6a—As the final designs are developed, MDT would review opportunities to increase culvert sizes to improve the hydrologic and ecologic connectivity in the corridor, while considering other factors including constructability and cost.

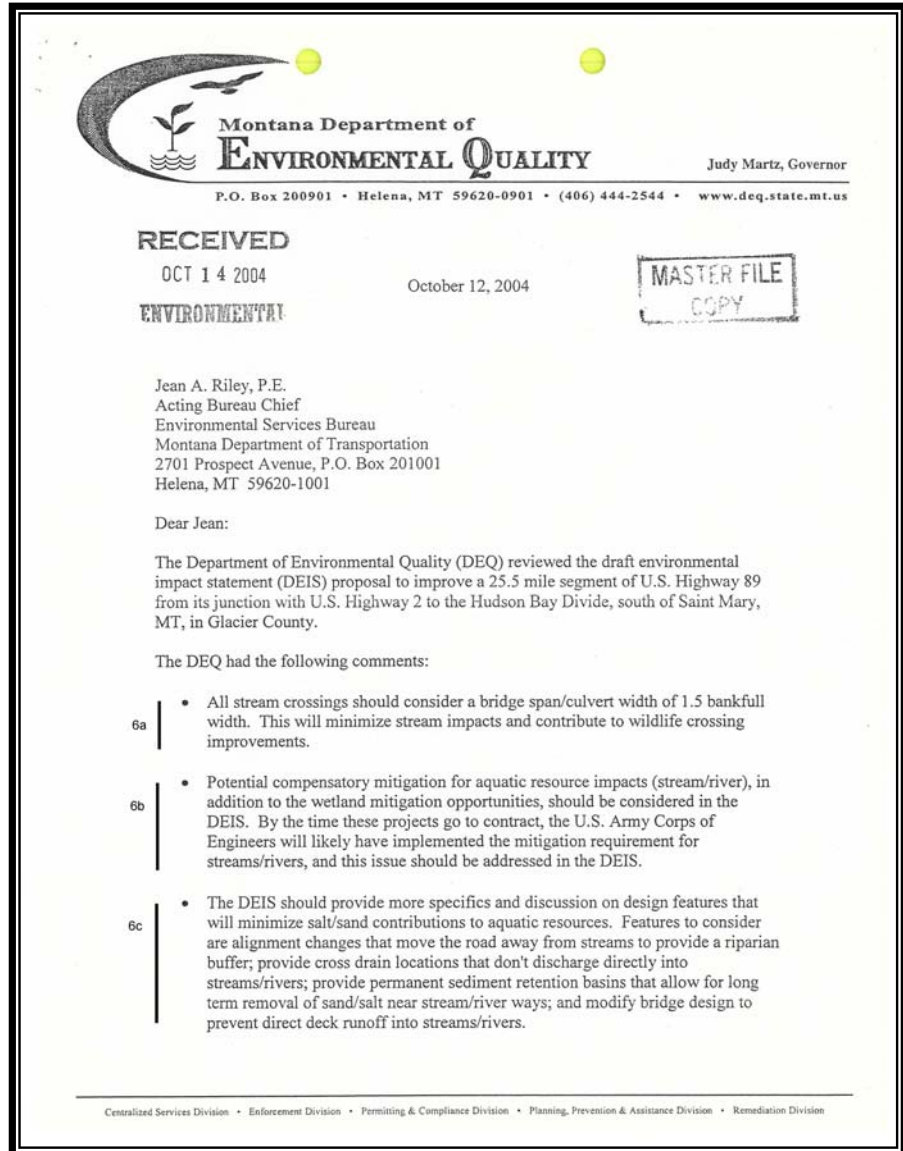
6b—Several mitigation concepts are identified in the wetland mitigation measures section of the EIS. These concepts may also provide opportunities to compensate for stream impacts. Additionally, the fisheries resources, mitigation measures section of the EIS states that stream channels relocated for project implementation would be reconstructed onsite to mimic the same features that were lost. The project would further compensate for stream impacts by increasing the bridge lengths at SF Cut Bank Creek and Lake Creek.

6c—The following discussion was added to Chapter 4, Water Resources, Indirect Effects:

Long-term road maintenance activities necessary to maintain the newly reconstructed US 89 have the potential to indirectly affect water quality through herbicide spraying for weed control, mowing, snow-removal and sanding, and use of chemicals to remove or prevent ice formation.

Herbicide spraying for weed control may result in the introduction of chemicals or herbicides to surface waters. The impact of the herbicide on water quality would depend on the type of herbicide and the amount reaching the channel. Once in the aquatic environment, pesticides may undergo transformation through photochemical and chemical reactions (i.e., hydrolysis, oxidation, and reduction) thus becoming more or less toxic (Rand and Petrocelli 1985). Herbicide application would be conducted in accordance with EPA safety sheets and manufacturers' recommendations. If used at the recommended rates and in the appropriate areas, herbicides are expected to have minimal effects on water quality.

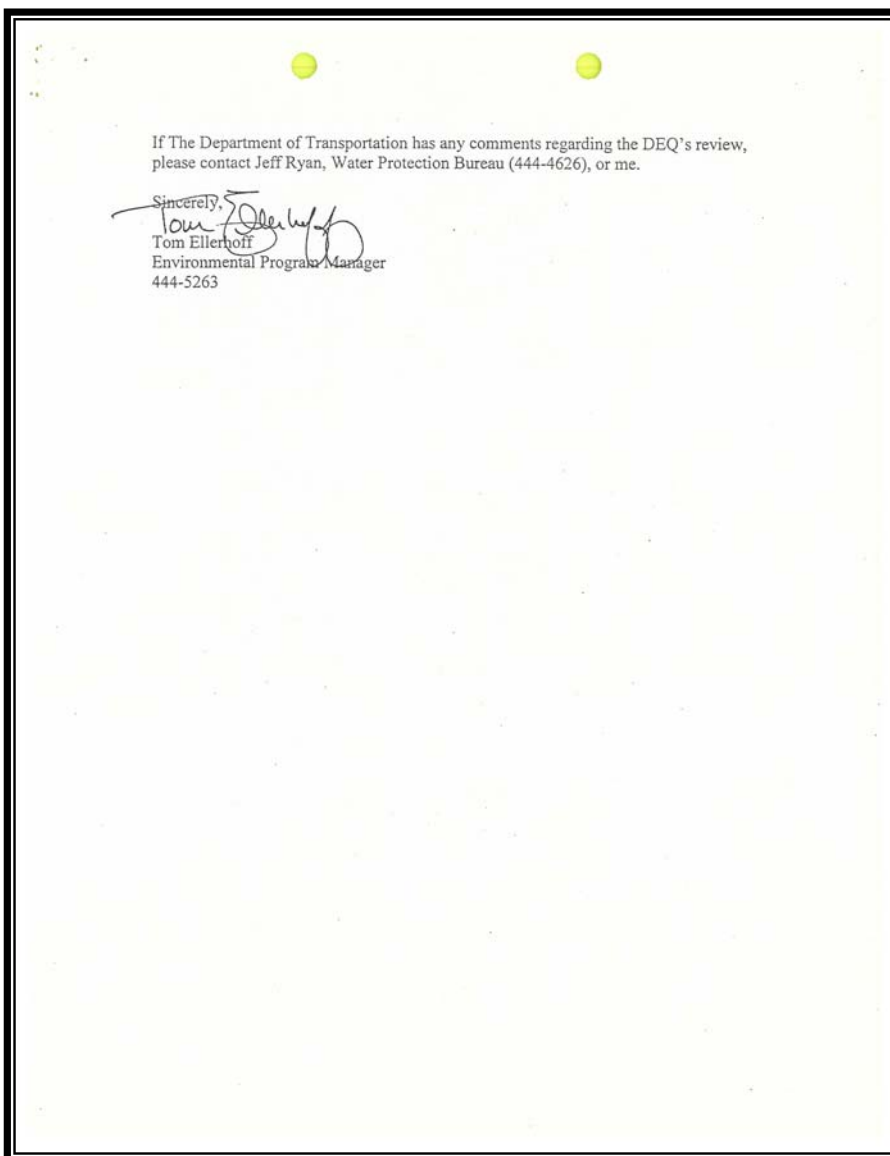
Water quality may be affected if stormwater runoff contains contaminants found in de-icers, such as magnesium chloride. The potential impact would depend on the rate of application, the amount of increase in impervious surface under each alternative, effectiveness of infiltration, and filtration in roadside ditches. A widened roadway



would also require slightly more sanding in the winter months to maintain safe, drivable roads. Increased sanding could result in increased sedimentation to streams in the project corridor.

Since salt and sand transport typically occurs during storm events, MDT will analyze applicable stormwater facilities during final design including permanent sedimentation/retention basins and modifications of bridge deck drainage design.

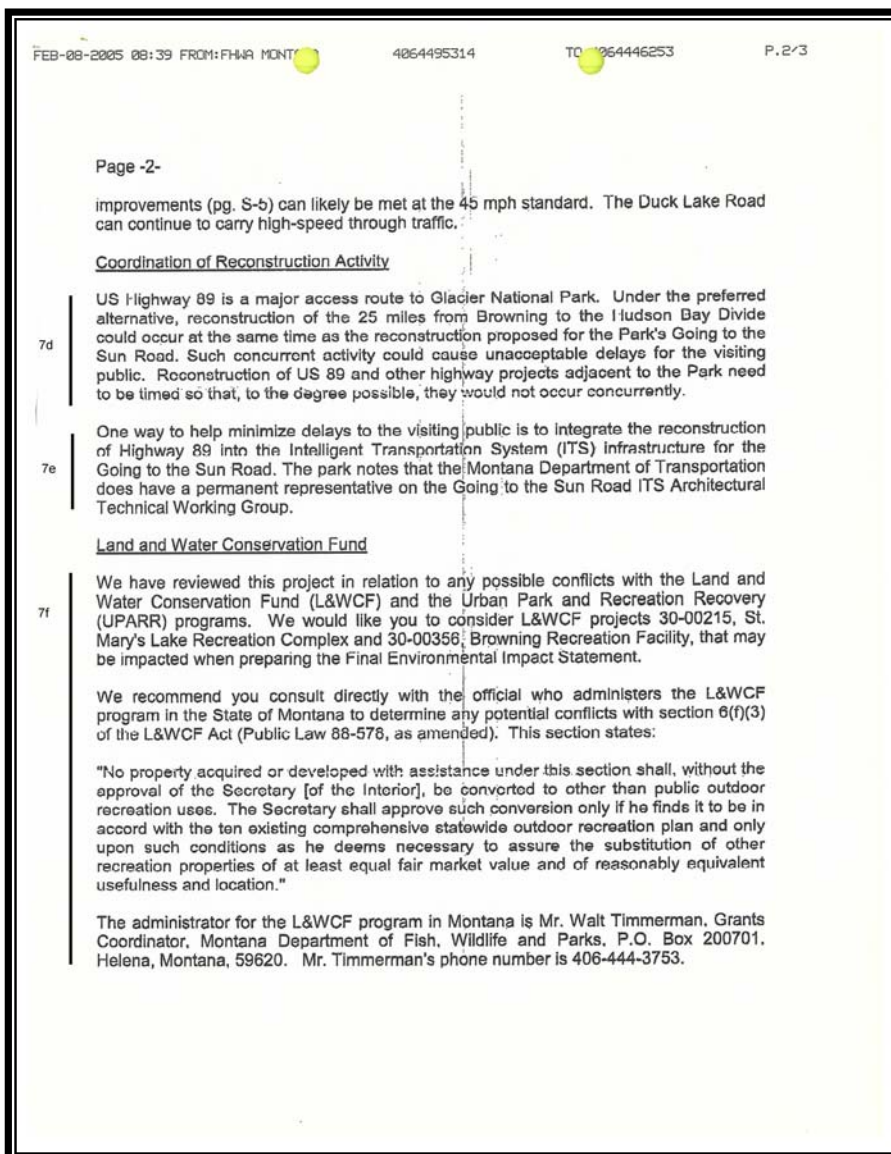
The proposed new ditches would reduce the potential effects of increased sanding and pollution from stormwater runoff because runoff would be directed to ditches where sediments and pollutants would settle out before entering nearby streams and wetlands. Further, the ditches are designed for ease of maintenance and to prevent erosion, and that would likely result in less debris, pollutants, and sediment entering sensitive areas.



7d—Currently, 2010 is the earliest date construction could start on this project. MDT will coordinate with Glacier National Park prior to finalizing the construction schedule for US 89. The reconstruction of US 89 would be completed in several phases and could be coordinated with the sequencing of the Going to the Sun Road reconstruction. Project funding for both projects will greatly influence the construction start dates.

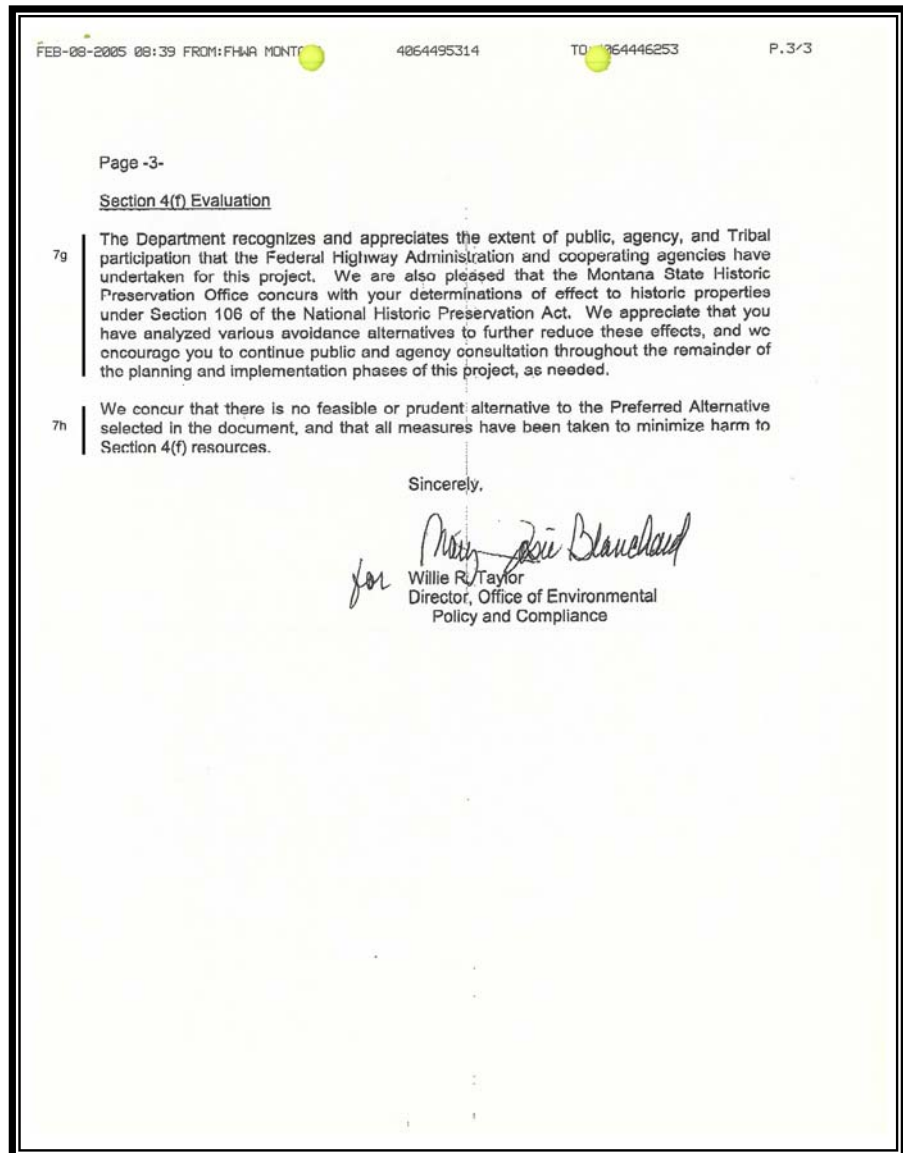
7e—Thank you for the suggestion. This would certainly be incorporated into the overall public information process during the construction phase of the project.

7f—We contacted the appropriate agencies and learned there are no L&WCF properties in the project corridor. This is stated in the FEIS and documentation has been appended to the Section 4(f) evaluation.



7g—Comment noted.


7h—Comment noted.



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Letter #8, United States Environmental Protection Agency, Region 8, John Wardell, Director, Montana Office

Responses to EPA comments begin on page H-27.



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 REGION 8, MONTANA OFFICE
 FEDERAL BUILDING, 10 West 15th Street, Suite 3200
 HELENA, MONTANA 59626

MASTER FILE

Consultant Design	
Date	10/7/04
Reading	
Bureau Chief	
Consultant Plans Eng	
Design Supervisor	
CTDP Engineer	
Helvik	
M. Johnson	
S. Straehl	
P. Farcy	
J. Riley	
Skilling, Connolly	
File	

Ref: 8MO

October 6, 2004

Mr. Karl M. Helvik, P.E.
 Consultant Design Bureau
 Montana Dept. of Transportation
 2701 Prospect Ave.
 Helena, MT 59620-1001


Re: CEQ # 040390; Comments on U.S. Highway 89,
 Browning to Hudson Bay Divide, Draft
 Environmental Impact Statement,

Dear Mr. Helvik:

The Environmental Protection Agency (EPA) Region VIII Montana Office has reviewed the Draft Environmental Impact Statement for highway improvements to U.S. Highway 89 Browning to Hudson Bay Divide. The EPA reviews EISs in accordance with its responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. Section 309 of the Clean Air Act directs EPA to review and comment in writing on the environmental impacts of any major federal agency action. The EPA's comments include a rating of both the environmental impact of the proposed action and the adequacy of the NEPA document. A summary of EPA's rating system is enclosed for your information.

The DEIS reports that the Federal Highway Administration (FHWA) and Montana Department of Transportation (MDT) in consultation with the Blackfeet Tribe, the Steering Committee, and Interdisciplinary Team have selected Alternative C and the Duck Lake Road Option improvements as the preferred alternative. The DEIS states that the wider shoulders in Alternative C increase safety benefits, better accommodate bicycle and pedestrian use, and thus, better meet project purpose and need; and the Duck Lake Road Option provides an alternative route for trucks that is less steep than US 89, and is likely to reduce truck traffic on US 89 improving traffic and safety; and Duck Lake Road will be easier to maintain as an open north-south road corridor in the winter when US 89 is closed due to drifting snow.

While the EPA recognizes that the preferred alternative has slightly greater environmental impacts than Alternative B and no Duck Lake Road improvements, we also recognize the safety and transportation benefits of Alternative C and the Duck Lake Road Option. We do not object to the preferred alternative, although we do have concerns regarding potential impacts to water quality, aquatic habitat, wetlands, and wildlife, particularly impacts to the threatened grizzly bear.



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Responses to EPA comments begin on page H-27.

The DEIS states that grizzly bear habitat and habitat value would be disturbed and decreased by US 89 construction. Increased travel speeds facilitated by removal of sharp curves may lead to an increase in wildlife/vehicle collisions; and the widened roadway and clearing of roadside vegetation may deter wildlife from crossing the roadway. Alternatives B and C have been determined to "likely adversely affect" grizzly bears in the project area. We support formal consultation with the U.S. Fish & Wildlife Service (FWS) under Section 7 of the Endangered Species Act (ESA), and recommend project planning and design and conservation measures to reduce adverse impacts to the threatened grizzly bear. Proposed conservation measures to minimize impacts to grizzly bears and facilitate wildlife movement through the project corridor should be reviewed and concurred upon by the Blackfoot Nation and the FWS.

It is important that there be adequate mitigation measures (e.g., structures for wildlife passage) in areas where there is high wildlife use and where road widening and vegetation clearing is likely to impede wildlife movement across the road and increase vehicle/wildlife collisions. Will the proposed new Lake Creek bridge at reference post 12 and the South Fork Cut Bank Creek bridge at reference post 13 provide adequate opportunities for wildlife crossing between reference posts 10 to 13 (i.e., which are identified as locations of high wildlife movement)? What provisions are proposed to provide wildlife crossing opportunities in the vicinity of other areas identified as areas of high wildlife movement (e.g., reference posts 21 to 21.7 on US 89 and reference posts 27 to 34 on Duck Lake Road)? Use of guide fences may also be worth considering where possible on both sides of the highway to help direct wildlife to safer crossings of the highway.

The DEIS reports that the preferred alternative (Alternative C) impacts 17.9 acres of wetlands and Duck Lake Road improvements would add an additional 1.9 acres of wetland impacts. These impacts to wetlands do not include impacts associated with gravel mining or excavation of borrow material for road bed construction and stockpiling of materials in staging areas and disposal of waste materials, since such sites for the proposed project have not been identified. The preferred alternative is estimated to have 2,354,000 cubic yards of excavation and 1,949,000 cubic yards of fill (i.e., 1,700,000 cubic yards of excavation and 1,439,000 cubic yards of fill for Alternative C, and 654,000 cubic yards of excavation and 510,000 cubic yards of fill for the Duck Lake Road Option), therefore, the environmental impacts from such large material source sites could be significant.

It will be very important to avoid sensitive areas such as streams, wetlands and other aquatic areas and important wildlife habitat areas such as grizzly bear spring foraging habitat when identifying and selecting material sources sites and construction staging areas. It will be necessary for the MDT to oversee the construction contractor to assure that such environmentally sensitive areas are avoided when obtaining material sources. If additional unavoidable impacts to wetlands or other aquatic areas occur during project construction (from material source sites or other reasons) these impacts should be identified and permitted by the appropriate permitting authorities. How will MDT oversee contractor identification and use of material source sites and excavation/fill operations to assure that adverse impacts from such sites and operations are avoided?

8—Several mitigation ideas are presented in the EIS. It is MDT standard practice to prepare a mitigation plan with the elements you identify and this is always done before implementation of a project. The proposed mitigation for this project will be reviewed by the Blackfeet Nation, Tribal Natural Resources Office, EPA, BIA, and the Corps.

Comment noted. See the response to comment 4c page H-15.

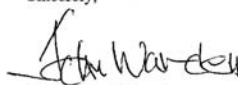
8

We also believe that a Wetland Mitigation Plan should be prepared that provides for adequate replacement of lost wetland functions and values. This Plan should be approved by the appropriate agencies and the Blackfeet Nation before implementation of the proposed project. We recommend that the Plan contain a statement of goals, a monitoring plan, long-term management/protection objectives and a commitment to conduct additional work, if required, to meet the goals of the Plan. We also encourage consultation with the Montana Interagency Highway Wetlands Group for this proposed wetland mitigation project to facilitate interagency agreement on the proposed mitigation plan for replacement of wetland functions and values.

We also concerned about proposed stream channel modifications for two short segments of South Fork Cut Bank Creek on the north side of the corridor at reference post 9, and relocation of 1300 feet of stream channel at the US 89 crossing of South Fork Cut Bank Creek, and relocation of two short segments of Willow Creek at reference post 3. These stream channel modifications should be planned and designed to simulate natural stream channel dimensions and length and incorporating natural aquatic habitat features (riffle, pool, run) as much as possible. Aquatic biologists and staff with training and knowledge of fluvial geomorphology be consulted during design of stream channel modifications.

We are enclosing our additional and/or more detailed comments, questions, and concerns regarding this DEIS for your review and consideration. Based on the procedures EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action and alternatives in an EIS, the U.S. Highway 89 Browning to Hudson Bay Divide DEIS has been rated as Category EC-2 (Environmental Concerns - Insufficient Information). Our environmental concerns regard impacts to water quality, wetlands, and aquatic habitat, as well as impacts to wildlife and wildlife movement, including the threatened grizzly bear. Additional information is needed to fully assess and mitigate all potential impacts of the management actions.

If we may provide further explanation of our concerns please contact Mr. Steve Potts of my staff in Helena at (406) 457-5022 or in Missoula at (406) 329-3313. Thank you for your consideration.

Sincerely,

John F. Wardell
Director
Montana Office

Enclosures

cc: Larry Svoboda/Julia Johnson, EPA, 8EPA-N, Denver
Todd Tillingier, COE, Helena
Dale Paulson, Program Development Engineer, FHWA, Helena
Scott Jackson, USFWS, Helena
Gerald Wagner/Mary Clare Weatherwax, Blackfeet Nation, Browning

**U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements
Definitions and Follow-Up Action***

Environmental Impact of the Action

LO - - Lack of Objections: The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC - - Environmental Concerns: The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO - - Environmental Objections: The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU - - Environmentally Unsatisfactory: The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 - - Adequate: EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 - - Insufficient Information: The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 - - Inadequate: EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

EPA Comments on the Draft Environmental Impact Statement for the U.S. 89 Highway, Browning to Hudson Bay Divide

Brief Project Overview:

The Montana Dept. of Transportation (MDT) and Federal Highway Administration (FHWA) have evaluated proposed improvements in the transportation corridor between Browning and Saint Mary-Babb on U.S. Highway 89 (approximately 25.5 miles) and Duck Lake Road (approximately 33 miles on Montana Secondary Highway 464) to improve traffic flow and roadway safety and maintenance, and to enhance cultural and economic resources of the Blackfeet Nation, and protect the natural environment. This transportation corridor is east of Glacier National Park within the boundaries of the Blackfeet Indian Reservation. US 89 is presently a two-lane roadway that is narrow with sharp curves, steep grades, and few turnouts, that provides few opportunities for passing slow moving vehicles and bicyclists. Large areas of the roadway have deteriorated and are rough and uneven. Improvements to Duck Lake Road are being considered as an alternative truck route to reduce truck traffic along US 89.

The DEIS evaluates no action and two action alternatives, and an additional option which could be applied to the action alternatives. Alternative A, the no action alternative, involves continued use and only maintenance of the existing substandard roadway in response to maintenance needs.

Alternative B involves improving US 89 by widening to a 32 foot road width (i.e., two 12 foot lanes with 4 foot shoulders and rumble strips) and realigning the roadway in places to reduce sharp curves, and allow a design speed of 55 miles per hour from Browning to Kiowa and 45 miles per hour from Kiowa to Hudson Bay Divide. An additional 22 feet adjacent to each side of the road would be impacted by slopes and vegetation clearing. Construction costs are estimated to be \$45.9 million. The project would be built in 3 or 4 segments from Browning toward Babb.

Alternative C, involves improving US 89 by widening to a 36 foot road width (i.e., two 12 foot lanes with 6 foot shoulders and rumble strips). The additional two feet of shoulder width is intended to better accommodate bicycle traffic. Alignments would be the same as those described for Alternative B. Construction costs are estimated to be \$49.6 million. Construction phasing would be similar to Alternative B.

A Duck Lake Road Improvement alternate route was also presented in the DEIS. This involves designating Duck Lake Road from Browning to US 89 (near Babb) as an alternative truck route for US 89. This option would reroute truck traffic through Duck Lake Road, which would require five road improvements to make the road a suitable alternatives route for commercial truck traffic including a safe 32 foot roadway width, and thereby, improve safety on US 89. Although trucks would not be restricted from using US 89. The Duck Lake Road Option could be combined with either action alternative, and would cost an additional \$12.3 million. The DEIS identifies Alternative C with the Duck Lake Road Option as the preferred alternative.

8a—The 22 feet that you identify beyond the roadway for clearing does not include the areas identified on Figure 8 in Chapter 2 of the EIS that are labeled (varies). The road corridor width includes the side slopes (cut or fill) outside the shoulders. These side slopes vary in width depending on topography, so that where the topography is steep, side slopes typically extend for some distance away from the roadway shoulders and where the topography is flat or moderate, the side slopes extend only a short distance away from the roadway shoulders. On US 89, the side slopes at some locations are sufficiently wide that the roadway corridor would be as wide as 250 feet.

Comments:

1. Thank you for including maps clearly showing project segments and boundaries, wetlands and road stream crossings (Figures 4 through 8, pages 18 to 22), and Table S-2 (page S-11 to S-24) showing environmental impacts and mitigation measures for each alternative. These maps and the alternatives matrix facilitate improved project understanding and alternatives evaluation, and help define issues, providing a clearer basis of choice among options for the decision maker and the public in accordance with the goals of NEPA.

Thank you also for providing good discussion of the existing road network, road conditions and traffic volumes, and accidents along US 89 and Duck Lake Road (pages 8 to 13), to improve public understanding of the project and its purpose and need. The DEIS indicates that US 89 is narrow with sharp curves, steep grades, deteriorated road surface, with few turnouts and opportunities for passing slow moving vehicles and bicyclists. The year 2000 Level of Service (LOS) for US 89 is stated be A and B, and the LOS for Duck Lake Road is A, although there is a high frequency of accidents on both roads.

The DEIS reports that the FHWA and MDT in consultation with the Blackfoot Tribe, the Steering Committee, and Interdisciplinary Team have selected Alternative C and the Duck Lake Road Option improvements as the preferred alternative. The DEIS states that the wider shoulders in Alternative C provide increased safety benefits, and better accommodates bicycle and pedestrian use, thus, meeting project purpose and need better than Alternative B (page 33). The Duck Lake Road Option is preferred since it provides an alternative route for trucks that is less steep than US 89, and is likely to reduce truck traffic on US 89, and will be easier to maintain as an open north - south road corridor in the winter when US 89 is closed due to drifting snow (page 34).

While the EPA recognizes that the preferred alternative has slightly greater environmental impacts than Alternative B and no Duck Lake Road improvements, we also recognize the transportation and safety benefits of Alternative C and the Duck Lake Road Option. We do not object to the preferred alternative, although we do have some questions and concerns regarding the preferred alternative and the environmental analysis which are discussed in subsequent comments.

8a | 1. It appears to us that a typical road corridor width of 76 feet would result from Alternative B design direction and a width of 80 feet for Alternative C (i.e., two 12 foot travel lanes + two 4 foot shoulders + two 22 feet slope/cleared vegetation zones adjacent to roadway = 76 feet). It is not clear why the DEIS states that the overall width of the road corridor would vary from a minimal width of 72 feet to a maximum width of 250 feet (page 24), when it appears to us that the road corridor width of Alternative B would be 76 feet and width of Alternative C would be 80 feet. It would be helpful if road corridor widths were further discussed to explain how the estimated range of road corridor widths from 72 feet

1

8b—Comment Noted. MDT will secure all necessary permits, including the National Pollutant Discharge Elimination System (NPDES) permit which requires the preparation and implementation of a comprehensive stormwater pollution prevention plan (SWPPP) through the use of appropriate BMPs.

8c—The following discussion was added to Chapter 4, Water Resources, Indirect Effects:

Long-term road maintenance activities necessary to maintain the newly reconstructed US 89 have the potential to indirectly affect water quality through herbicide spraying for weed control, mowing, snow-removal and sanding, and use of chemicals to remove or prevent ice formation.

Herbicide spraying for weed control may result in the introduction of chemicals or herbicides to surface waters. The impact of the herbicide on water quality would depend on the type of herbicide and the amount reaching the channel. Once in the aquatic environment, pesticides may undergo transformation through photochemical and chemical reactions (i.e., hydrolysis, oxidation, and reduction) thus becoming more or less toxic (Rand and Petrocelli 1985). Herbicide application would be conducted in accordance with EPA safety sheets and manufacturers' recommendations. If used at the recommended rates and in the appropriate areas, herbicides are expected to have minimal effects on water quality.

Water quality may be affected if stormwater runoff contains contaminants found in de-icers, such as magnesium chloride. The potential impact would depend on the rate of application, the amount of increase in impervious surface under each alternative, effectiveness of infiltration, and filtration in roadside ditches. A widened roadway would also require slightly more sanding in the winter months to maintain safe, drivable roads. Increased sanding could result in increased sedimentation to streams in the project corridor.

The proposed new ditches would reduce the potential effects of increased sanding and pollution from stormwater runoff because runoff would be directed to ditches where sediments and pollutants would settle out before entering nearby streams and wetlands. Further, the ditches are designed for ease of maintenance and to prevent erosion, and that would likely result in less debris, pollutants, and sediment entering sensitive areas.

to 250 feet were arrived at.

Water Resources

8b 2. We are concerned that improvements to US 89 and Duck Lake Road would result in short-term impacts to surface water quality due to erosion associated with excavation and grading activities (page 136). The DEIS states,

“Soil erosion could result in transport of sediment into nearby streams, resulting in increased turbidities and deposition of sediment in stream channels. Demolition of existing roadway sections would result in short-term water impacts due to generation of dust and debris, which could also result in increase sediment loading where streams are adjacent to the roadway. Increased turbidity in surface waters would reduce light penetration in the water column and potentially reduce productivity of streams. Sediment deposition could eliminate fish spawning areas and smother fish eggs.”

Roadway construction, operation, and maintenance can impact streams, wetlands and riparian areas from erosion and sediment transport, runoff, disruption of drainage patterns, stockpiling of materials in staging areas, maintenance of construction and maintenance equipment, snow plowing, and sanding of roads or use of salt and deicers. It is important to reduce and control highway runoff, sedimentation and pollutant loading, as well as address other potential impacts to water quality, wetlands and riparian areas with a comprehensive SWPPP and appropriate road construction BMPs. We are pleased that BMPs will be implemented during construction (page 167), and that an NPDES Permit will be obtained from EPA requiring completion of a Storm Water Pollution Prevention Plan (SWPPP).

8c 3. Winter maintenance often results in the introduction of sediment either directly or indirectly to a stream and associated riparian and wetland resources. Practices of expediently sidecasting material over the shoulder, filling depressions and widening shoulders can have an adverse effects upon streams, wetlands, and riparian areas, and are inappropriate. Snow plowing and subsequent sanding moves sand off the roadbed to the adjacent ditch line and fill slopes, filling depressions and ditches and widening shoulders, which can have adverse effects upon streams, wetlands, and riparian areas. The impacts of winter maintenance activities are more a matter of a long term indirect and cumulative effects than any one incident.

While we realize winter maintenance operations such as road sanding and snow plowing are important for winter highway safety it is important that maintenance crews be trained to minimize adverse impacts to streams and wetlands. We note that there is training available for road maintenance crews regarding conduct of road maintenance in a manner that protects streams and wetlands (contact, Montana Local/Tribal Technical Assistance

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8d—Comments noted.

Many of the measures you identify are also described in the EIS, including minimizing impacts to riparian vegetation and accommodating stream channel capacity and hydrology.

The project would comply with the requirements of Executive Order 11988 including protecting floodplain values and mitigating impacts on floodplains. The bridges at Lake Creek, South Fork Cut Bank Creek and the Milk River would be lengthened. During final design, bottomless culverts would be considered; however, the ultimate selection of the culvert type depends upon numerous factors including constructability and cost.

Where longitudinal encroachments on streams and their floodplains are required, a location hydraulics report would be prepared in compliance with 23 CFR 650.111. Therefore, a location hydraulics report would be prepared for the South Fork Cut Bank Creek.

8c continued	<p>Program at Montana State University, Steven J. Jenkins, P.E. at 406-994-6100 or 1-800-541-6671).</p> <p>When winter highway maintenance activities potentially affect streams and wetlands the effects of the program should be disclosed in the NEPA document. This should include the steps taken to minimize and mitigate the unavoidable effects on waters of the United States (i.e. use of sediment traps, vegetative filters near streams and wetlands, mechanical brooms to pick up sand, reuse of sanding material, maintenance program requirements, etc.) as well as a discussion of the winter maintenance effects themselves.</p>
8d	<p>4. We very much support the proposed additional features (page 26) to replace or widen existing bridges; incorporate wildlife crossing features for passage underneath the roadway while balancing the need to minimize impacts on wetlands; sizing culverts to accommodate flood flows and enhance fish passage; replacing culverts on Lake Creek with a bridge; and removing and restoring existing roadway where the new roadway corridor is created. We are pleased that the South Fork Cut Bank Creek bridge would be replaced, and South Fork Milk River bridge would be widened or replaced, and that all of the culverts in the US 89 project corridor would be replaced (Willow Creek and Flatiron Creek), and culverts added to improve hydrologic connections and reduce potential for flooding. It is our understanding that the existing bridge at North Fork Cut Bank Creek is relatively new and provides adequate hydraulic capacity.</p> <p>We recommend that new culverts and bridge structures be designed to minimize disturbance to stream hydrology, banks and channel, and that bridge construction work be conducted during periods of low stream flow in late summer or early Fall, and avoid and minimize impacts on the stream channel during construction. Special care should be taken to avoid or minimize impacts to riparian vegetation as much as possible. It will be important to assure that the bridge designs accommodate flood flows with no substantial changes to flood elevations, and bridge designs should match hydraulic traits of the natural stream, and provide for fish passage. Bridges with wide spans also afford opportunities for wildlife passage, and reduced wildlife-vehicle collisions.</p> <p>Stream crossings should be able to pass flood flows and maintain the integrity and continuity of the floodplain as well as the actual channel to avoid impeding flood flows, that could cause deposition above stream crossings and erosion and scouring below crossings. We support provision of an adequate span on bridge crossings to minimize encroachment upon the river channel, riparian area, and floodplain. Size and configuration of bridges should reduce floodplain encroachment (e.g., construction of bridges on pilings, as opposed to fill, can reduce encroachment). Bridges or open bottom arch culverts that allow natural stream bed substrate and stream grade, and sufficient width and capacity to pass flood flows and bedload transport with minimal encroachment upon the river channel and riparian area are preferred. We also recommend that all culverts simulate the natural stream grade and substrate as much as possible. We are</p>

8e—See the response to comment 4c, page H-15. Regulatory agencies and the Tribe will be contacted and required permits will be obtained prior to channel modifications.

8f—Comment Noted.

pleased that stream capacity will be increased with new bridges at Lake Creek and South Fork Cut Bank Creek (page 133). We note that the Mitigation Summary (page 229) indicates that bottomless culverts to provide a natural streambed will be considered. We believe open bottom culverts should be required.

- 8e 5. The DEIS states that road widening would result in direct impacts on stream channel habitat at South Fork Cut Bank Creek and Willow Creek (page 166), including relocation of two short segments of South Fork Cut Bank Creek on the north side of the corridor at reference post 9, and relocation of 1300 feet of stream channel at the US 89 crossing of South Fork Cut Bank Creek, and relocation of two short segments of Willow Creek at reference post 3.

The discussion of stream channel modifications on page 168 and in the Mitigation Summary (page 229) appears to recognize the need to avoid and minimize channel modifications as much as possible, and to simulate the original natural channel dimension, pattern, profile and length and aquatic habitat features (riffle, pool, run). We also note that it is preferable to restore channel length and natural riffle/pool sequences without installation of artificial grade control structures, although if channel length cannot be restored, grade control structures may be necessary to maintain channel stability. We also recommend that aquatic biologists and staff with training and knowledge of fluvial geomorphology be consulted during design of stream channel modifications. Consultation with stream geomorphology experts may be particularly needed for the relocation of South Fork Cut Bank Creek at reference post 13, since the South Fork Cut Bank Creek is stated to be an extremely dynamic stream.

As you know, it will be important to contact the Army Corps of Engineers, U.S. Fish & Wildlife Service, EPA, and Blackfoot Nation to assure that proper authorizations and permits are obtained prior to channel modifications (e.g., 404 permits, Tribal permits, etc.). We suggest contacting Todd Tillinger of the Corps of Engineers in Helena at 406-441-1375; Kristine Knutson of EPA at 457-5021; Scott Jackson of the USFWS in Helena at 406-449-5225 ext.201; Gerald Wagner or Mary Clare Weatherwax of the Blackfoot Nation at 406-338-7421 (ext. 289 and 291, respectively).

Wetlands

- 8f 6. Thank you for summarizing the 54 wetlands and their characteristics in the project corridor (Table 8, page 79), and identifying wetland impacts from the project in Tables 19 and 20 (pages 155, 156), and providing a draft 404(b)(1) Evaluation in Appendix E. The preferred alternative (Alternative C) is shown to impact 1.8 acres of additional wetlands when compared to the Alternative B (i.e., Table 19 shows that Alternative C impacts 17.9 acres of wetlands and Alternative B impacts 16.1 acres, page 156), and Duck Lake Road improvements are shown to impact an additional 1.9 acres of wetlands.

8g—It is MDT standard practice to prepare mitigation plans with the elements you identify. These plans are developed in coordination with the regulatory agencies and the Montana Interagency Highway Wetlands Group.

MDT will coordinate with the Corps, EPA, and the Tribe to determine the most appropriate approach and method for the permitting of each phase of the proposed project.

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The discussion of wetlands avoidance and minimization indicates that approximately 5.4 acres of additional wetland impacts have been avoided by project modifications and alignment adjustments resulting from interagency consultation and review (page 159, Table 21). The Mitigation Summary in Chapter 4 (pages 224 to 228) provides helpful details regarding specific wetland impact avoidance and minimization measures. The 404(b)(1) guidelines (40 CFR Part 230), which provide the substantive environmental criteria for evaluation of proposed discharges of dredged or fill material to waters of the U.S. under the Clean Water Act 404 permit program, indicate that the “least damaging practicable alternative” should be permitted.

While we realize that Alternative C impacts 1.8 acres of additional wetlands (over Alternative B), and the Duck Lake Road improvements impact 1.9 acres of wetlands, we also recognize that an additional 5.4 acres of wetland impacts have been avoided (page 159) with alignment adjustments. The wider shoulders with Alternative C offer a transportation safety benefit, better accommodate bicycle and pedestrian traffic, and thus, meet project purpose and need better than Alternative B. Alternative C is also preferred by the Blackfeet Tribal representatives, the Steering Committee, and Interdisciplinary Team as well as by the FHWA and MDT (page 33); and the Duck Lake Road Option would reduce truck traffic on US 89 and improve traffic and safety on US 89 (page 34). We do not object to the preferred alternative, although we note that it is important that there be adequate compensation for unavoidable impacts to wetlands along US 89 and Duck Lake Road.

7. As you know, national wetlands policy states that there should be No Overall Net Loss of the Nation's remaining wetlands, and a long-term goal of increasing quantity and quality of the Nation's wetlands resource base (see <http://www.usace.army.mil/inet/functions/cw/cecwo/reg/aug93wet.htm>). Wetland impacts should be avoided and minimized, to the maximum extent practicable, and then unavoidable wetland impacts should be compensated for through wetland restoration, creation, or enhancement.

The goal of wetland mitigation should be to replace the functions and values of lost wetlands in areas adjacent to or as close as possible to the area of wetlands loss. EPA/Corps policy has accepted acre-for-acre replacement of wetlands as a surrogate for replacement of functions and values when there is a lack of definitive information on functions and values, although adjustments may be necessary to reflect the expected degree of success of mitigation, and provide an adequate margin of safety (i.e., greater than acre-for-acre replacement is suggested when impacted wetlands have high function & value and likelihood of replacement is low).

Many of the wetlands on the Blackfeet Reservation have high functional values and support threatened and endangered species. Due to the high value of some of the potentially impacted wetlands on the Blackfeet Reservation we anticipate a greater than

8h—MDT’s contractor is responsible for complying with all regulatory requirements at areas outside the project area and would be required to obtain the necessary permits. MDT can refuse payment for any work that is not in compliance with the state, federal and tribal regulations.

8g
continued

1:1 replacement ratio. We are pleased that the DEIS indicates that the project will compensate for unavoidable wetland impacts in accordance with Corps of Engineers requirements under Section 404 of the Clean Water Act as well as Blackfeet Tribal Policy (pages 160 to 162), and that specific wetland mitigation measures are identified in the Mitigation Summary (pages 224 to 228). We recommend that a detailed Wetland Mitigation Plan be prepared to provide adequate replacement of lost wetland functions and values. This Plan should be approved by the appropriate agencies, including the Blackfeet Nation, before implementation of the proposed project.

We recommend that the Plan contain a statement of goals, a monitoring plan, long-term management/protection objectives and a commitment to conduct additional work, if required, to meet the goals of the Plan. We also encourage consultation with the Montana Interagency Highway Wetlands Group for this proposed wetland mitigation project to facilitate interagency agreement on the proposed mitigation plan for replacement of wetland functions and values.

We also recommend consideration of a single 404 permit to cover the dredge and fill permitting for the project due to the numerous aquatic impacts. We feel this is preferred over issuance of a combination of numerous individual and nationwide permits, since it may allow for improved cumulative effects evaluation as well as to reduce paperwork and permit processing time, and assure that all necessary permits for dredge and fill activities can be obtained for the full project. Although we realize if the project is to be constructed in several segments over varying time periods it may be appropriate to permit each construction segment individually.

8. The reported impacts to wetlands do not include impacts associated with gravel mining or excavation of borrow material for road bed construction and with stockpiling of materials in staging areas and disposal of waste materials, since it is stated that such sites for the proposed project have not been identified, although it is stated that materials are normally extracted as near the project site as available (page 132). Since the preferred alternative is estimated to have 2,354,000 cubic yards of excavation and 1,949,000 cubic yards of fill (i.e., 1,700,000 cubic yards of excavation and 1,439,000 cubic yards of fill for Alternative C, and 654,000 cubic yards of excavation and 510,000 cubic yards of fill for the Duck Lake Road Option) the environmental impacts from such large material source sites could be significant.

8h

It will be very important to avoid sensitive areas such as streams, wetlands and other aquatic areas and sensitive wildlife habitat areas such as grizzly bear spring foraging habitat when identifying and selecting material sources sites and construction staging areas. It will be necessary for the MDT to oversee the construction contractor to assure that such environmentally sensitive areas are avoided when obtaining material sources and construction staging areas. If additional unavoidable impacts to wetlands or other aquatic areas occur during project construction (from material source sites or other

8i—Both the USFWS and the Blackfoot Nation were consulted while developing conservation measures to address impacts on grizzly bears. The USFWS issued their biological opinion (BO) for the project on January 28, 2005. Several of the conservation measures identified in the BO include provisions for continued coordination with the Blackfoot Nation.

8j—Yes, we believe the structures at Lake and Cut Bank creeks would provide adequate passage opportunities in those areas.

In response to your question about measures to facilitate wildlife movement at reference posts 21 and 21.7 on US 89, the amount of clearing required to construct the roadway would be restricted, thereby maintaining roadside cover, which facilitates animal movements in this location. In addition, v-shaped ditches would be implemented to the extent feasible at this location (versus the u-shaped ditch, which requires more clearing). Vegetation plans for the corridor would include a woody species component to enhance cover at this location after construction is complete. Lastly, construction will be staged through the corridor so that at least two of the three primary grizzly crossing areas are free from construction activities during the period from April 1 to June 30.

Currently, there are no provisions to facilitate wildlife movement at reference posts 27 and 34 on Duck Lake Road. As the final designs are developed, an enlarged culvert would be installed near reference post 34 on Duck Lake Road if it is feasible and practicable. The EIS does state that guide fencing will be constructed where applicable.

reasons) these impacts should be identified and permitted by the appropriate permitting authorities. How will MDT oversee contractor identification and use of material source sites and excavation/fill operations to assure that adverse impacts from such sites and operations are avoided?

Wildlife

9. The DEIS states that grizzly bear habitat and habitat value would be disturbed and decreased by US 89 construction (page 174). Increased travel speeds facilitated by removal of sharp curves may lead to an increase in wildlife/vehicle collisions; and the widened roadway and clearing of roadside vegetation may deter wildlife from crossing the roadway. Alternatives B and C have been determined to “likely adversely affect” grizzly bears in the project area (page 182).

8i

We support formal consultation with the U.S. Fish & Wildlife Service (FWS) under Section 7 of the Endangered Species Act (ESA), and recommend project planning and design and conservation measures to reduce adverse impacts to the threatened grizzly bear. The proposed conservation measures (pages 179 to 182) to minimize impacts to grizzly bears and facilitate wildlife movement through the project corridor should be reviewed and concurred upon by the Blackfoot Nation and the FWS. These measures include consultation with the Blackfoot Nation and FWS during bridge and culvert design, contractor and construction crew grizzly bear education, avoiding earthmoving construction activities near grizzly bear spring foraging habitat from April to June (i.e., riparian area east of Kiowa, Lake Creek, South Fork Cut Bank Creek, and South Fork Milk River south and middle branches).

10. It is stated (pages 176) that the area on US 89 between reference post 10 through 13 in the South Fork Cut Bank Creek drainage, and between reference post 21 and 21.7 in the South Fork Milk River drainage, and Duck Lake Road reference post 27 to 34 are highly used by grizzly bears and other wildlife for road crossings. It is important that there be adequate mitigation measures such as structures for wildlife passage in areas where there is high wildlife use, and where road widening and vegetation clearing is likely to impede wildlife movement across the road and increase vehicle/wildlife collisions.

8j

It is stated that provisions have been incorporated into the preliminary roadway design to facilitate wildlife movement, including minimizing vegetation clearing and restoring vegetation beyond the cleared area. Will the Lake Creek bridge at reference post 12 and the South Fork Cut Bank Creek bridge at reference post 13 provide adequate opportunities for wildlife crossing between reference posts 10 to 13? What provisions are proposed to provide wildlife crossing opportunities in the vicinity of reference posts 21 to 21.7 on US 89 and reference posts 27 to 34 on Duck Lake Road that are stated to be locations of grizzly bear and other wildlife movement? Use of guide fences may also be worth considering where possible on both sides of the highway to help direct wildlife to

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8k—MDT’s standard specifications for dust control will be implemented during construction.

This has not been identified as a non-attainment area and air quality monitoring is not required.

Conservative estimates of fugitive emissions resulting from proposed construction activities indicate that NAAQS are not expected to be exceeded and prevailing wind direction from the west will not affect visibility in Glacier National Park.

8l—Comments noted.

Mr. Johnson has been contacted about this project and would be involved in the development of the revegetation plans for the project.

safer crossings of the highway.

Air Quality

11. The DEIS states that air quality could be affected by fugitive dust emissions during land clearing, drilling, blasting, ground excavation, earth moving, and other construction processes, as well as pollutant emissions from equipment (carbon monoxide, hydrocarbons, nitrogen and sulfur oxides and particulates, pages 140, 141). The DEIS indicates that exceedances of 24-hour particulate matter National Ambient Air Quality Standards (NAAQS) are not expected, nor would any short-term adverse impacts on air quality be expected during construction activities under Alternative B and C and the Duck Lake Road Option, especially if a standard dust monitoring and suppression program is implemented (page 141). Will such a “standard dust monitoring and suppression program” be implemented during the project? We did not see a commitment to implement a program to control and monitor particulate matter during construction, which could affect NAAQS or visibility in the Class 1 air quality area of Glacier National Park.

Compliance with the NAAQS is required, and we recommend implementation of such a program. Particular attention should be given to any areas along the corridor where people live near the highway (within 1000 feet) or where schools, hospitals, or elderly care facilities are near the facility. Residents and sensitive populations may be adversely impacted now or in the future and this should be discussed or the absence of these conditions should be noted.

Weed Management

12. The risk of spread of noxious weeds from road corridors is discussed in the DEIS (page 149). EPA supports control of noxious weeds, which are a great threat to biodiversity, and can out-compete native plants and produce a monoculture that has little or no plant species diversity or benefit to wildlife. Noxious weeds tend to gain a foothold where there are ground disturbances such as construction. We support minimization of disturbance to existing native vegetation and revegetation of disturbed areas (reseed with native grass mix). Where no native, rapid cover seed source exists, we recommend using a grass mixture that does not include aggressive grasses such as smooth brome, thereby allowing native species to eventually prevail. Mr. Phil Johnson, Botanist, Montana Dept. of Transportation, in Helena at 406-444-7657, may be able to provide guidance on revegetation with native grasses.

We are pleased that the MDT botanist will conduct a site visit and prepare a site-specific revegetation plan that will include provisions for temporary or erosion control seed mix during construction as well as provisions for post-construction revegetation of the disturbed road corridor (page 150). We are also pleased that BMPs to minimize impacts

8m—Comment noted.

8n—Refer to the bicycle discussion in Chapter 3, Human Environment, Transportation Systems. Yes the roadways north and south of the project have shoulders that bicyclists can use. Most bicycle use occurs between the Glacier Park entrance west of St. Mary and Kiowa Junction. The discussion in Chapter 3 describes bicycle use on US 89 as incidental and low. US 89 has not been identified as an important primary bicycle route. There are no known bicycle groups in the area that could be consulted. We know there are bicyclists that occasionally use the highway. Alternative C provides a 1.8 meter (6-foot) shoulder to better accommodate the occasional bicyclist and provide an added measure of safety for the motorist as well.

8o—Rumble strip placement within the project area will be in accordance with MDT’s rumble strip policy, which was developed based on guidance from national publications and with input from Montana highway users including bicyclists. MDT’s policy is generally consistent with the recommendations in the two documents noted in your comment. For example, the policy provides for narrow rumble strips next to the fog line with regular gaps for bicyclists.

to ground disturbance will be used during construction.

Environmental Justice

13. Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” requires that Federal agencies make environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health and environmental effects of its programs, policies, and activities on minority populations and low-income populations. The Executive Order makes clear that its provisions apply fully to Native Americans. We are pleased that the DEIS discusses E.O. 12898 and CEQ guidance for Environmental Justice (pages 104-105, 191-192), and reports that the impacts resulting from the project would not fall disproportionately on minority or low income populations, and that benefits of the project associated with safety and convenience of the improved road outweigh the impacts post-construction. We are pleased that MDT has conducted scoping meetings and worked with the Blackfeet Nation and offered newsletters to all interested parties (pages 191), and has a Memorandum of Understanding with the Blackfeet Nation governing hiring of construction workers (page 193). The DEIS also states that residents of the Blackfeet Reservation would benefit from the infusion of money into the local economy and the construction jobs associated with the project.

Other

14. We also believe potential bicycle use and patterns of use on the U.S. 89 highway corridor between Browning and Hudson Bay Divide should be further evaluated and disclosed. Do the roadways south of Browning and north of Hudson Bay Divide provide adequate shoulders for bicycle traffic? Where are bicycle trips on US 89 likely to be initiated and concluded? What is current and projected bicycle usage and bicycle use patterns on US 89? Has US 89 been identified as an important primary bike route? We recommend that the MDT further analyze and disclose these issues, perhaps in association with bicycle groups.

15. For your information, the League of American Bicyclists provides recommendations regarding use of rumble strips on roads (see <http://www.bikeleague.org/educenter/index.html> under Rumble Strips). This league recommends:

Non-freeway Facilities: Rural Multi-lane and Two-lane Roadways: Rumble strips should only be installed on non-freeway facilities such as rural multi-lane and two-lane roadways for which an engineering study suggests that the number of ROR crashes would likely be reduced by the installation of shoulder rumble strips. In some cases, countermeasures such as improved signing and markings, increased pavement skid resistance or other roadway improvements may be more appropriate than rumble strips or used in

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conjunction with them. When rumble strips are warranted and milled-in rumble strips have been selected over other rumble strip alternatives. Reducing the width and depth of rumble strips makes the rumble strip easier to cross for a bicyclist and eliminates the need for a larger offset. Where rumble strips are warranted, the following guidelines should be followed to the maximum extent practical:

- 1) Raised or rolled-in style rumble strips are preferable on all non-interstate roads, rather than milled-in designs. The most recent studies indicate a milled depth of 8 ± 1.5 mm ($5/16 \pm 1/16$ in) provides reasonable warning to most motorists while not being unduly dangerous to cross on a bicycle when necessary, with 8 mm ($5/16$ in) depth highly preferred.
- 2) The recommended width should not exceed 300 mm (12 in) long perpendicular to the travel lane. Some states are currently using narrower strips.
- 3) Most bicyclists prefer rumble strips to be installed as close to the travel lane or under the edge line as possible and no more than 100 mm (4 in) from the edge line.
- 4) Rumble strips should not be continuous, but should be installed with gap spacing of not more than 14.6 m (48 ft) of rumble strip and not less than 3.2 m (12 ft) of clear space.
- 5) Rumble strips should not be installed on steeper downhill on highways other than interstates.
- 6) The minimum clear shoulder width recommended for a bicycle to travel is 1.5 m (5 ft). In instances where a curb may infringe on this width, the minimum shoulder width is 1.8 m (6 ft). The 1994 FHWA publication entitled, *Selecting Roadway Design Treatments to Accommodate Bicycles*, recommend 1.8-2.4 m (6-8 ft) of clear shoulders for most bicyclists on busy rural roads. The need for rumble strips where guardrails are present is questioned. A Caltrans study specifically states that where bicyclists are permitted, "shoulder rumble strips should not be used unless a minimum of 1.5 m (5 ft) of clear shoulder width for bicycle use is available between the rumble strip and the outer edge of the shoulder." Summary, a minimum of 1.5 m (5 ft) clear shoulder space must remain outside the rumble strip at all times, with a wider clear space provided on roads with 2.4 m (8 ft) shoulders.

Comment #9, February 16, 2005 Meeting Minutes Blackfeet Council Chambers

9a—A special invitation to comment on the EIS was sent to Dan Carney, Dave Gordon, Rodney Gervais, Robert Mad Plume, Mark Magee, Marilyn Parson, Mike Tatsey, Don White, and John Murray. Dan Carney and John Murray provided comments that are included in this table. Rodney Gervais, Mark Magee, Mike Tatsey and Don White did not have any comments. Dave Gordon and Robert Mad Plume did not respond.

9b—Soil improvements include measures such as adding geo-synthetics or fabrics to help stabilize the soil. It is not yet known if any improvements would be required or which methods would be used. The MCA refers to sections of the Open Cut Mining Act as they appear in the Montana Code Annotated (MCA) 2003, Title 82, Chapter 4. The Montana Open Cut Mining Act is available online at: http://data.opi.state.mt.us/bills/mc_a_toc/82_4.htm.

Final roadway designs would attempt to balance the amount of cut and fill so that excess materials do not remain. However, this is not always feasible. If there is excess material at the completion of the project it would be up to the contractor to find a suitable disposal site. Therefore, it would be best to notify the contractor of your interest in the materials.

9c—No mitigation measures are proposed under the No Action Alternative. Mitigation measures under Alternatives B and C are shown in Table S-2 and include:

- Obtaining authorization from the U.S. EPA for a National Pollutant Discharge Elimination System permit. This permit requires the completion of a stormwater pollution prevention plan, including a description of BMPs and stormwater management controls appropriate for the construction site.
- Appropriate BMPs for the site will be selected from the current version of *Erosion and Sediment Control Best Management Practices: Reference Manual*.

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Comments on Draft Environmental Impact Statement and Section 4(f) Evaluation for US 93 Browning to Hudson Bay Divide	
from Gerald Wagner 2/16/2005	
9a	Other programs that should have had a copy of the EIS (Fish and Wildlife, Land & Finance) Table S-2 Environmental impacts and mitigation measures by alternatives
9b	Geology and Soils S-11 (Mitigation Measures) What kind of soil improvements are to be used? What are MCA references? Need a copy of Open Cut Mining Act. Tribe would like to have access to excess soil.
9c	Water Resources S-12 Concerned about accidental spills and leaks from heavy equipment and the impact on water quality. BEO would like a copy of the NPDES permit application sent to EPA. Under Mitigation Measures there are none proposed, why not?
9d	Air Quality S-13 From past experience with roadway construction, the fugitive emissions can be a problem for residents who have breathing problems and this should be addressed.
9e	Vegetation and Wildlife Habitat Has there been any contact with the Tribes Fish and Wildlife programs? S-14 Mitigation Measures, any unused fill or topsoil can be used at the landfill. Have biologist work with BEO staff on revegetation plan.
9f	Wetlands S-15 An agreeable amount of wetlands impacted. Compensation for wetlands using the Core and BEO Wetlands ratios, good.
9g	Fisheries Resources S-15 & 16 Did you check with the Tribe's Fish and Wildlife programs?
9h	Chapter 3 Physical Environmental Pages 49 – 51 What are the plans for dealing with the creek crossing on 89?
9i	Surface Water Quality Page 54 The Tribe is in the process of establishing it's own Water Quality Standards.
9j	Air Quality Page 56 Based upon past road construction projects, the amount of fugitive dust produced has had adverse impacts on the residents passing through and living in the construction area.

- In accordance with MDT's standard specifications, the contractor would be required to secure the necessary permits associated with material sources sites, including those permits required to prevent a violation of water quality standards.
- New stormwater outfalls associated with new or reconfigured surface drainage systems would be designed to prevent erosion over the long term, accounting for increased flow rates from the roadway.
- Impacts of high flow damage at discharge points on drainage ditches would be managed by considering erosion prevention in the design of ditches.

Mitigation measures for Duck Lake Road include:

- Mitigation measures are similar to those for Alternatives B and C.
- As appropriate, the off-road parking area at Cut Bank Creek would be sloped to the southeast, so that runoff flows away from the stream. As a result, runoff would be directed to an area of heavier vegetation and higher filtering capacity, reducing runoff to the stream.
- The above mitigation measures are included in Table S-2 under Water Resources.

9d—It has been MDT's experience that implementation of their standard MDT construction practices for dust control would provide adequate dust control during construction.

9e—The Tribal Fish and Wildlife programs were consulted in the process of developing the EIS. Dan Carney provided information regarding Wildlife issues and Robin Wagner (USFWS working with the Tribe) provided information regarding Fisheries issues.

Comment on topsoil has been noted.

An MDT staff botanist, in consultation with the Blackfeet Nation, would conduct a site visit and prepare a site-specific revegetation plan. This text has been added to the mitigation measures listed in the Summary Table under Vegetation and Wildlife Habitat, Chapter 4 Vegetation and Wildlife, Mitigation Measures, and Chapter 4, Mitigation Summary, Vegetation and Wildlife in the Final EIS.

9f—It is unclear what is meant by the first part of this comment. Impact avoidance was considered throughout the development of project alternatives and the preliminary design process. Chapter 4, Wetlands, Mitigation Measures includes a discussion of avoidance and minimization included during project development.

9g—See response to comment 9e, page H-42.

9h—Proposed actions at stream crossings are described in Chapter 4, Floodplains and Fisheries Resources in the EIS.

9i—Comment noted.

9j—See response to comment 9d, page H-42.

9k—The U.S. Army Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) provides a three-parameter approach for determining wetland presence. The Corps method does not classify or describe the function of wetlands delineated; it merely provides a method for determining if wetlands are present. There are several methods for classifying wetlands. The two predominant methods are the Cowardin classification, which broadly categorizes wetlands by their location on the ground (riverine, marine, palustrine - inland) and by their vegetation communities such as forested, shrub, or emergent. Another major classification is the hydrogeomorphic system (HGM), which describes wetlands by their location on the landscape and hydrology characteristics (water source and connectivity to other waters). The Montana Department of Transportation Wetlands Assessment Method (MDT 1999) is based on the HGM system. It first classifies wetlands based on this system. It then uses the classification as the basis for assessing the wetland functions (habitat, flood storage, water treatment, etc). In this case it does make a

	Wetlands
9k	Page 77 What is the difference between the Corps and MDT's methods of wetland classification? Depressional and Slope? Does it make a real difference?
	Employment
9l	Page 103 Large employers in Glacier County – School District
	Page 105 Environmental Justice Guidance under the National Environmental Policy Act. What does this mean as far as employment of Native Americans by MDT for the highway project?
	DISPLACEMENT AND RIGHT-OF-WAY ACQUISITIONS
	Unimproved Lands
9m	Page 105 What is the time limit of the easement as it pertains to conditions set by the Army Corps of Engineers?
	Will NEPA assessments be required on the easements along the proposed project corridor?
	Structures
9n	Multifamily units?
	Page 106 Nine Mile Inn is an established Bed and Breakfast and dining facility within the proposed project area.
	Pedestrian Facilities
9o	Page 108 If the shoulders were wider to provide a safer space, this route would be utilized by joggers and the Cross Country Athletes.
	Public Education
9p	Page 110 There are two Tribal based language schools and two religion based schools in the town of Browning.
	Hazardous Materials
9q	Page 114 The BEO has a hazardous waste component that also requires the reporting of these activities. The BEO office has a hazardous waste form that is filled out by State and Federal and Tribal agencies, businesses and individuals that generate hazardous waste.
	CHAPTER 4 ENVIRONMENTAL CONSEQUENCES
	Mitigation Measures
9r	Page 132 In the past on road projects, the amount of dust that is generated has not been controlled by the use of water trucks. The construction area was not watered down enough to keep the dust at bay. We would like this problem to be addressed prior to road construction.
	Post Construction
9s	Page 132-133 What would be the minor adverse flooding impacts or increased channel scour on the streams water quality?

a difference and it is important to use both the Corps manual and the MDT assessment method, because one tells you if you have a wetland and the other tells you what value and function that wetland provides.

9l—Large employers in Glacier County include tribal, federal, state, and local governments. This includes the county government and the Glacier County school district.

Environmental Justice guidance under the National Environmental Policy Act does not effect the employment of Native Americans by MDT. Hiring preferences are established under the Tribal Employment Rights Ordinance (TERO) 1977 (Resolution No. 16-77) requiring that all federal and nonfederal contracts include an Indian hiring preference and establish training programs for partially trained tribal members. In addition, the Blackfeet Nation and the Montana Department of Transportation signed a Memorandum of Understanding (2001), which states that Indian hiring requirements would be determined through a project specific agreement for all Montana Department of Transportation projects on the Blackfeet Indian Reservation. This is discussed under Employment in Chapter 4, Socioeconomics in the EIS.

9m—It is unclear to what conditions set by the Army Corps of Engineers this comment refers. If lands held in trust, either for individuals or the tribe, are required for the project, the Montana Department of Transportation would purchase an easement from the private party or tribe that would allow for the roadway improvement. The easement

would remain in place for perpetuity; however, the easement would stipulate that if it is no longer required, the property would revert back to the United States government and the party for whom the land is held in trust. These easements are considered part of the proposed action for which this NEPA document (EIS) has been prepared. Further NEPA analysis would not be required for easements acquired by MDT related to the roadway improvements.

The Corps of Engineers requires all wetland mitigation sites to be protected in perpetuity. Obtaining easements and protecting mitigation sites in perpetuity would be analyzed, documented, and secured through the Section 404 permit process, which would likely involve MDT, the Corps of Engineers, and the Blackfeet Nation or a private landowner.

9n—There are no multifamily units on US 89. The signs on the building and out front identify this facility as the Aspenwood Café & Campground. The fence and some of the parking area would be affected by the realignment of the highway. Several design options are available to the designer that can be employed to minimize the impact to this property. The following text in the final EIS was revised with an addition to Chapter 3, Human Environment, Displacement and Right-of-Way Acquisition: Businesses along US 89 are limited to the café/general store situated at Kiowa and the Aspenwood Café and campground approximately 12.6 km (7.8 mi) west of the US 2/US 89 intersection in Browning. The business at Kiowa is opened seasonally and includes a café, general store, campground, cabins, and motel (the owners' residence is also located on the property). The café/general store on US 89 is especially important because it is the only commercially viable retail business between Saint Mary and East Glacier and any changes to this business could be significant to the local community. Also, given the seasonal nature of tourism in the project area and the overall weakness of tourism spending in the project area, commercial activities along the project route do not appear to be robust.

The Aspenwood Café also includes spaces for camping and RV parking along with the owners' residence. This business is also seasonal and very dependant upon tourism.

The following text in the final EIS was added to Chapter 4, Human Environment, Displacement and Right-of-Way, Mitigation and Chapter 4, Mitigation Summary, Human Environment, Displacement and Right-of-Way: To minimize impacts on the café/general store at Kiowa and the Aspenwood Café and campground, the Montana Department of Transportation will keep US 89 open to travel during construction and will minimize traffic delays to the extent feasible during the peak tourist season (Fourth of July through Labor Day).

9o—Comment noted.

9p—The following schools have been added to the list: DaLaSalle, Cuts Wood, Moccasin Flata and Little Flower Parish.

9q—The following text has been added to the final EIS in Chapter 3, Hazardous Waste, Hazardous Waste Regulation: The Blackfeet Environmental Office Hazardous Waste Program also requires federal, state, and tribal agencies, businesses, and individuals to report hazardous waste generating activities.

9r—It has been MDT's experience that implementation of their standard MDT construction practices for dust control would provide adequate dust control during construction.

9s—Adverse flooding impacts that are minor in nature can include slope failure, which results in continual erosion and sediment deposition to the stream, which covers and suffocates eggs. Flooding can also be beneficial for a system, for instance when deposition of material in the floodplain creates fish habitat. In general, flooding has no impact on water quality. In fact, sometimes flooding (spilling over banks) reduces velocities and therefore reduces scour and allows some deposition of material in the floodplains.

Scour can affect water quality because it introduces sediment into the water column, thereby increasing turbidity and suspended sediment, which eventually leads to deposition of that sediment somewhere downstream. Sediment deposition generally has an adverse effect on fish habitat because it creates substandard habitat for fish breeding, it covers and suffocates developing eggs, and may fill culverts affecting fish passage.

9t—The stormwater pollution prevention plan requires a description of BMPs and stormwater management controls appropriate for the construction site including measures to reduce soil erosion, reduce site sediment loss, and manage some of the more common construction-generated wastes and construction-related toxic materials, including petroleum based contaminants. Appropriate BMPs for the project site will be selected from the current version of *Erosion and Sediment Control Best Management Practices: Reference Manual*.

9u—During construction the contractor will use an approved herbicide as directed by the county and Blackfeet Tribe. After construction, Glacier County will be contracted by MDT to provide weed control as per state law.

9v—The discussion presented in the EIS includes the range of impacts that may occur from material extraction at a source site. The source sites for this project have not been identified, nor has the quantity of material to be taken from the site(s) been determined. Once the material source sites are identified, the Contractor would be required to secure all required approvals and comply with all required laws, which would examine potential effects to water quality.

9w—The proposed project includes several measures to reduce the adverse effects of roadway improvements on wildlife. At known wildlife crossing areas, vegetation disturbance would be minimized and revegetation would include planting woody species. This measure would reduce the amount of clearing required and would provide roadside cover to facilitate wildlife movement at these sites. In addition, wildlife passage under the road would be provided at Lake Creek, S.F. Cut Bank Creek, and N.F. Cut Bank Creek. Many wildlife currently cross US 89 and mortality rates are low. Crossings are likely to continue and mortality rates are likely to remain low because the projected volume of traffic is only expected to increase at a moderate level over time.


9t	<p>Indirect Effects Page 134 What pre-cautionary steps will be taken to deal with the introduction of petroleum based contaminants and fine sediments into the river system as a result of machinery working within the floodplain of sediment laden run-off?</p>
9u	<p>Water Resources – Direct Effects Page 136 What type of chemical herbicide would MDT use to control noxious weeds in the project area?</p>
9v	<p>Indirect Effects Page 139 Material extraction may cause lowering of water tables and impacts of water quality. Will the project be using source site material that may affect water quality?</p> <p>Biological Environment</p>
9w	<p>Direct Effects Page 146-147 There are concerns to the adverse effects stated in post-construction on these pages.</p>

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Comment #10, April 12, 2005 Meeting Minutes Blackfeet Council Chambers, Browning, MT

10a—MDT’s contractor is responsible for identifying material source sites and for complying with all regulatory requirements at areas outside the project area, and would be required to obtain the necessary permits. MDT can refuse payment for any work that is not in compliance with the state, federal and tribal regulations.

It is our understanding that your concern stems from the potential for development of material source sites in grizzly bear habitat. The proposed project includes several conservation measures to reduce impacts on listed species, including the following: “Prior to selection of material source sites, MDT and its contractor will consult with the Blackfeet Fish and Wildlife Department tribal biologists so that potential impacts to grizzly bear habitat are minimized in site selection.” This measure is reiterated in the BO for this project issued by USFWS on January 28, 2005.



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**US 89 to Hudson Bay Divide
MEETING MINUTES**

April 12, 2005
 Blackfeet Council Chambers, Browning, MT
 1:00 p.m.

Attendees:
 Montana Department of Transportation
 Blackfeet Tribal Council
 Blackfeet Land Department
 Blackfeet Fish and Game Department
 TERO
 BEO
 Skillings-Connolly, Inc.

Tom Gocksch
 Pat Schildt
 Mark Magee
 Dan Camey
 Rodney "Fish" Gervais, Gene Grant
 Henry Butterfly
 Kelly Harris, Kerry Dudley

Purpose: DEIS Comments

Agenda Item: Comments	
<p>Discussion:</p> <ul style="list-style-type: none"> • Schildt: No comments • Magee: No comments • Grant: No comments • Gervais: No comments • Butterfly: No comments • Camey: My concerns are the same as before. The gravel, where are you going to get the materials for the road construction? Is it even addressed in the EIS? • Harris: Gravel source is addressed somewhat. It says that when we get to the point that we identify where the pit will be, then we will go through the appropriate steps what ever those steps are. At this point we don't have an idea where those pits will be. • Camey: That is part of my concern. In the past an EIS has been done and it will address all sorts of concerns and then you put out for bids for gravel for road materials and it comes from in the middle of important grizzly bear or what ever sorts of habitat and then there is an operation in there all summer long that is going twenty-four hours a day. That will create an impact that isn't considered in the EIS. From what you just told me, I don't think it is addressed to the level that I think it should be. • Harris: How have projects been handled in the past here on the reservation? • Camey: They haven't, that is the problem. That is why I think with a project this size and scope that I think... 	<p>Action Item: [Initials]</p>

10a

- Magee: As far as the pits themselves normally if they are on Trust land, which most of them tend to be, the permitting process goes through the BIA. I think you are right. They are lacking the impacts that it has on wildlife. They do the archeological stuff to make sure that we are not digging up graves or anything. As far as what is happening out here with the wildlife and things like that, no I don't think that...but it is a permitting process through the BIA.
- Gochsch: More or less, whenever the contractor is going to be using a gravel source they have to get approved gravel sources. That might be one way we could address it. Any one of our gravel sources have to be approved for by the department. On private trust land, allotment land, it is a whole different ball of wax. If you have a standard procedure in place as far as locating these gravel sources, that is the base of where the entire system would go. If you have these concerns where you know we are going to need gravel within sensitive areas there should be something in place currently that would protect that. You can't just go out and rip up ground.
- Carney: On fee land unfortunately I think you can. Right?
- Magee: On fee land, I think their process comes into play. It is not Indian land.
- Carney: If it's a tribal member on fee land that wants to put up a gravel pit and run it twenty-four hours a day, I guess... I've never seen any of the paperwork to analyze anything like that and I guess because this is Federal funding for a project this size, for them to buy private gravel and let the guys on private property do what ever they want I just think that is critical.
- Magee: Yeah and normally I would, because we have an MOU with the Dept. of Transportation that says the gravel sources, when possible, will come from the Tribe or Tribal members. I think that once you have exercised those two options you've found your source. You don't have to go outside of that. I think there are very few private pits unless you go way down East. Those are the ones we know the county uses.
- Harris: In the permitting process for gravel sites, do they ever contact you or someone else from Fish-Wildlife?
- Carney: One time there was a gravel pit on the West side of lower Saint Mary Lake that came through our office. This is a perfect example. This is in an area where elk were calving. It is a fairly sensitive area for wildlife and they did it anyway bottom line.
- Magee: That had to be twenty years ago?
- Carney: It wasn't that long ago, because I have only been with the department for 18 years.
- Magee: And I think the BIA's position back then and may still be that this is an opportunity for a Trust landowner to make a lot of money and we're not going to deny that. That is really a sad thing.
- Carney: Well you know it goes other places to, up on top of the Divide, all of those rocks that they got out of there for the Going To The Sun Highway. There were never any analyses done for impacts on that that I am aware of but that is on Tribal land. I guess I don't want to belabor it but that is just one of the main concerns that I have. I think that many of the other concerns that I had have all been addressed. I wrote a few things down, a few things miss understood. I don't have any problems with this in general.

- Harris: Could you e-mail those items that you wrote down.
- Carney: If I can find them. They were tiny things, they are not significant
- Harris: Ok. Well, we have the comment on the gravel sources and we will certainly look into that.
- Magee: I think we need to address it in a Tribal policy.
- Carney: I think that would be fine.
- Harris: If there are restrictions, that should be put in the permit. That is were it should be taken care of, in the permit process.
- Magee: In fact we are looking a re-doing that whole process. Just like when they did Browning East-West. That was Blatner from Minnesota. When they came in here they got a permit for a gravel pit. They come in here, got all their gravel and reclaimed it, sloped the sides, put the topsoil back on, re-seeded and left. There is no follow through and here we are six or seven years later and we have forty acres of nap weed. After the end of the permit we need to make sure there is some liability there for that contractor to stay with the pit for several more years to do some simple weed control.
- Carney: What I was concerned with was a new gravel pit show up on the south fork of Milk River just east of Highway 89 and be running twenty-four hours a day for two years.
- Gochsch: That is for who ever is responsible for permitting of gravel sources because for us we are going to let the contract to the contractor and if we start stipulating where gravel sources come from then we need to buy the gravel source, include it in the project and it becomes a portion of the project. By doing that we are removing other people's ability to supply gravel from a cheaper or different source so it takes away the competitive bidding process for these contractors and Tribal members. That is a main item at DOT. We are not allowed to create any kind of unfair bidding system. We have to supply three examples for any item that we use so that we make sure that it is not a proprietary item or we have to do a public interest finding saying that this is required and necessary. In a gravel pit source the only way we could require someone to use one of those sources is if it were necessary for completion of the project whereas you can permit work within these timeframes or within these locations or not permit them. We are not telling the contractor to go with that. Does that make sense?
- Carney: It does and I see what you are saying. As long as the Tribe follows up with that I think that would be fine. What I have seen other times is that Federal Agencies rely on the Tribe to do certain things and it doesn't happen. There was a huge environmental assessment or impact statement for the water system up in East Glacier coming out of Two Medicine where the Tribe signed on the line that said that all these roads up here will be closed, this will happen and that will happen and when it comes time to do it nothing will happen. It could be the same deal with the gravel is my concern. If it is Federally funded I think it is the Federal Government's responsibility to make sure, I'm not saying that they have to take it from this gravel pit or that one but would it be possible to just say in there that the gravel source will not come from within the grizzly bear recovery zone, or within zone whatever of the Blackfoot Tribe Fish and Game code so that we know that we don't have to have another analysis for threatened or endangered species?

- Gochsch: I'm not exactly sure where that would go because ...I know that off the reservation in order for someone to do a gravel pit they have to get permits, depending on if it is an aquatic site, they have to get it from Fish and Wildlife Service and they have to go through and Fish and Wildlife Service will then do an analysis and they will put timing restrictions for breedings and various things and they place it. The thing is if it is on Tribal land the Federal Government has been told this is Tribal property. The Tribe will take responsibility.
- Magee: To a point. We are acting as the landowner granting consent to use a source. The permit process actually goes through the BIA. We send our authority to grant that consent to use that source to them so they say the Blackfeet Tribe has said this is a gravel source that they own and they would like to use that source for this project. Then the BIA process kicks in and they actually do the permit. They develop the reclamation plan for it and so they set all those things up and because you guys are actually part of that you guys are 638 contract. I don't see why they are not including you in that development process of that permit.
- Gochsch: Because they do an EA on everything. Like on Meriwether East they required an EA for their portion to determine whether or not they could do their thing. That took time on that particular project. If you are not being included you might go to them and make sure that BIA Browning or BIA Billings, which ever one has that authority, go to them and explain that you want to be involved in this if there is any kind of risk of impact that we may be responsible for monitoring up here. You guys should be included in that.
- Carney: Yeah I know. It comes with using the best available science and things like that.
- Gochsch: You guys are technically the regulatory authority for the Tribal property, right? You take the place of Montana Fish and Wildlife, don't you or Montana Fish, Wildlife and Parks and the Fish and Game Service? When we go through a normal EIS they are the ones that do the full environmental. They give us their biological opinion and you guys are the people that would be responsible for the biological opinions, right?
- Carney: Should be, right.
- Gochsch: I say flex your muscles and tell them that you want to be included.
- Carney: That's just it. I can flex my muscles but it kind of sags. Obviously, that is not something we are going to resolve today. I just want to make sure it is a point that is made so that when this starts happening and there is a gravel pit up there, I am going to raise heck with somebody.
- Magee: When we identify potential sources for these projects, for the most part we know well enough in advance where the project is, starting and ending point, so we look for sources along the project and we do it using GIS for the most part. We go to the soil inventory and we pick out the gravelly types of soils and overlay it on Tribal land so we get to narrow it down. For this particular project I would guess that we are going to have zero sites because there are no gravelly soils in that area. We are going to find most of our gravel out on the flats.
- Carney: Well that would be great. I don't see a problem with that.
- Magee: That is the process that we use. First we look closest to the site.

Since I am aware of that, I can make sure someone will follow through on your end of the deal.

- Gochsch: There ought to be a way to put something in there that talks to insuring that gravel sources...we will have to look into it. What we can do legally from and MDT stand point without hampering the competitive bid process, because there could be specials put in that require that certain things happen...because a lot of these gravel pits have already been looked like you say, are right along the road. If it is in the corridor where there is no activity allowed due to grizzly bear timing restrictions already for our project, they shouldn't be trenching gravel outside of that area. They should follow within the guide.
- Harris: I know over on the Highway 93 project when they were identifying gravel sources they did what you described. The Tribe said; "Here's where we want them to be", and that's where they tested the gravel and some were great and some were not. That is how the selected the sites. You have total control of basically where they go.
- Magee: Just like the Divide thing. Over the years they have discovered that a full blown gravel permit is going to take anywhere from two weeks minimum to maybe two months just getting the preliminary work done until you have a permit in your hands and so when these smaller projects come up when they don't need as much material but they need it immediately, they've taken it upon themselves to be able to grant their own permits through the land department and this is even back before my time. That is how all these things got started. They can grant those permits up to 2000 yards and have it authorized by the chairman of the land bureau. They were doing those little ric-rak projects along the Swift Current to Boulder and when they were looking for big rock so the land bureau says well lets just get them 2000 yards at a time and as soon as you've used up those 2000 yards we'll just give you 2000 more. So they were hauling out the Divide and blasting rock. It was crazy.
- Carney: That is the kind of thing that I am used to. When you go up there then you know there is a project going on and here comes truck out of huge hole in the mountain.
- Magee: That is one of the first things that happened to me. Someone wanted material out of there and I didn't know anything about it. I drove up there and looked and they had undercut this mountain.
- Harris: Well, I appreciate you coming over.
- Carney: I am sorry I wasn't more prepared or a little earlier.
- **NOTE:** At this time Kelly Harris attempted to call Robert Mad Plume, Marilyn Parsons, and Mike Tatsey on the phone for comments but no answer to any call.

The meeting adjourned at 2:00 p.m.

APPENDIX I

Biological Assessment and Biological Opinion for the US Highway 89: Browning to Hudson Bay Divide

BIOLOGICAL ASSESSMENT

BIOLOGICAL ASSESSMENT

US 89 Browning–Hudson Bay Divide Corridor Study

Browning–Hudson Bay Divide~STPP 58-1(19)0~CN 4045

Prepared for

Skillings-Connolly, Inc.

July 2004

BIOLOGICAL ASSESSMENT

US 89 Browning–Hudson Bay Divide Corridor Study

Browning–Hudson Bay Divide~STPP 58-1(19)0~CN 4045

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July 14, 2004

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Executive Summary

United States Highway 89 (US 89) is a critical portion of the roadway network in Glacier County, Montana, serving the Blackfeet Indian Reservation and the east entrance to Glacier National Park. The Montana Department of Transportation and the Federal Highway Administration, in cooperation with the Blackfeet Nation of the Blackfeet Indian Reservation of Montana, propose to improve a 41-kilometer (25.5-mile) section of the existing US 89 project corridor extending from Browning, Montana west and north to the Hudson Bay Divide. The purpose of the proposed highway improvements is to enhance traffic flow, improve roadway safety, and reduce the need for roadway maintenance along US 89 between the town of Browning, Montana and Hudson Bay Divide (south of Saint Mary, Montana).

Three alternatives are being considered: a no-action (“no-build”) alternative, and two action alternatives that would realign and improve US 89 to Montana Department of Transportation standards with either a 9.8-meter (32-foot) width (Alternative B) or an 11-meter (36-foot) width (Alternative C).

In addition, an option is being considered that would designate Duck Lake Road (Montana Highway 464) as an alternative truck route to US 89, which would require minor realignment and improvement work on Duck Lake Road. Duck Lake Road extends north of Browning to Babb within the project area and provides an alternative route for this section of US 89. The Duck Lake Road option could be combined with either of the two action alternatives. This option would not be combined with the no-action alternative; however, if the no-action alternative for US 89 is chosen, the Montana Department of Transportation could implement the proposed improvements to Duck Lake Road as a separate action.

The Montana Department of Transportation and the Federal Highway Administration have selected the 11-meter (36-foot) width on US 89 (Alternative C) and implementation of the Duck Lake Road Alternate Route as the preferred alternative. The selection of a final alternative will not be made until comments on the draft EIS and from the public hearing have been fully considered. However, this document analyzes the effects of the preferred alternative on proposed threatened, threatened and endangered species.

Rolling hills and grasslands dominate the lower elevations of the project area near Browning. Fifty-four wetlands were identified along the US 89 and Duck Lake Road project corridors, consisting of four wetland types: large riverine, small riverine, depression, and slope systems. Prairie potholes are common within the grassland habitats of the US 89 project corridor. Shrub communities occur at transitions between wetlands and aspen grovelands and within riparian communities. Deciduous forests of cottonwoods and aspen grovelands occur sporadically, and coniferous forests occur at the higher elevations, near the terminus of the project corridor.

Seven federally threatened, proposed, or candidate species occur in the project area: slender moonwort, bald eagle, grizzly bear, gray wolf, Canada lynx, and bull trout. On September 9, 2003, the USFWS determined that listing of the mountain plover as a threatened species was

unwarranted and withdrew its proposed rule (FR 2003a). Therefore, this species is not addressed in this biological assessment.

Streams in the project area drain to three major drainages: the Saint Mary River, the Milk River, or Cut Bank Creek. All of the streams crossed by US 89 in the project corridor drain either to the Milk River or Cut Bank Creek, both part of the Missouri River drainage basin. Twelve stream crossings in the US 89 project corridor are suitable for fish habitat and potentially could be affected by the proposed road improvements. Streams crossed by the north-south portion of Duck Lake Road (reference posts 0 to 24) also drain to either the Milk River or Cut Bank Creek within the Missouri River drainage basin. Streams on the east-west portion of Duck Lake Road (reference posts DLR-24 to DLR-34) drain to the Saint Mary River drainage and north to Hudson Bay. Three stream crossings in the Duck Lake Road project corridor could be affected by improvements proposed under the Duck Lake Road option.

The effects of the preferred alternative on candidate and listed species are summarized below.

The proposed project will not result in direct or indirect impacts that significantly affect slender moonwort or its habitat. Development of material source sites in the project vicinity may affect habitat for slender moonwort, although no populations have been identified aside from the one near the US 89 roadway in Saint Mary and the locations for the source sites have not yet been determined.

The proposed project would not affect nesting bald eagles in the project vicinity. Construction activities may cause migratory bald eagles to avoid the project corridor. The new bridge at South Fork Cut Bank Creek would result in a loss of riparian habitat and remove suitable perch trees for wintering bald eagles. For these reasons, construction activities may affect but are not likely to adversely affect bald eagles.

The primary direct effects of the proposed project on grizzly bears, gray wolves, and Canada lynx would be increased difficulty crossing the US 89 project corridor, loss of habitat, and a potential decrease in habitat value. These impacts are attributed to the wider road surface, reduced vegetative cover along the roadway, and the extent of vegetation disturbance.

The proposed vehicle bridge at Lake Creek would be modified to facilitate wildlife crossing. In addition, construction clearing would be limited at key wildlife crossing areas and this is expected to facilitate bear, wolf, and lynx movement through the project corridor. Despite these measures, as well as additional measures and best management practices described in the analysis of effects for grizzly bears, the project may affect and is likely to adversely affect grizzly bears.

The proposed crossing structures and vegetation retention guidelines described for grizzly bears are likely sufficient to maintain the few gray wolf crossings that may occur at current and future traffic volumes. This is because wolf use of the project corridor is likely limited to dispersing individuals and because wolves are most commonly observed in the spring and fall when traffic volumes are lower. As a result, with implementation of the proposed conservation measures, the proposed action may affect, but is not likely to adversely affect gray wolves.

Similarly, because the US 89 project corridor is located in fringe habitat for the lynx and all impacts would occur within the existing corridor, loss of conifer and mixed forest habitats in the corridor would not result in substantial effects on lynx. Lynx seeking food sources or attempting to disperse may occur in these areas; however, there is limited suitable habitat availability on the east side of the project corridor, and regular crossings of US 89 are not expected. As a result, with implementation of the proposed crossing structures and vegetation retention guidelines (as described in the analysis of effects for Canada lynx, the proposed project may affect, but is not likely to adversely affect Canada lynx.

With implementation of erosion control, best management practices, spill control measures, a temporary erosion and sedimentation control plan, and stormwater pollution prevention plan, this project may affect but is not likely to adversely affect bull trout.

Introduction

The Montana Department of Transportation and the Federal Highway Administration, in cooperation with the Blackfeet Nation of the Blackfeet Indian Reservation of Montana, propose to improve a 41-kilometer (25.5-mile) section of the existing US 89 project corridor extending from Browning, Montana west and north to the Hudson Bay Divide. US 89 is a critical portion of the roadway network serving the Blackfeet Indian Reservation and the east entrance to Glacier National Park, and extends northward to Port of Piegan at the Canadian border and southeast to Yellowstone National Park. The purpose of the project is to improve US 89 for traffic flow, roadway safety, and reduce future roadway maintenance needs.

This report presents the results of the biological analyses for threatened and endangered species for the proposed US 89 improvement project. This report has been prepared in compliance with section 7(c) of the Endangered Species Act of 1973, as amended.

For the purposes of this report, the *project corridor* is defined as the area to be disturbed by reconstruction and is generally the area within 60 meters (200 feet) of the centerline of the proposed roadway. The *project area* includes the habitat areas immediately adjacent to the project corridor that have the potential to be affected by actions within the project corridor. The *project vicinity* is the regional area, which influences the habitat conditions within the project area and the types of wildlife and fish species that are found within those habitats.

Project Area Description

The US 89 project corridor is located on the Blackfeet Indian Reservation, in north central Montana (Figure 1). The project area includes the existing US 89 roadway from Browning to the Hudson Bay Divide, as well as Duck Lake Road from Browning to US 89 south of Babb (Figures 2 through 7). The project area is located on the eastern front of the Rocky Mountains and is bordered on the west by Glacier National Park, which bounds the Blackfeet Indian Reservation (see Figure 2).

Montana consists of two distinct physiographic regions (Hansen et al. 1995). The northern Great Plains occupy the eastern two thirds of the state and the northern Rocky Mountains occupy the western third of the state. The US 89 project area is located at the boundary of these two distinct physiographic regions. Shaped by glaciation and nonglacial weathering and erosional forces, these regions support vegetation communities based on the inherent geology and climatic conditions.

Generally, the climate in the northern Great Plains consists of warm summers with large amounts of precipitation from May through August and cold, relatively dry winters (Hansen et al. 1995). The growing season has from 90 to more than 130 frost-free days. The western edge of the Great Plains, however, is cold and moist, with a short growing season of 50 to 110 frost-free days (Hansen et al. 1995).



Figure 1. Vicinity map of the US 89 improvement project, Montana.

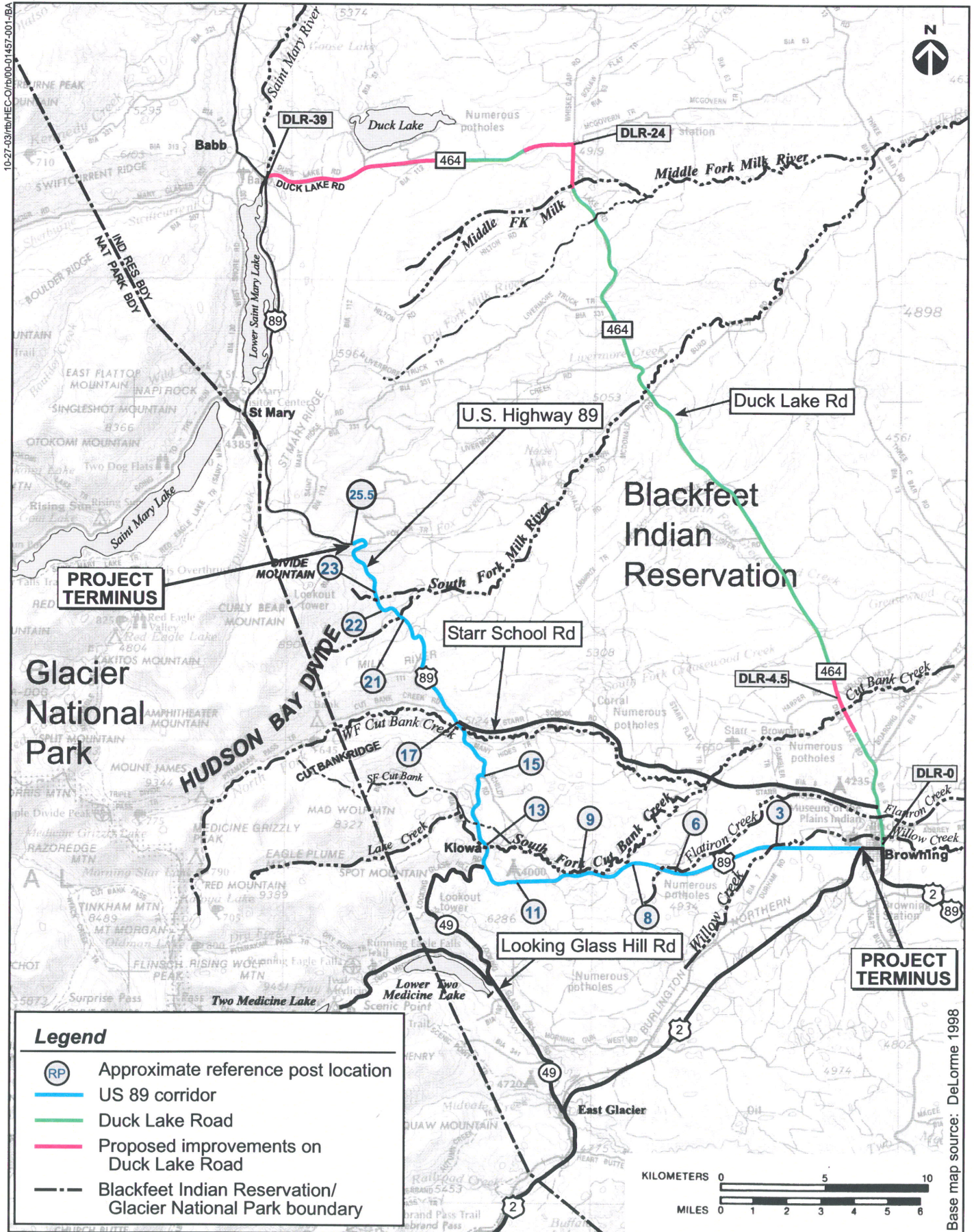
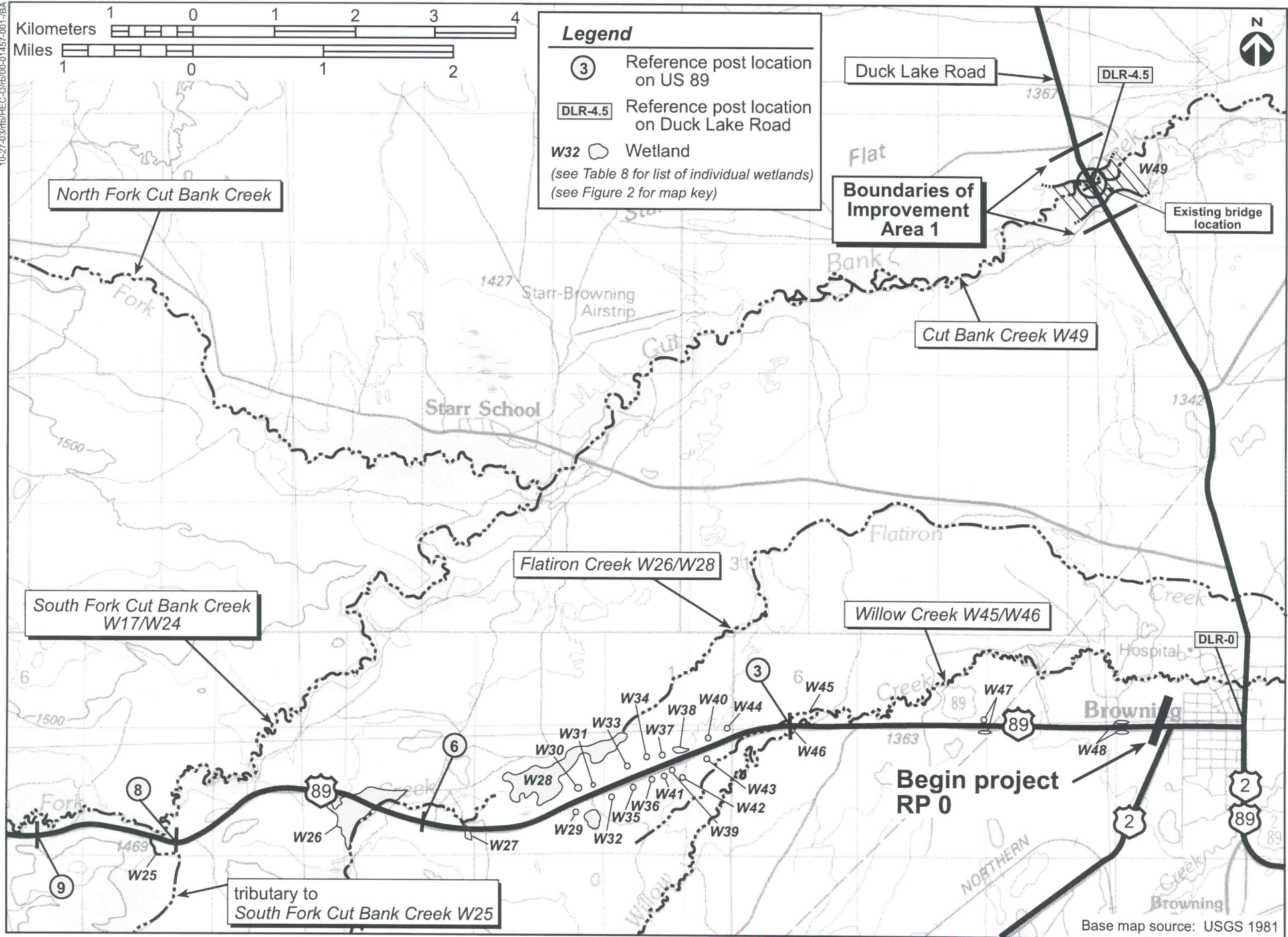


Figure 2. Location of the US 89 improvement project, Montana.



Base map source: USGS 1981

Figure 3. Reference posts 0 to 9 on US 89 and improvement area 1 on Duck Lake Road.

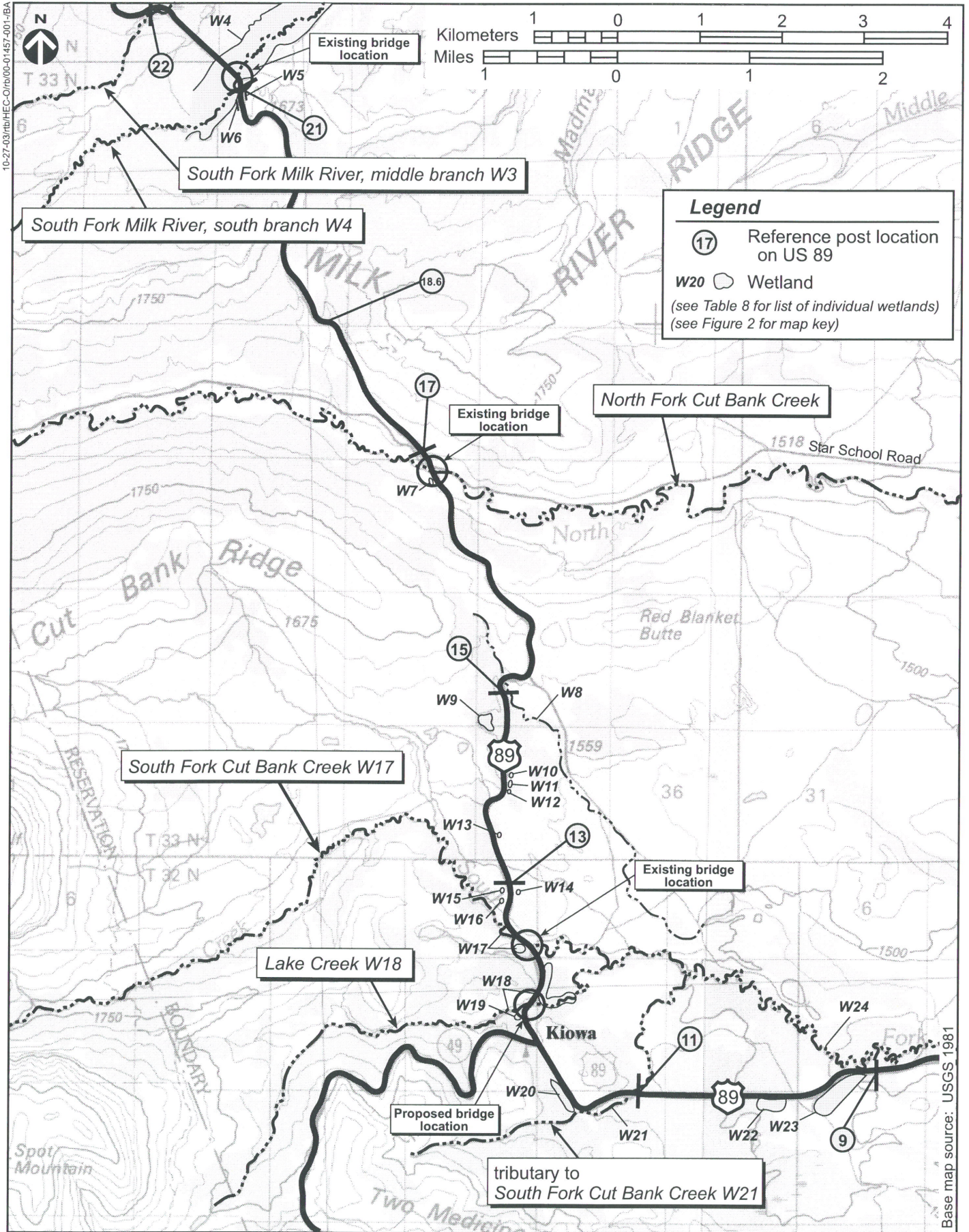


Figure 4. Reference posts 9 to 22 on US 89.

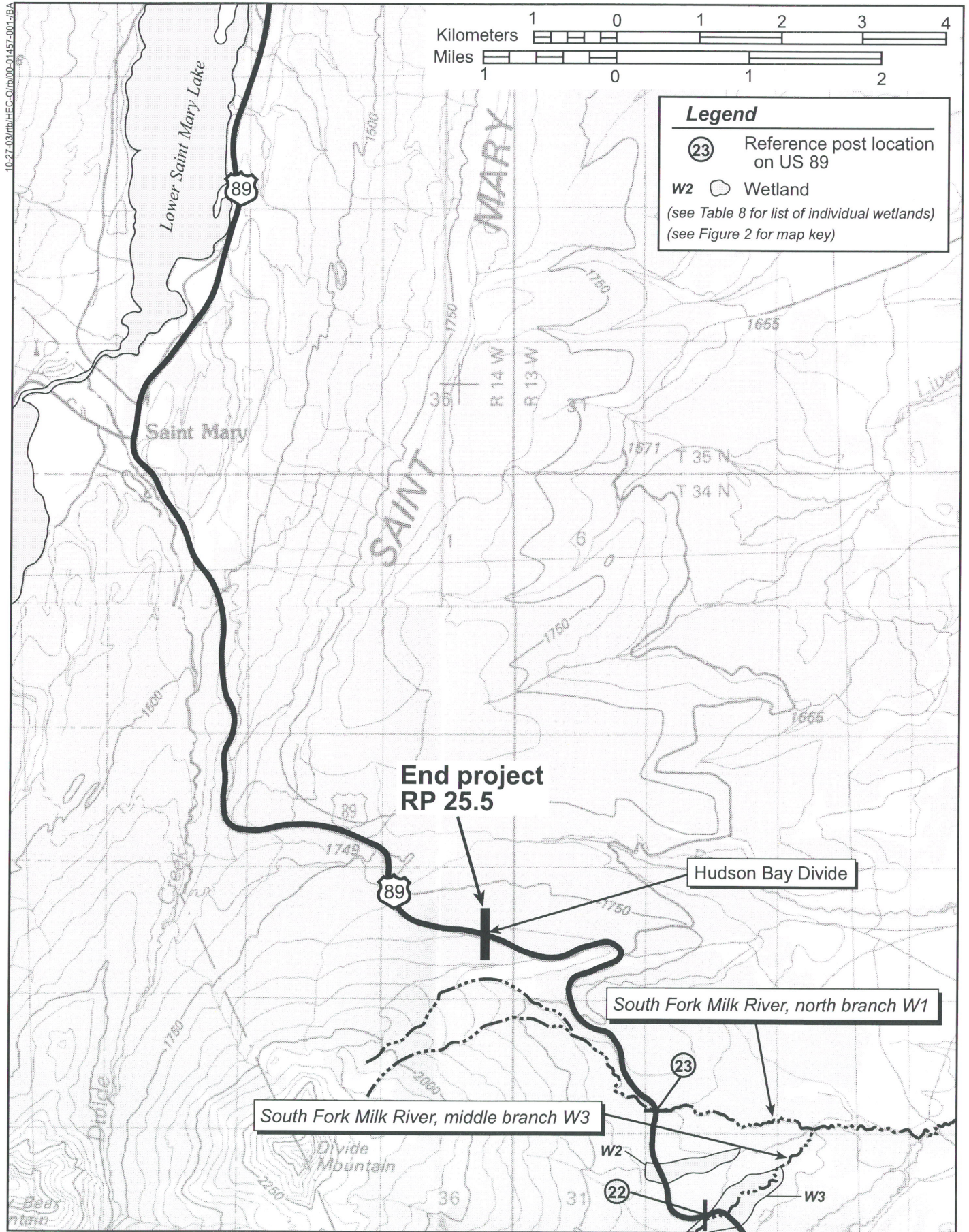


Figure 5. Reference posts 22 to 25.5 on US 89.

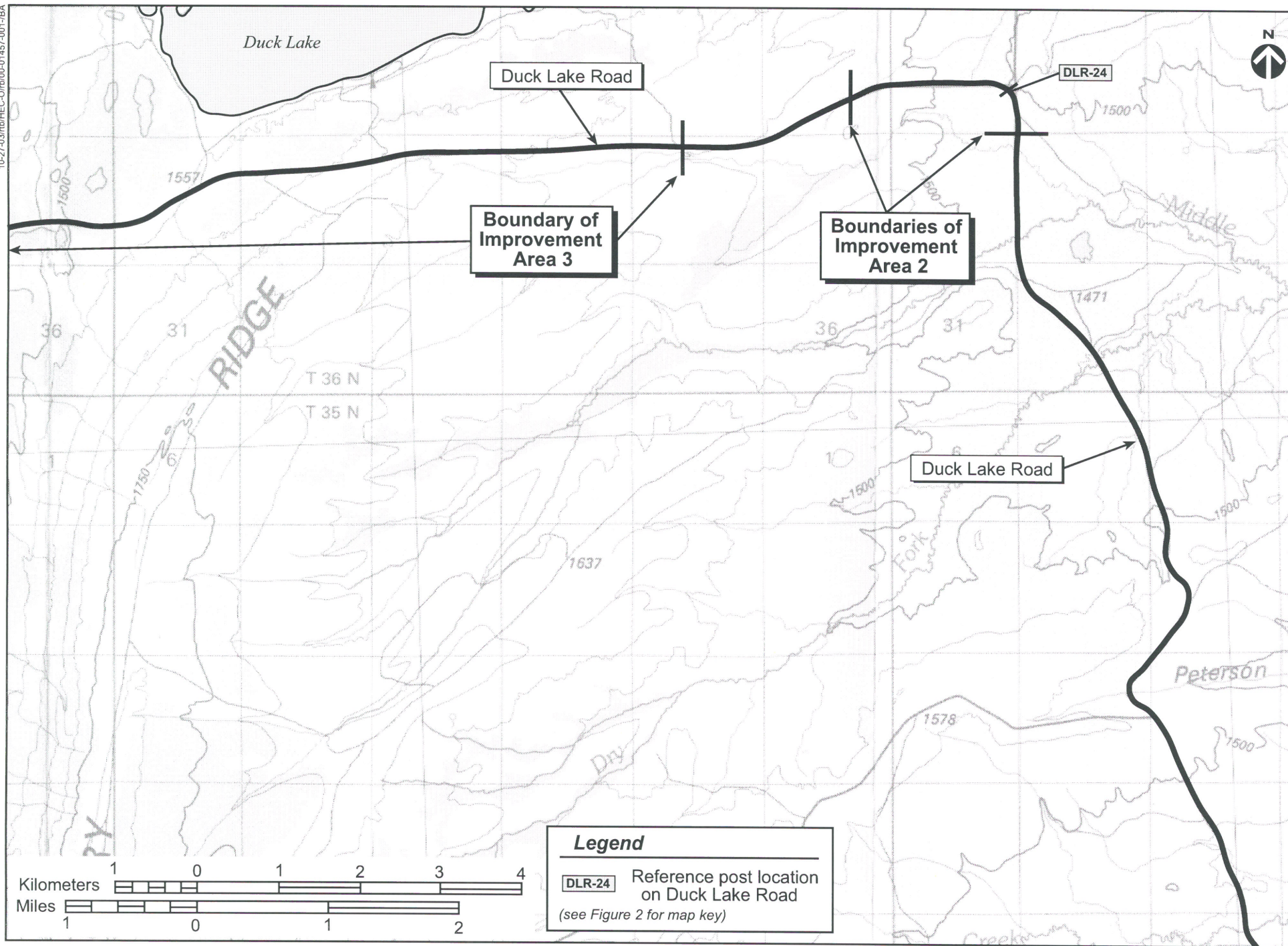


Figure 6. Improvement areas 2 and 3 on Duck Lake Road.

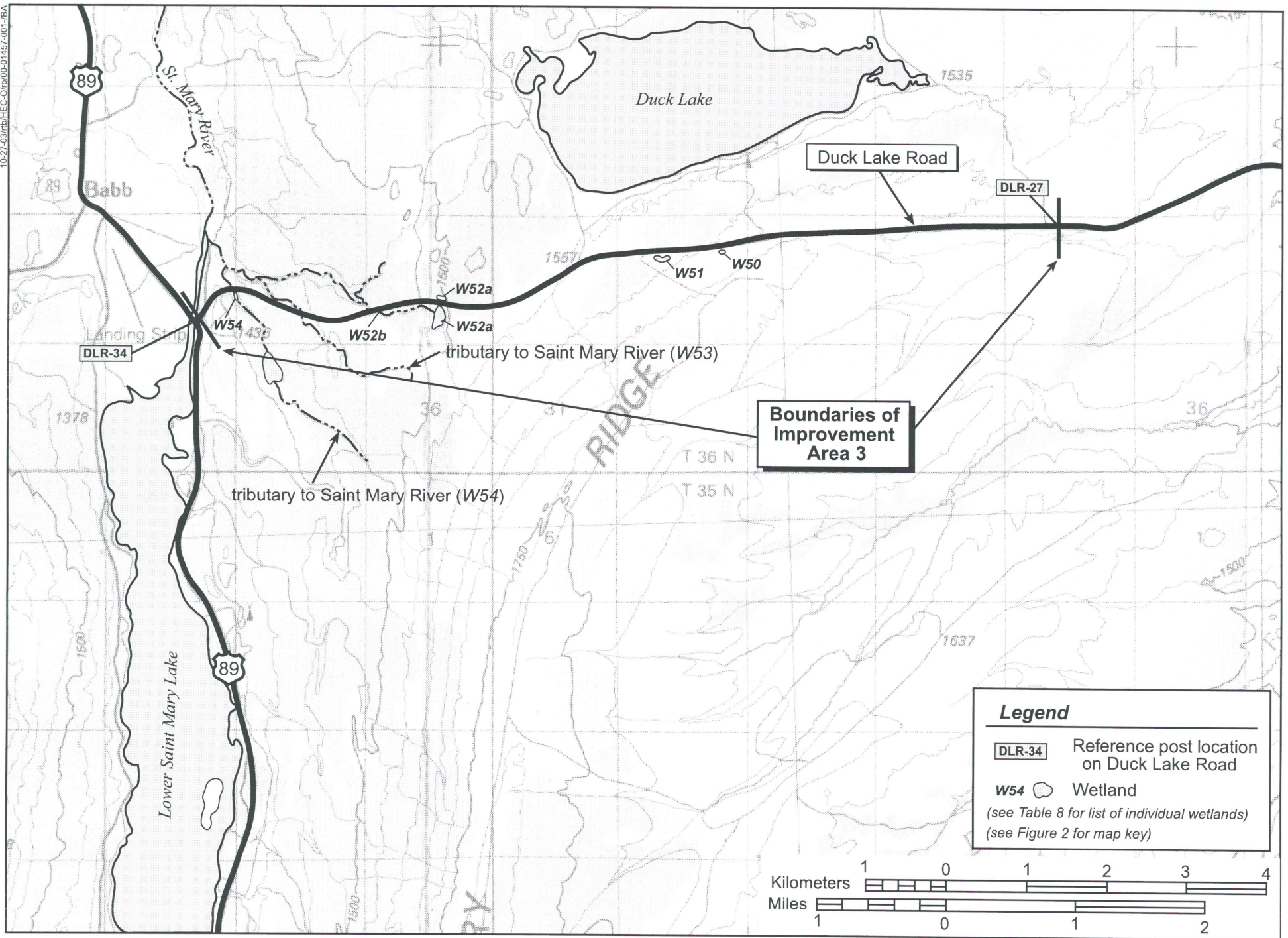


Figure 7. Improvement area 3 on Duck Lake Road.

The northern Great Plains are predominantly mixed-grass prairies (Hansen et al. 1995). Trees and shrubs occur where there is adequate moisture (Hansen et al. 1995). Open coniferous forests occur at higher elevations and northern aspects. Deciduous forests are restricted to floodplains and stream courses (Hansen et al. 1995). However, the western edge of the reservation is also the southernmost reach of the aspen groveland habitat type originating at the foot of the Canadian Rockies (Pfister et al. 1977).

In the northern Rocky Mountains, the Continental Divide is roughly the easternmost boundary of Pacific maritime weather influences. The adjoining continental weather often spills over the Great Plains bringing extremely cold weather in the winter (Hansen et al. 1995). The summers are usually warm and dry. The eastern front often experiences dramatic temperature fluctuations. The northern Rocky Mountains are 80 percent forested (Hansen et al. 1995). Forest habitats are highly variable and are influenced by elevation, aspect, and climatic conditions.

Grassland communities dominate the project area from the southeastern terminus of the US 89 project at Browning to approximately reference post 11 near Kiowa, and along the Duck Lake Road project corridor from Browning to Duck Lake (see Figures 3, 4, 6, and 7). Grassland communities consist of disturbed areas and grazed prairies. Few areas of native prairie remain. This area supports an extensive network of prairie potholes. These depressions capture precipitation, snowmelt, and ground water, creating seasonal wetlands used by numerous migratory birds and nesting waterfowl. Within the stream courses and river valleys, scrub-shrub communities and deciduous forests occupy the floodplains and associated wetlands.

Aspen grovelands dominate the transitional portion of the US 89 project corridor between reference posts 11 and 20, in conjunction with the increase in elevation, and occur in the vicinity of Duck Lake in the Duck Lake Road project corridor (see Figures 4 and 7). These grovelands are interspersed with grassland communities. The aspen grovelands are the southwestern extremity of the aspen groves originating at the foot of the Canadian Rockies in Alberta and extending east through Saskatchewan into southwestern Manitoba and adjacent Minnesota (Pfister et al. 1977). These forested patches provide increased habitat diversity and structure to the grassland community and support numerous wildlife, including threatened grizzly bears.

As the US 89 project corridor enters the northern Rocky Mountain physiographic region between reference posts 20 and 22, aspen grovelands become intermixed with conifer forests and eventually, conifer forests dominate (see Figures 4 and 5). Conifer forests occur in the Duck Lake Road project corridor near the intersection with US 89 and are typically associated with steep ravines (see Figure 7). The conifer forests are diverse and support a wide variety of species including Douglas-fir (*Pseudotsuga menziesii*), subalpine fir (*Abies lasiocarpa*), and spruce (*Picea* sp.).

Predominant land uses in the lower elevations of the project area are business and residential development, livestock grazing, and crop production. The transitional areas have some residences and businesses such as campgrounds and general stores, as well as livestock grazing. The densely forested portion of the project corridor is largely unpopulated. Along the Glacier

National Park boundary, tribal lands are managed for timber harvesting and wildlife. The reservation also has a few small oil and gas fields, and mineral exploration is ongoing.

Streams in the project area drain to two major drainage basin areas: the Saint Mary River or the Missouri River. The Hudson Bay Divide, near reference post 25 on the US 89 project corridor, is the geographical high point that separates drainage flowing north to Hudson Bay in the Arctic Ocean from drainage flowing south and east to the Missouri River and eventually to the Gulf of Mexico (see Figure 2). As a result, all of the streams crossed by US 89 drain to either the Milk River or Cut Bank Creek within the Missouri River drainage basin. Streams crossed by the north-south portion of Duck Lake Road (reference posts DLR-0 to DLR-24) also drain to either the Milk River or Cut Bank Creek within the Missouri River drainage basin. Streams on the east-west portion of Duck Lake Road (reference posts DLR-24 to DLR-34) drain to the Saint Mary River drainage and north to Hudson Bay.

Proposed Action: Improve US 89 from Browning to Hudson Bay Divide – Increase Road Width to 11 Meters (36 Feet) (Preferred Alternative)

The proposed action would improve US 89 from the intersection of US 2 and US 89 at Browning to the highest elevation of US 89 at the Hudson Bay Divide (Figure 2). The total length of the segment proposed for improvement is 41 kilometers (25.5 miles).

The preferred alternative for this project would retain the existing two-lane configuration of US 89, but the roadway would be widened to meet the Montana Department of Transportation minimum design standards for a rural minor arterial (Alternative C in Figure 8). The widened roadway cross-section would include two 3.6-meter (12-foot) travel lanes with a 1.8-meter (6-foot) shoulder on each side for an overall roadway width of 11 meters (36 feet). The shoulder would also include a 0.45-meter or 1.5-foot rumble strip. A uniform crown section would be established, along with superelevations at curves. From the edge of paving, a 6:1 slope would extend down and outward for a distance of 3.6 meters (12 feet). An additional clearing of 3 meters (10 feet) of vegetation would occur outside the catch points.

The preferred ditch design is a flat-bottomed ditch. The flat bottom would be 3 meters (10 feet) wide. The preferred ditch is designed to provide for snow storage, reduce snow drifting, improve safety by removing roadside obstacles, and be relatively easy to maintain.

In areas where there is a lack of right-of-way or there is a need to avoid sensitive areas or more extensive earthwork, design adjustments may include: low retaining walls, raising or lowering the roadway profile, slight alignment shifts, or alternate ditch designs.

The overall width of the roadway plus adjoining resloped ground would vary from a minimum of about 22 meters (72 feet) to a maximum of about 75 meters (about 250 feet) depending on the

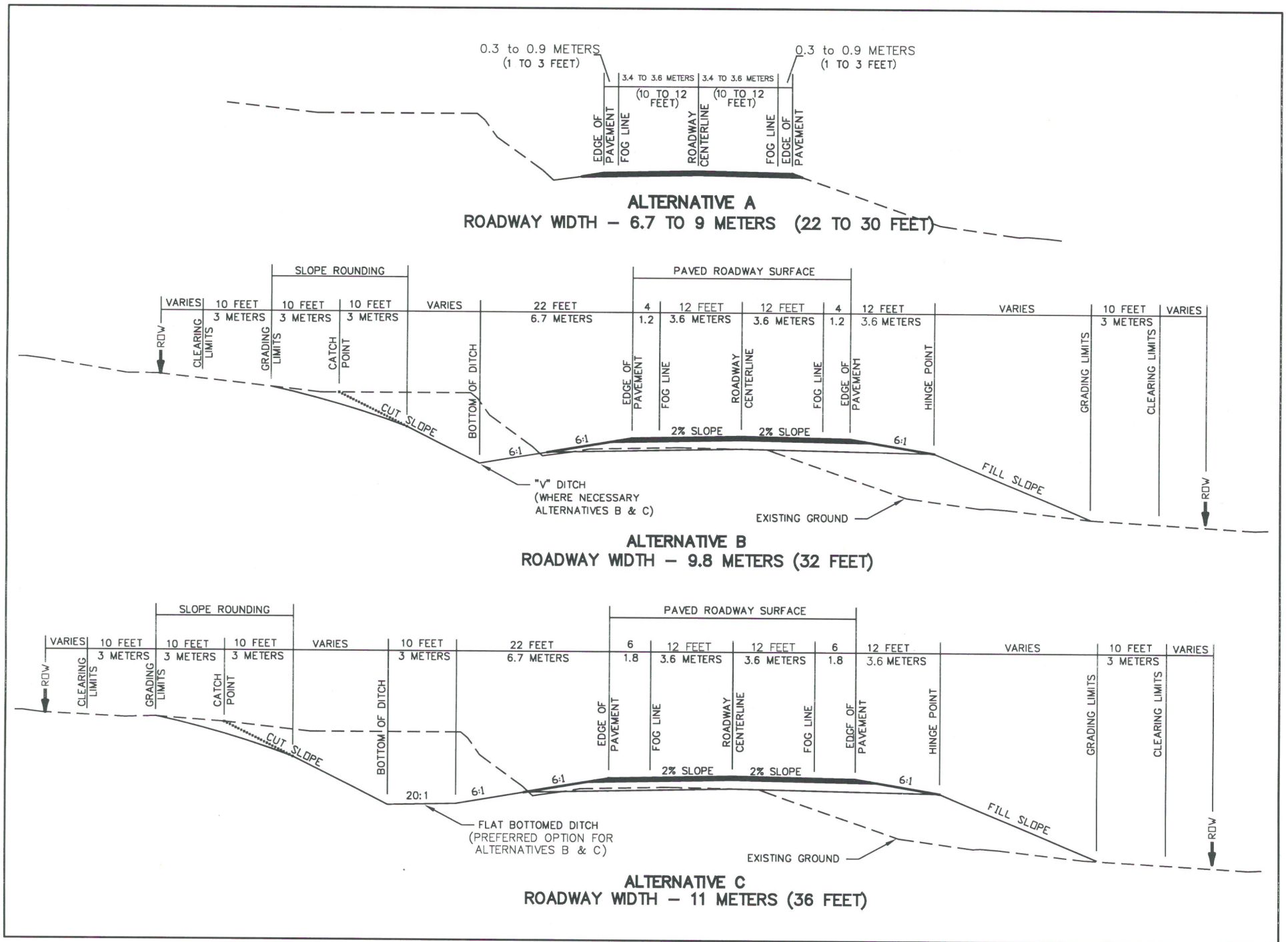


Figure 8. Typical cross-sections of the existing and proposed lane configurations for US 89.

topography adjacent to the roadway. Design exceptions may be sought based on adequate justification (such as the extent of effects on different categories of wetlands and issues associated with other environmental and cultural factors).

The footprint of the road would be as large as 208 hectares (514 acres). The amount of earthwork estimated under this alternative would be 1,300,000 cubic meters (1,700,000 cubic yards) of excavation and 1,100,000 cubic meters (1,439,000 cubic yards) of fill. An estimated 86 hectares (213 acres) of vegetation would be temporarily cleared for construction and an additional estimated 59 hectares (146 acres) of vegetation would be permanently lost due to the widened roadway.

In addition to being widened, the roadway would be realigned in several locations to eliminate or increase the radius of existing horizontal curves that are below standard. These locations are listed below.

- At approximately reference post 9.5, approximately 0.6 kilometers (0.4 miles) of the existing roadway would be shifted approximately 30 meters (100 feet) northward (Figure 4).
- At approximately reference post 11.5, the existing radius of the horizontal curve would be increased by shifting approximately 0.5 kilometers (0.3 miles) of the existing roadway up to approximately 65 meters (215 feet) northward (Figure 4).
- At approximately reference post 12 (this location is immediately north of the US 89/Looking Glass Hill Road junction at Kiowa), the existing curve would be replaced by a gentle curve by shifting approximately 0.6 kilometers (0.4 miles) of the existing roadway up to approximately 95 meters (310 feet) eastward (Figure 4).
- At approximately reference post 14, the radii of the existing double curve would be increased by shifting approximately 0.4 kilometers (0.25 miles) of the existing roadway up to about 50 meters (165 feet) mostly eastward (Figure 4).
- At approximately reference post 15 (this location is on the south slope of the Cut Bank–Red Blanket Butte Ridge), the existing double curve would be eliminated by shifting approximately 1.6 kilometers (1 mile) of the existing roadway up to about 175 meters (575 feet) mostly westward (Figure 4).
- At approximately reference post 18.6 (this location is on the south slope of the Milk River Ridge), the existing triple curve would be replaced by a broad double curve by shifting approximately 0.5 kilometers (0.3 miles) of the existing roadway up to about 30 meters (100 feet) eastward (Figure 4).

- At approximately reference post 20 (this location is on the north slope of the Milk River Ridge), the existing double curve would be eliminated by shifting approximately 2 kilometers (1.2 miles) of the existing roadway up to about 250 meters (820 feet) mostly westward (Figure 4).
- At approximately reference post 25, the existing triple curve would be replaced by a single curve by shifting approximately 0.7 kilometers (0.45 miles) of the existing roadway up to about 30 meters (98 feet) (Figure 5).
- At approximately reference post 25, the radius of the existing 180-degree hairpin curve just south of the crest of Hudson Bay Divide would be increased by shifting approximately 0.8 kilometers (0.5 miles) of the existing roadway up to about 75 meters (250 feet) mostly northward (Figure 5).

The horizontal alignment would be consistent with design speeds of 90 kilometers per hour (55 miles per hour) from Browning to Kiowa, and 70 kilometers per hour (45 miles per hour) from Kiowa to Hudson Bay Divide. The design speed is based on the functional classification of the road and on the terrain. The vertical alignment would be adjusted as necessary to accommodate the changes to the horizontal alignment. Exceedance of maximum allowable grades (the steepest road allowed by design guidelines) would be minimized (4 percent from Browning to Kiowa, 7 percent from Kiowa to Hudson Bay Divide). The road would be designed and constructed so it can be driven safely and comfortably at the design speed.

The road would be reconstructed with imported gravels and crushed rock and placed over the compacted native soils. Additional right-of-way would be required, and based upon current ownership, would be purchased or an easement obtained. The cost of construction of the preferred alternative, including the Duck Lake Road option, would be approximately \$62 million. Construction would likely occur in phases over a period of several years.

The Preferred Alternative includes the following additional features:

- Pullouts and informational kiosks would be constructed at scenic areas or areas of cultural significance, with locations to be determined based on stakeholder input. At least five pullouts are anticipated. Potential informational sites include crossings of the Old North Trail and Hudson Bay Divide. Potential vista sites include views of the north and south forks of Cut Bank Creek valley, the South Fork Milk River valley, and the Rocky Mountains.
- Existing bridges would be replaced or widened with the exception of the bridge over North Fork Cut Bank Creek (immediately south of the US 89/Starr School Road intersection just south of reference post 17), which already meets Montana Department of Transportation standards.

- The right-of-way would be fenced. The intent of fencing would be to reduce vehicle-livestock collisions.
- The new structure at Lake Creek, reference post 12, will be constructed to incorporate wildlife crossing features. The new bridge at South Fork Cut Bank Creek, reference post 13, will be enlarged from a 9-meter (30-foot) opening to a wider opening, to provide a narrow area of dry land underneath the bridge during most months of the year for wildlife passage.
- During the final design stage, culverts would be sized to accommodate natural streamflow fluctuations and enhance fish passage. Culverts immediately north of Kiowa on Lake Creek (reference post 12) would be replaced with a bridge (Figure 4).
- Where cultural or habitat concerns are not a constraint, cut-and-fill slopes would be moderated to blend with the natural terrain.
- Disturbed areas beyond the clear zone would be replanted with vegetation to reduce the width of visible disturbance and to provide cover for wildlife.
- Outside the new roadway corridor, the existing roadway would be removed and the area restored.

Option: Improvements to Duck Lake Road Alternate Route

The preferred alternative would also implement the Duck Lake Road option, which consists of designating Duck Lake Road, from Browning to US 89 (near Babb), as an alternate truck route to US 89. Under this option, Duck Lake Road would be signed as an alternative truck route, although trucks would not be restricted from using US 89 and improvements would be made to ensure that Duck Lake Road would perform as a truck route.

The segment of Duck Lake Road between its intersection with US 2 in Browning and its intersection with Starr School Road, 2.4 kilometers (1.5 miles) north, has a different character and function than the remaining 50.7 kilometers (31.5 miles) to US 89 near Babb. This southernmost 2.4-kilometer (1.5-mile) section is an urban four-lane facility with an intermediate design speed. Under this option, no improvements are proposed for this section of roadway. The following description of existing and proposed conditions applies only to the 50.7-kilometer (31.5-mile) segment north of the Starr School Road intersection.

Duck Lake Road, as it exists today, is a two-lane secondary road. The proposed improvements would take place in three separate locations (Figures 3, 6, and 7). The first area of improvement would be in the vicinity of the bridge over Cut Bank Creek, approximately 7.7 kilometers (4.5 miles) north of Browning. People accessing the stream for recreational purposes (fishing, swimming, etc.) currently park their vehicles along the roadway. Under this option, an access

road would be constructed along the east side of the Duck Lake Road embankment 30 meters (100 feet) south of the bridge, and up to five off-road parking spaces would be provided. The footprint of the proposed improvements would be less than 5,000 square meters (53,820 square feet). The work would require approximately 600 cubic meters (790 cubic yards) of excavation and 500 cubic meters (650 cubic yards) of fill. This improvement would require additional right-of-way. Because this facility would not be a typical roadway feature, it is likely that the Montana Department of Transportation would seek to turn over operation and maintenance responsibilities to the Blackfeet Nation, the Bureau of Indian Affairs, or to Glacier County.

The second area of improvement would be the substandard 90-degree curve at reference post DLR-24. The radius of the existing curve is approximately 250 meters (820 feet). Improvements would include realignment along a curve with a 400-meter (1,312-foot) radius. The total realignment would be approximately 900 meters (2,953 feet) in length. The new section of roadway would conform to the current design standards for a rural minor arterial and include the same cross-sectional elements as described for Alternative B (two 3.6-meter (12-foot) lanes, two 1.2-meter (4-foot) shoulders, 6:1 safety slopes, 3-meter (10-foot) flat-bottomed ditches, variable cut-and-fill slopes, and slope rounding) (Figure 9). Total excavation required for the realignment would be 64,100 cubic meters (83,800 cubic yards), total fill would be 4,600 cubic meters (6,000 cubic yards), and the footprint, or newly disturbed area, would be 6 hectares (14.8 acres).

The third and largest area of improvement is from approximately reference post DLR-27 to the end of the road at its intersection with US 89. Throughout this length the roadway is subject to frost heaves. These heaves, in conjunction with the relatively steep grades (4 percent to 6.3 percent) produce a very hazardous condition in the winter and early spring. To alleviate this condition, the roadbed would be reconstructed, generally along its existing alignment, but using a much thicker structural section. Cross-sectional elements would be the same as those described for Alternative B, but the structural section would be approximately 1 meter (3.3 feet) thick (Figure 9). Most of this thickness would be made up of imported, free-draining gravels that are resistant to frost heaves. The profile grade of the roadway would be adjusted to minimize changes in grade and to eliminate grades of more than 5 percent. The addition of climbing lanes was considered but rejected as not warranted because of low traffic volumes.

Included in this segment would be two additional changes. The intersection with US 89 would be realigned to allow trucks to make the turn from southbound US 89 onto Duck Lake Road. Currently the intersection is almost 45 degrees from perpendicular. Under this option, the intersection would move approximately 25 meters (82 feet) south and become perpendicular. This would require the addition of a horizontal curve near the intersection with a radius of 100 meters (328 feet).

In addition, a chain-up area for trucks would be added. The elevation at the intersection of Duck Lake Road with US 89 is 1,374 meters (4,508 feet), while 0.7 kilometers (0.5 miles) to the east the elevation is 1,654 (5,427) meters. This is a significant climb, even with the steepest grades removed, and vehicles need a safe place to attach tire chains. The design for the proposed

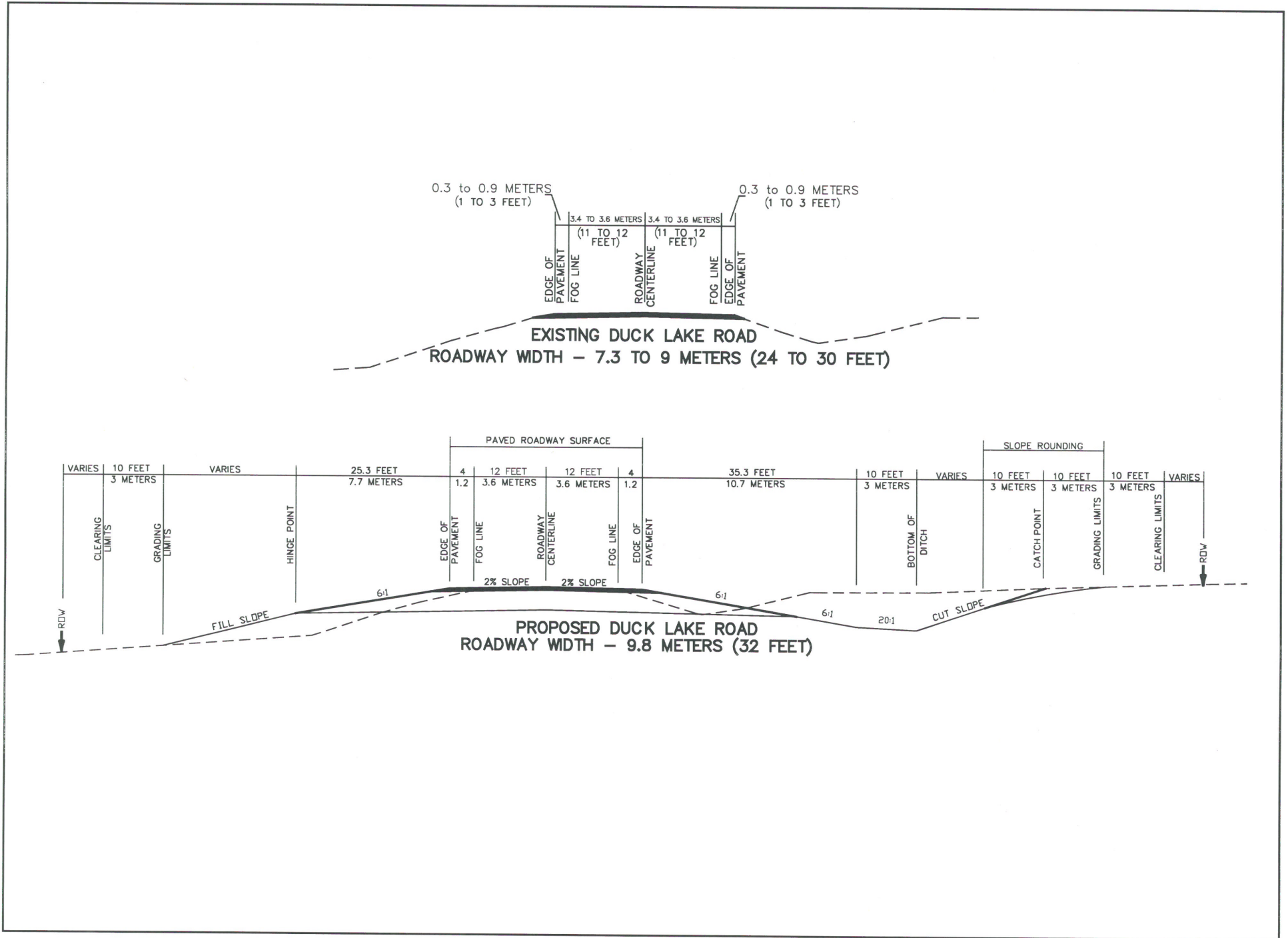


Figure 9. Typical cross-sections of the existing and proposed lane configurations for Duck Lake Road.

chain-up area would follow the requirements of the version of the *Montana Department of Transportation Design Manual* in place at the time final designs are completed. Reconstruction of improvement area 3 is expected to require an estimated 435,300 cubic meters (569,400 cubic yards) of excavation and 384,900 cubic meters (503,300 cubic yards) of fill.

The total amount of earthwork estimated under this option for all three improvement areas would be 500,000 cubic meters (654,000 cubic yards) of excavation and 390,000 cubic meters (510,000 cubic yards) of fill. An estimated 16 hectares (39 acres) of vegetation would be temporarily cleared for construction and an additional estimated 18 hectares (45 acres) of vegetation would be permanently lost due to the widened roadway.

Threatened and Endangered Species Analysis

The purpose of this assessment is to determine whether listed, proposed, and candidate species occur in the project area and whether they would be affected either by proposed construction activities or by long-term operation of the roadway.

According to the U.S. Fish and Wildlife Service (letter reference number – M.17 FHWA Hwy.89 Corridor [Blackfeet Res.]), one candidate species, and five listed animal species may occur in the US 89 project vicinity (see Appendix A). These species are identified in Table 1. On September 9, 2003, the USFWS determined that listing of the mountain plover as a threatened species was unwarranted and withdrew its proposed rule (FR 2003a). Therefore, this species is not addressed in this biological assessment.

Table 1. Threatened and endangered species expected to occur in the US 89 improvement project vicinity.

Species Name	Scientific Name	Status
Slender moonwort	<i>Botrychium lineare</i>	Candidate
Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened
Grizzly bear	<i>Ursus arctos horribilis</i>	Threatened
Gray wolf	<i>Canis lupus</i>	Threatened
Canada lynx	<i>Lynx Canadensis</i>	Threatened
Bull trout	<i>Salvelinus confluentus</i>	Threatened

Action Area

The *action area* represents the area that may receive any direct or indirect effects from the proposed action and other interdependent or interrelated actions, after best management practices are implemented. *Indirect effects* are those effects that are reasonably certain to occur but are caused by the proposed action later (after construction). Indirect effects may result from operation of the project or future activities related to the project, such as induced land use changes, population growth, or increased traffic. This project is not expected to induce growth, because the existing highway in its current configuration is not a limitation to growth.

The action area for the proposed action includes the area of proposed construction, mainly the proposed right-of-way for the project and the adjacent area extending approximately 0.8 kilometer (0.5 miles) from the right-of-way, which would be subject to disturbance from noise and human activity. With implementation of conservation measures and best management practices, the area of aquatic impacts associated with activities along US 89, is expected to be limited to the area 60 meters (200 feet) upstream of the existing road crossings to a point approximately 1.6 kilometers (1 mile) downstream of the crossings.

In addition to the roadway widening and improvement activities described in detail above for US 89 and the Duck Lake Road truck bypass option, the proposed action also includes the construction of pullouts and informational kiosks at scenic areas or areas of cultural significance, with locations to be determined based on stakeholder input. Several pullouts are anticipated. Potential informational sites include crossings of the Old North Trail and Hudson Bay Divide. Potential vista sites include views of the north and south forks of Cut Bank Creek valley, the South Fork Milk River valley, and the Rocky Mountains. As a result of noise-related impacts, the area of impacts associated with these sites, which are included within the action area defined for the proposed project as a whole, extends an additional 0.8 kilometers (0.5 miles) from their limits of construction.

The action area would also include the geographic extent of impacts to water resources in the Duck Lake Road project corridor. With the implementation of the conservation measures and best management practices described in this report, the area of aquatic impacts is expected to be limited to the area 60 meters (200 feet) upstream of the existing road crossings to a point approximately 1.6 kilometers (1 mile) downstream of the crossings.

While detours may be required at proposed bridge crossings, these would occur within the limits of construction. Construction of detour routes for roadway traffic is not expected to be required for this project as several alternative routes are available.

Interdependent activities for this project include the development or operation of material source sites. While the locations of material source sites for this project have not yet been identified, the potential impacts within the action area for those sites have been identified and appropriate conservation measures have been applied. Therefore, the action area analyzed for this project addresses interdependent activities associated with the material source sites.

Traffic Analysis

A summary of current and projected future traffic levels in the project corridor is presented below. This information is used to support the analysis of effects on threatened and endangered species that is included later in this report.

Existing Traffic Levels

Data presented in this section are based on traffic counts made by Skillings–Connolly between August 7 and August 10, 2000. Current traffic levels for three locations in the US 89 project corridor are presented in Table 2. Table 3 presents current and future average daily traffic by month in the US 89 project corridor.

There are no definitive data on the effects of various levels of traffic on wildlife movements across roadways. Research has shown that at traffic volumes below 2,000 vehicles per day, there are fewer wildlife/vehicle collisions because there are sufficient pauses in the traffic flow to allow wildlife to cross the roadway (Ruediger 2002 personal communication). Therefore,

Ruediger et al. (1999) concluded that as traffic volumes reach more than 2,000 vehicles per day, the roadway can have adverse impacts on wildlife due to habitat fragmentation and mortality. Wildlife willingness to cross roads can be influenced by a variety of factors including the individual animal’s own experiences and ability to cross roads, the type and amount of habitat and cover, and the time period that wildlife are active relative to peaks in traffic volumes.

Table 2. Average daily traffic and annual average daily traffic based on August 2000 counts in the US 89 and Duck Lake Road project corridors.

	Location in the Project Corridor			
	US 89 RP 11.5 0.6 km (0.4 mi) south of Kiowa ^c	US 89 RP 12 0.8 km (0.5 mi) north of Kiowa ^c	US 89 RP 17.5 0.32 km (0.2 mi) north of Starr School Road ^d	Duck Lake Road RP 32.5 1.45 km (0.9 mi) west of US 89 ^e
ADT ^a August 2000	1,217	2,042	1,609	771
AADT 2000 ^b	718	1205	949	594

RP = reference post

km = kilometers

mi = miles

^a ADT = average daily traffic.

^b AADT = annual average daily traffic, which is the expected number of cars on the roadway on a given day in a given month of the year. AADT = 0.59 ADT, where 0.59 is the adjustment factor applied to counts measured in August 2000 for roadways designated as recreational. Adjustment factors are recalculated each year.

^c Traffic counts at this location were measured on August 8, 2000 over a 24-hour period.

^d Traffic counts at this location were measured on August 9, 2000 over a 24-hour period.

^e Traffic counts at this location were measured on August 8, 2000 over a 24-hour period.

In its current condition, US 89 does not appear to be a substantial barrier to wildlife movement. This conclusion is based on low wildlife/vehicle collision rates, data from radio-collared bears, and the current configuration of the roadway. Current levels of wildlife mortality within the US 89 project corridor are reportedly low. There are no reports of grizzly bear, wolf, or lynx mortality on US 89 or Duck Lake Road. For the period from 1994 to 1999, 26 collisions with animals were reported along US 89 (Skillings–Connolly 2000b). Of the 26 reported accidents, 20 of the collisions were with domestic animals. It is likely that some collisions with wildlife are unreported. Recent changes in wildlife management on the Blackfoot Indian Reservation have resulted in increasing numbers of ungulates in the project corridor, and several ungulate trails were observed during field observations. It is presumed that ungulate/vehicle collision rates may increase as populations return to habitats on the reservation; however, these accidents may still be unreported and substantial increases in reported accidents are not expected.

It is presumed that most ungulate and carnivorous wildlife populations readily cross the existing US 89 roadway at various locations. Radio-collared grizzly bears, studied by the Blackfoot Nation from 1987 to the late 1990s, were located on numerous occasions on the east side of the road corridor in the riparian areas associated with the South Fork Cut Bank Creek drainages, including Lake Creek, and the South Fork Milk River drainages, particularly in the vicinity of reference posts 11, 12.5, 21, and 21.7 (see Figures 3 through 5). Bears have also been observed crossing the road at these locations (Carney 2002 personal communication). Wolf sightings were reported from the east side of US 89 in the South Fork Milk River drainage in spring 2002 and lynx tracks have been observed in this location as well (Carney 2002 personal communication).

Table 3. Estimated average daily traffic in the US 89 project corridor for years 2000 and 2025.

	Location in the Project Corridor							
	US 89 RP 11.5 0.6 km (0.4 mi) south of Kiowa		US 89 RP 12.5 0.8 km (0.5 mi) north of Kiowa		US 89 RP 17.5 0.32 km (0.2 mi) north of Starr School Road		Duck Lake Road RP 38 1.45 km (0.9 mi) west of US 89	
Time of Year	2000	2025 ^a	2000	2025 ^a	2000	2025 ^a	2000	2025 ^a
March								
Weekday	443	926	742	1,551	586	1,224	366	765
Sunday	485	1,013	814	1,701	641	1,340	401	838
April								
Weekday	479	1,000	803	1,678	633	1,322	396	828
Sunday	509	1,064	854	1,785	673	1,407	421	880
May								
Weekday	690	1,442	1,158	2,420	913	1,907	571	1,193
Sunday	755	1,580	1,268	2,650	999	2,088	625	1,306
June								
Weekday	945	1,975	1,585	3,313	1,249	2,609	782	1,634
Sunday	1,105	2,308	1,853	3,873	1,460	3,051	914	1,910
July								
Weekday	1,305	2,728	2,190	4,577	1,725	3,606	1,080	2,257
Sunday	1,465	3,062	2,459	5,139	1,937	4,048	1,212	2,533
August								
Weekday	1,217	2,543	2,042	4,267	1,608	3,362	1,007	2,104
Sunday	1,355	2,831	2,273	4,751	1,790	3,742	1,120	2,341
September								
Weekday	886	1,852	1,487	3,108	1,172	2,449	733	1,532
Sunday	984	2,056	1,650	3,449	1,300	2,717	814	1,701
October								
Weekday	619	1,294	1,038	2,169	818	1,710	512	1,070
Sunday	630	1,317	1,137	2,376	832	1,740	521	1,089
November								
Weekday	448	938	753	1,574	593	1,239	373	780
Sunday	452	944	757	1,582	597	1,247	371	775

RP = reference post

km = kilometers

mi = miles

Shaded cells indicate traffic levels above 2,000 vehicles per day, the level at which roadways may become barriers to wildlife movement.

^a Traffic levels for year 2025 are based on the following formula:

$$ADT_{2025} = ADT_{2000} * (1 + \text{future growth rate})^{2025-2000} \text{ or } ADT_{2025} = ADT_{2000} * (1.03)^{25}$$

Willingness to cross the US 89 project corridor is attributed to several factors, including low traffic levels; dense vegetation near the road, which provides secure cover; the low posted speed limit (70 kilometers/45 miles per hour) and road sinuosity north of reference post 13, which facilitates slower travel speeds; and the nature of roadway use as a scenic and wildlife viewing route for tourists traveling to Glacier National Park.

There is no data on wildlife crossing locations on Duck Lake Road, but similar to US 89, animals are presumed to readily cross Duck Lake Road at a variety of locations, largely due to low traffic volumes on this roadway. This condition is not expected to change when Duck Lake Route is designated as an alternative truck route because truck traffic is only projected to increase 1.3 percent as a result of the designation.

Four locations in the US 89 corridor have been identified as important crossing areas for bears, ungulates, and other wildlife (Carney 2000c personal communication). Locations and expected use at important movement corridors are summarized in Table 4. An additional crossing was identified in the Duck Lake Road corridor where a deep ravine funnels wildlife toward Saint Mary River.

Table 4. Wildlife movement areas on US 89 and Duck Lake Road.

	Associated Natural Feature	Expected Use
US 89		
Reference post 10 to 11	Dense aspen groveland and scrub-shrub wetland habitat area east of Kiowa	Bears, ungulates, small- to medium-sized mammals
Reference post 12	Lake Creek, near Kiowa	Bears, ungulates, wolves, small- to medium-sized mammals, amphibians
Reference post 17	North Fork Cut Bank Creek	Bears, ungulates, wolves, small- to medium-sized mammals
Reference post 22	South Fork Milk River, middle branch	Bears, ungulates, small- to medium-sized mammals, amphibians
Duck Lake Road		
Reference post DLR-33.5	Deep ravine funnels wildlife to Saint Mary River	Ungulates, small- to medium-sized mammals, amphibians

In addition, based on the 2000 traffic counts, traffic levels in the project corridor are well below 2,000 vehicles per day, with the exception of the portion of the US 89 project corridor between reference posts 12 and 17.5, which reaches up to 2,500 vehicles per day during July and August. (These data are based solely on one day of traffic counts; traffic counts in 2000 may have been affected by wildfires that reportedly reduced tourist visits to national parks.)

The portion of the US 89 project corridor between reference posts 12 and 17.5 includes crossing areas associated with Lake Creek and the main stem of South Fork Cut Bank Creek. Traffic levels are elevated in this portion of the corridor during July and August because tourists are traveling through the US 89 project corridor to Glacier National Park and recreational areas in Canada. Most tourist traffic occurs in the portion of the project corridor between reference posts

12 and 25.5, because most tourists reach US 89 via Looking Glass Hill Road, which intersects the US 89 project corridor at Kiowa (reference post 12). In general, traffic levels in the US 89 project corridor appear to be highest between reference posts 12 and 17.5 (Tables 2 and 3), likely because both local residents and tourists are traveling this route. Traffic levels drop beyond reference post 17.5 because local traffic exits at Starr School Road to reach residences and community facilities. Traffic counts at reference posts 12 and 17.5 were measured on different days in August 2000, which may account for some of the difference in traffic volumes between the two locations.

Elevated traffic levels in July and August, between reference posts 12 and 17.5, may increase the barrier effect of the road during these months in this portion of the US 89 project corridor. However, it is likely this condition does not have a significant effect on listed species movements, because human activity also increases in this portion of the project corridor at this time, thereby deterring wildlife from the area. The main stem of South Fork Cut Bank Creek (reference post 13) is a popular fishing stream; fire rings and litter observed near the roadway indicate that this area is used as a gathering place during the summer months. Tourists entering or exiting the US 89 project corridor at Looking Glass Hill Road often stop at the Kiowa store, adjacent to Lake Creek. This human disturbance likely discourages grizzly bear movement and foraging activities in this area.

Grizzly bear movements peak from April through June, prior to the highest traffic months, and taper off from July through November. Wolves are most commonly observed during lower traffic volume months in the spring and fall, and this portion of the project area does not provide suitable lynx habitat.

In conclusion, the existing US 89 and Duck Lake Road project corridors do not appear to pose substantial barriers to wildlife movement due to low overall traffic levels and abundant cover close to the road for wildlife moving between habitats.

Future Traffic Levels

The proposed roadway improvements would be designed to meet projected traffic levels for the year 2025. Aside from maintenance and repaving work, the completed roadway is expected to last through 2025 and would likely last longer if properly maintained. The bridges in the project corridor would be structurally sound for at least 50 years from the time of completion. After 2025, the roadway may be reevaluated to determine if additional improvements are warranted. Minor changes could be implemented at that time without replacing major bridge structures or culverts.

Based on the estimates presented in Table 3, traffic levels for the portion of the US 89 project corridor north of Kiowa (reference post 12) will exceed 2,600 vehicles per day for months May through September by year 2025. South of Kiowa, traffic levels will exceed 2,300 vehicles per day for months June through August by 2025. On the Duck Lake Road project corridor, traffic levels will exceed 2,000 vehicles per day for months July and August by 2025.

According to Ruediger et al. (1999), when traffic levels reach 2,000 to 4,000 vehicles per day, the roadway becomes an impediment to wildlife movement. This is attributed to the continuous bunching of cars, which results in an insufficient number of breaks in traffic flow to provide opportunities for wildlife to cross, and the resulting increases in road kill (Reudiger 2002 personal communication). Therefore, while the US 89 project corridor is not currently an impediment to most wildlife movement, it is expected that during the life of the improved roadway, increases in traffic levels will make this roadway increasingly difficult for wildlife to cross.

The proposed action includes measures to facilitate wildlife movement in the project corridor at current traffic levels and for most months in the design year 2025. However, it is likely that as traffic levels increase, particularly for June, July, and August, the US 89 project corridor would increasingly become a barrier to wildlife movement despite the proposed design features. This impact would primarily affect grizzly bears and ungulates, which use habitats on both sides of US 89. The degree to which bears would be affected is difficult to predict. Gibeau et al. (2001) recorded regular grizzly bear crossings on highways in Canada where traffic volumes exceeded 3,000 vehicles per day. Bears in the US 89 project corridor would likely adjust their crossing habits in response to changes in traffic patterns (Brandenburg 1996). However, increased traffic volumes may deter some bears from habitats on the east side of the corridor.

Traffic levels on the Duck Lake Road project corridor are not currently a barrier to most wildlife movement and it is expected that during the life of the improved roadway, increases in traffic levels will not result in a substantial increase in difficulty for wildlife to cross, because traffic levels would not exceed 2,000 until close to 2025.

Species Descriptions

Slender Moonwort

Slender moonwort is a small perennial fern with a pale green leaf (trophophore) from 6 to 18 centimeters (2 to 7 inches) long. The leaf segments are linear and divided or forked at the ends. The spore-bearing structure (sporophore) is one to two times the length of the leaf with a single central axis. Both the trophophore and the sporophore are attached to an erect underground stem. Spores mature in late June and July and can be transported great distances via wind, water, or animals (Zika et al. 1995). An individual fern can remain dormant for one or more years, and cannot be identified with certainty in immature stages. Leaves may or may not appear above ground, or may not appear at all during unfavorable growing seasons (Vanderhorst 1997).

Status

In June 2001, listing as threatened under the Endangered Species Act was determined warranted for this species, but the listing was precluded by other high priority actions. As a result, slender moonwort is considered a candidate species. In the United States, there are currently nine known populations of slender moonwort: three in Colorado (El Paso and Lake counties), two in Oregon (Wallowa County), three in Montana (Glacier County), and one in Washington (Ferry County in

Colville National Forest). Population sites are threatened by a number of factors including: recreational activities (i.e. trampling by hikers or campsites), livestock trampling, logging, erosion, exotic weeds, development, and roadside maintenance activities (Federal Register [FR] June 6, 2001).

Life History and Characteristics

Slender moonwort occurs in a wide range of habitats ranging in elevation from sea level to nearly 3,000 meters (9,840 feet). This species may occur in grass and forb-dominated meadows, open forb-dominated habitats in coniferous montane forests, limestone shelves on cliffs, as well as open habitats dominated by grasses and forbs along roadsides. This species also tends to occur in naturally disturbed areas (e.g., landslides, fires, etc.), although in areas where fires have sustained high ground temperatures, this species may not persist (FR 2001).

This species is believed to be dependent on mycorrhizal fungi (i.e., there is a symbiotic relationship or association of a fungus with the roots of this vascular plant). This fungal associate is present within the plant at all life stages, but there is very little information regarding the specificity or habitat requirements of these mycorrhizal fungi (Vanderhorst 1997).

Species Occurrence in the Project Area

Slender moonwort is extremely rare in Montana, with only three known occurrences. All three sites are in Glacier County, outside the US 89 project area. The population closest to the project area occurs in the vicinity of US 89 in Saint Mary; this site is on a wooded slope at an elevation of 1,402 meters (4,600 feet). This site is beyond the US 89 project corridor.

Bald Eagle

The bald eagle is a large predatory bird averaging 76 to 109 centimeters (30 to 43 inches) in length, with a distinct white head and tail, a dark brown body, and yellow bill, feet, and eyes. In flight, these birds hold their wings flat and flap infrequently (Fisher 1997).

Status

The bald eagle is currently listed as a threatened species under the Endangered Species Act. However, recovery of this species continues to progress at an impressive rate. In July 1999, USFWS proposed to remove the bald eagle from the list of endangered and threatened wildlife because it believes the available data indicate that this species has recovered. The official delisting has not yet occurred (FR 1999).

Life History and Characteristics

Egg-laying by breeding eagles may occur as early as February in Montana but typically begins in mid-April, with eggs hatching from mid-March through mid-May (MBEWG 1994). Nest sites in Montana are most often found around the edge of lakes or reservoirs larger than 32.4 hectares (80 acres) or along forested corridors of large rivers. Nest trees are typically large in diameter,

and are located in the tallest stand of trees covering more than 1.2 hectares (3 acres) (MBEWG 1994). The nests are usually as close to convenient foraging sites as possible, as long as human activity is minimal. Bald eagle wintering activities typically occur between October 31 and March 31. Wintering habitat for bald eagles in Montana includes unfrozen portions of lakes and rivers, although they also forage for carrion, game birds, and lagomorphs in upland areas (MBEWG 1994).

Species Occurrence in the Project Area

The Montana Natural Heritage Program identified one bald eagle nest site at Two Medicine Lake approximately 5 kilometers (3 miles) south of the US 89 project corridor. This nest is located within the boundary of Glacier National Park. No additional nests are known or suspected within several miles of any of the proposed project alternatives (Carney 2000b personal communication; Gnaidek 2000 personal communication).

Limited wintering habitat is available for bald eagles within the project area, with the exception of the South Fork Cut Bank Creek crossings at US 89 and the Cut Bank Creek crossing at Duck Lake Road, which are free-flowing all winter and contain suitable perch trees for foraging eagles. Eagles forage at the outlet of Saint Mary Lake, several kilometers north of the project corridor, which remains ice-free; however, no high-use areas are known in the project area (Gnaidek 2000 personal communication).

Bald eagles migrate north through the project area in the spring, likely foraging on ground squirrels along the way (Gnaidek 2000 personal communication).

Grizzly Bear

Grizzly bears are distinguished from black bears by their large, curved claws, humped back, and concave face (USFWS 1993a). In the lower 48 states, grizzly bears may weigh up to 408 kilograms (900 pounds), although typical males average 181 to 272 kilograms (400 to 600 pounds), and females average 113 to 159 (250 to 350 pounds). Their average height is 1.1 to 1.4 meters (3.5 to 4.5 feet) at the hump when they are on all fours, and up to 2.4 meters (8 feet) on their hind legs (USFWS 1993a). Grizzlies range in color from light brown to nearly black.

Status

The grizzly bear was listed as a threatened species under the Endangered Species Act on July 28, 1975. The primary challenges to grizzly bear recovery are conserving remaining available habitat and reducing human-caused mortality (USFWS 1993a). In the lower 48 states, remaining populations of grizzly bears occur in five grizzly bear ecosystems.

Life History and Characteristics

Grizzly bears are solitary wanderers, except when they are caring for young. Grizzlies are not considered territorial animals. Their home ranges often overlap, although they typically maintain

a minimum distance apart from one another (USFWS 1993a). The search for food is the primary factor in determining the size of a bear's home range. Bears mate in late May through mid July, typically becoming reproductive at the age of 5 years, though reproduction may occur at 3.5 years. Females produce one to four cubs approximately every three years. Grizzly bears hibernate during the winter months at high elevations where snow accumulations are deep. Grizzly bears emerge in spring and move to the lowlands to forage on winter-kill carcasses or newly emerging vegetation, which are rich in protein. Cover is a key habitat component for grizzly bears (USFWS 1993a). Grizzly bears are opportunistic feeders, foraging on carrion, squirrels, vegetation, nuts, berries, and insects. In the late summer and early fall, bears move back up to higher elevations to forage on the abundant berries in the avalanche slides. Den digging begins between early September and the end of November. Grizzly bears typically remain in their dens for about 5 months (USFWS 1993a).

Species Occurrence in the Project Area

Grizzly bear populations are divided into recovery areas. The project area is located within the North Continental Divide Grizzly Bear Recovery Area, in Glacier National Park's southeast bear management unit. The habitat in the project area provides important grizzly bear foraging habitat in early spring and supports grizzly bears during the months they are not in their dens.

Grizzly bears are present in the US 89 project corridor and the western portion of the Duck Lake Road project corridor near Babb roughly between April and November. All grizzlies using the project area winter in and along the boundary of Glacier National Park and emerge from their dens between March and May. Female grizzlies with cubs generally return to their dens in October and males return to their dens between November and December (Carney 2002 personal communication). Grizzly bears appear to be active at all times of the day, especially when there are no human disturbances nearby and during the berry season. In the presence of human disturbance, bears typically are most active in the early morning and late evening (Carney 2002 personal communication).

From April through June, bears move to lower elevations in the US 89 project area seeking suitable foraging habitat. Important early-spring foraging habitats in the project area include aspen grovelands and riparian areas with newly emerging vegetation and the carrion of livestock that did not survive the winter and spring (Carney 2002 personal communication). Research conducted by the Blackfeet Nation from 1987 through the late 1990s found aspen grovelands and riparian areas to be preferred habitat for grizzly bears on the reservation (Carney 2002 personal communication). Radio-collared bears were located on numerous occasions in the riparian areas associated with the South Fork Cut Bank Creek drainages and the South Fork Milk River drainages, particularly in the vicinity of reference posts 11, 12, 13, 21, and 21.7. Bears have also been observed crossing the road at these locations (Carney 2002 personal communication). In recent years, bears have been reported frequently at the ranches between the US 89 intersection with Duck Lake Road and Duck Lake. The drainage at reference post DLR-33.5 on Duck Lake Road appears to be a significant movement corridor for all wildlife, including bears. Because foraging habitat is limited in early spring, April through June represents the primary period of activity for bears in the project area with riparian and aspen groveland habitats receiving the

most use of all available habitats. Grizzly bears that inhabit the project corridor are also reported at dumpsters near Kiowa and Saint Mary. Bears that become food conditioned often cause problems later and must be trapped and relocated or put to death.

During the study from 1987 through the late 1990s, approximately 40 bears were tracked and monitored to identify habitat use on the reservation. Based on the data collected during this time period, the bears in the study displayed variable foraging strategies (Carney 2002 personal communication). Bears entered the reservation beginning in April to forage in grovelands and riparian areas. Some bears spent only a few weeks in early spring on the reservation before moving back into the park. Other bears moved back into the park by mid-June when food availability in the park increased. By mid-July, most bears had returned to the park to take advantage of the numerous foraging opportunities including cut-worms, avalanche lilies, and berries. Still other bears remained on the reservation throughout the fall, likely foraging on insects, forbs, and berries (Carney 2002 personal communication). Berries are primarily available in riparian and conifer habitats. Livestock depredations on the reservation typically peak again in the late fall, when other food sources are diminished. Based on the results of the study, Carney (2002 personal communication) concluded that most bears using the reservation spend approximately half of their time in the park and the other half on the reservation.

There is no reliable data on the number or sex of grizzly bears on the reservation (Carney 2002 personal communication). It is expected that both males and females (including those with cubs), representing a wide range of ages, use the habitats on the reservation. Tribal biologists handle an average of 15 bears a year as a result of livestock depredations and other conflicts with human activities. The number of calls and complaints increases slightly each year. During the 15 years he has worked on the reservation, Carney (2002 personal communication) estimates he has handled at least 100 different bears either for research or management purposes.

Gray Wolf

Gray wolves measure 1.5 to 1.8 meters (5 to 6 feet) from nose to tail and stand 66 to 81 centimeters (26 to 32 inches) at the shoulder. They have long legs, and the chest is deep and narrow. Adult males average 31.8 to 45.4 kilograms (70 to 100 pounds), and females average 24.9 to 38.6 kilograms (55 to 85 pounds). Wolves travel on far-ranging and frequent hunting expeditions. Their sense of smell is very keen, and they reportedly are able to hear other wolves howling up to 9.7 kilometers (6 miles) away.

Status

The gray wolf was listed under the Endangered Species Act on March 11, 1967 as a threatened species in Minnesota and as an endangered species elsewhere in the lower 48 states. The wolf is not a listed species in Alaska (USFWS 2002b). Recovery plans have been implemented since the gray wolf was placed on the Endangered Species Act list.

Recovery has been so successful that in June 1998, the U.S. Fish and Wildlife Service announced that it would consider delisting or reclassifying specific wolf populations where appropriate

(USFWS 2002b). The species' comeback has been attributed to a combination of scientific research, conservation and management programs, and education efforts that helped to increase public understanding of the species. Successful reintroduction and management programs have greatly accelerated wolf recovery in the Rocky Mountains (USFWS 2002b). On April 1, 2003 the USFWS announced a status change for gray wolves from endangered to threatened for populations in the lower 48 states with the exception of the southwest (FR 2003b).

Life History and Characteristics

Wolf packs are generally composed of a set of parents (the alpha pair), their offspring, and other nonbreeding adults. Wolves begin mating when they are 2 to 3 years old, sometimes establishing lifelong mates (USFWS 2002b). Pups are usually reared in dens for their first 6 weeks. Dens are often used year after year, but wolves may dig new dens or use some other type of shelter, such as a cave. An average of five pups are born in early spring and are cared for by the entire pack. Usually, after 1 or 2 years of age, a young wolf leaves the pack and tries to find a mate and form its own pack (USFWS 2002b). Dispersing wolves have traveled as far as 800 kilometers (500 miles) in search of a new home (USFWS 2002b).

Wolf packs usually lives within a specific territory. Territories range in size from 130 to 2,600 square kilometers (50 to 1,000 square miles) or more, depending on the quantity of available prey and seasonal prey movements (USFWS 2002b). Packs use a traditional area and defend it from strange wolves. Their ability to travel over large areas to seek out vulnerable prey makes wolves good hunters.

Species Occurrence in the Project Area

The Blackfeet Indian Reservation and lands beyond the boundary extending east to Highway 15 are considered to contain suitable habitat to support wolf packs. The Blackfeet Nation does not monitor the presence of or inventory the number of wolves on the reservation. Wolf sightings and tracks are reported frequently on the Blackfeet Indian Reservation in the project area. Reported sightings typically involve individual wolves (Carney 2000a personal communication). There have been several reported wolf sightings and depredations in the project area in the last few years. A group of wolves were reported in the South Fork Milk River drainage in the spring of 2002, indicating a pack may be forming. Investigations at that location revealed a coyote den and no wolf packs are known on the reservation at this time (Carney 2002 personal communication).

Key components of wolf habitat include a sufficient year-round prey base, suitable and secluded denning and rendezvous sites, and sufficient space with minimal exposure to humans (USFWS 1987). While the last of these components is absent throughout most of the US 89 project area, gray wolf packs could be established upstream of the US 89 project corridor within the Lake Creek, Cut Bank Creek, and Milk River drainage basins. However, there are numerous obstacles to successful establishment of a wolf pack on the Blackfeet Indian Reservation, primary among them is conflicts with livestock and the resulting management actions. While portions of the project area could support a wolf pack, there is no documented pack activity at this time

(USFWS et al. 2002). Wolf occurrence in the project area is likely limited to dispersing individuals (Bangs 2000 personal communication; Carney 2000a personal communication).

Canada Lynx

The Canada lynx is a medium-sized cat averaging 46 to 58 centimeters (18 to 23 inches) in height at the shoulder and 79 to 102 centimeters (31 to 40 inches) in length. Its black-tipped tail is short, about 9 to 12 centimeters (3.5 to 5 inches). This long-legged cat has large paws and prominent pointed ears with 5-centimeter (2-inch) black protruding hairs. The coat is a silvery gray to buff color with faint dark stripes on the sides and chest and faint dark spots on the belly.

Status

Under the Endangered Species Act, the Canada lynx was listed as a threatened species on March 24, 2000 (FR 2000). In Montana, the resident population of lynx is distributed throughout its historical range. However, there are little data to determine their population trend or to estimate the population size. Currently, it is believed that the northern Rockies/Cascades region supports the most viable resident lynx populations in the contiguous United States, although it is recognized that lynx in the contiguous United States are naturally rare (FR 2000).

Life History and Characteristics

Lynx prefer habitat where snowshoe hares are abundant and require a mosaic of conifer-forest age classes, using early-successional forests for hunting and mature forests for denning (Koehler and Brittel 1990). Lynx denning habitat requires mature forest stands of at least 1 hectare (2.4 acres), with minimal human disturbance and proximity to foraging areas (Koehler and Aubry 1994). Large woody debris, downed logs, and tree stumps are important characteristics for den sites and are used as thermal and escape cover by kittens (Koehler and Brittel 1990).

In Canada and Alaska, lynx populations undergo extreme fluctuations in response to snowshoe hare population cycles. However, this cycle is not exhibited in populations occurring in the contiguous United States, rather, both species occur at relatively stable densities (McKelvey et al. 1999). Snowshoe hare are the primary prey for the Canada lynx throughout its range. In Montana, lynx also forage on red squirrels and to a lesser extent grouse, other small mammals, and carrion (Aubry et al. 1999). When hare populations decline, lynx are capable of dispersing long distances. Because of this capability, maintaining habitat connectivity between population areas may be critical to the long-term persistence of lynx populations in the United States (USDI 1999).

In Montana, lynx inhabit subalpine fir forest associations of the Northern Rocky Mountains and are strongly associated with densely stocked lodgepole pine stands and Douglas-fir and western larch stands where snowshoe hare are abundant (Aubry et al. 1999). Most lynx occurrences are in the 1,500 to 2,000 meters (4,920 to 6,560 feet) elevation class (FR March 24, 2000). In the Rocky Mountains, important lynx habitat may also include islands of coniferous forest within

shrub-steppe habitat. Lynx may use shrub-steppe habitat to pursue alternative prey including jackrabbits or ground squirrels (USDI 1999).

Species Occurrence in the Project Area

There are many historical and current records of lynx in the Rocky Mountain conifer forests, and breeding animals are known to be present. However, population trends, as well as the actual number of lynx in northwestern Montana, are unknown (FR March 24, 2000).

Lynx use a wide variety of habitats but are usually found near their primary prey, the snowshoe hare, in mixed coniferous stands. Lynx have been observed and tracks have been reported in the coniferous forests of Glacier National Park (USDI 1999). Winter tracking surveys conducted by the Blackfoot Nation often identify lynx within the project vicinity, on the west side of US 89 along the mountain ridges bordering Glacier National Park (Carney 2000a personal communication). Lynx are also reported in the South Fork Milk River drainage, including the east side of US 89 (Carney 2002 personal communication). Lynx may also occur in the conifer habitats near the end of the US 89 project corridor where they seek food sources or attempt to disperse. However, given the limited suitable habitat availability on the east side of the project corridor and lynx avoidance of openings and roads (FR March 24, 2004), lynx occurrence in the immediate project corridor between Kiowa and Hudson Bay Divide is likely to be limited. Habitats in this portion of the project corridor are highly fragmented by US 89, a network of secondary roads, and a mosaic of open grasslands. In addition, little suitable habitat is available east of the US 89 project corridor. However, it is assumed that lynx occasionally cross the existing road corridor.

Bull Trout

The bull trout has an elongated and somewhat rounded body with 190 to 240 cycloid scales along the lateral line, a large mouth with well-developed teeth on both jaws, and a slightly forked tail. Color varies with habitat, but in general, bull trout are olive green to brown with pale yellow spots on the back and pale yellow and orange or red spots on the sides. The pectoral, pelvic, and anal fins have white margins.

Status

Bull trout were listed as a threatened species by the U.S. Fish and Wildlife Service in 1998. Factors contributing to population declines include habitat degradation and loss due to land and water management practices; isolation and fragmentation of populations by both structural and natural barriers; introduction of non-native fishes resulting in competition, predation and hybridization threats; historical eradication efforts; poisoning to remove non-game species; historical overharvest; and ongoing poaching and accidental harvest due to misidentification (AFS 2000).

Today, bull trout are largely confined to headwater lakes and streams. These small, isolated populations face increased extirpation risks as a result of direct impacts of habitat change, random demographic and environmental variation, and genetic processes (AFS 2000).

Life History and Characteristics

Bull trout are native to streams, rivers, and lakes in northwestern Montana. Bull trout may have either a resident or migratory life history. Resident fish usually spend their entire lives in smaller tributaries and headwater streams. Migratory fish spawn and their progeny rear for one to several years in tributary streams before migrating downstream to larger rivers or lakes where they mature and spend most of their adult life. Adults migrate back to their natal tributaries to spawn, apparently with a high degree of fidelity (AFS 2000).

The majority of migratory bull trout spawning in Montana occurs in a small percentage of the total stream habitat available. Spawning takes place between late August and early November. Spawning adults use low-gradient areas (less than 2 percent) with gravel-cobble substrate, water depths from 0.1 to 0.6 meters (4 to 24 inches), and velocities from 0.09 to 0.61 meters per second (0.3 to 2.0 feet per second). Proximity of cover for adult fish before and during spawning is an important habitat component. Spawning tends to be concentrated in reaches influenced by ground water, where temperature and flow conditions may be more stable (AFS 2000). Their eggs remain covered up to 15 centimeters (6 inches) deep in spawning gravels until spring, when the fry emerge. Young bull trout remain in the stream for one to four years, huddled among bottom rocks and other cover. Bull trout grow up to lengths of 94 centimeters (37 inches) and weights as much as 9 kilograms (20 pounds) (AFS 2000).

Basic rearing habitat requirements for juvenile bull trout include cold summer water temperatures (less than 15°C [59°F]) with sufficient surface and ground water flows. Juvenile bull trout are generally bottom foragers and rarely stray from cover. They prefer complex forms of cover that include deep pools, large woody debris, rocky streambeds, and undercut banks.

Habitat characteristics that are important for juvenile bull trout of migratory populations (low water temperatures, clean cobble-boulder substrates, and abundant cover) are also important for stream-resident subadults and adults. However, stream resident adults are more strongly associated with deep pool habitats than are migratory juveniles (AFS 2000).

Species Occurrence in the Project Area

Populations of bull trout in Montana are limited to the Columbia and Saskatchewan River basins. The Saint Mary River in the Saskatchewan basin, draining north into Canada, contains the only bull trout population east of the continental divide in the United States (AFS 2000).

Historically, bull trout likely occurred in all of the streams and lakes of the Saint Mary River drainage to which they had access and which provided bull trout habitat. Today, only remnant populations of bull trout occur in the Saint Mary drainage in Montana (Mogen and Kaeding 2000). Sampling efforts in the Saint Mary River and its tributaries, including the Duck Lake

vicinity, identified no bull trout (Wagner 2000 personal communication; Mogen and Kaeding 2000). Bull trout have been reported from the main stem of the Saint Mary River in Canada (Mogen and Kaeding 2000).

Project Effects on Threatened and Endangered Species

Slender Moonwort

Direct Effects

This project would not significantly impact populations or suitable habitat of slender moonwort.

Indirect Effects

Indirect effects associated with this project are not expected to significantly impact slender moonwort populations or suitable habitat.

Effects from Interrelated and Interdependent Actions

Interrelated and interdependent actions associated with the US 89 improvement project include development of material source sites for gravel extraction. The roadway has been designed in an attempt to balance the amount of cut and fill; however, materials would be needed for the structural surfacing of the road including coarse crushed gravel, fine crushed gravel, and plant mix surfacing (asphalt). While the material source sites for this project have not been identified, these materials are normally extracted as near the project site as available. Material source site development includes the excavation of soils and rock for use in the construction of the roadway. Generally these materials are excavated from the site with excavators and materials are deposited into dump trucks for delivery to the work site or to a crushing operation where large rocks are ground into usable construction materials. Blasting may also be used to exploit resources within the material source site. Crushing operations may be located at the material source site or nearer the project corridor. Depending on the location of the material source site, development of access roads to the site may also be required. Development of material source sites in the project vicinity may affect populations of or suitable habitat for slender moonwort, although no populations have been identified aside from the one near the US 89 roadway in Saint Mary.

Cumulative Effects

Planned actions in the project area include the construction of a resort facility north of Saint Mary, construction of a water pipeline from East Glacier to Browning along US 2, and continued oil and gas exploration. The location of the slender moonwort population relative to the proposed Saint Mary resort is unknown. Implementation of these projects could disturb populations of slender moonwort if appropriate conservation measures are not implemented.

Conservation Measures

Because no adverse impacts are expected, no conservation measures are proposed.

Determination of Effect

Currently, there are no reports of individual plants or populations of slender moonwort in the project corridor. Therefore, the proposed project is not likely to substantially impact populations, individuals or suitable habitat for slender moonwort. A recent update on the status of slender moonwort indicates that the identification of specific habitat requirements of this species are problematic because the historical and current ranges of populations are extremely disjunct and that some biologists feel this species is a habitat generalist that is simply rare plant and difficult to survey and observe (FR 2002). Therefore, if slender moonwort becomes listed prior to completion of the proposed project, MDT would coordinate with USFWS to determine appropriate means for identification of suitable habitat for the slender moonwort in the action area.

Bald Eagle

Direct Effects

The bald eagle nest site at Two Medicine Lake would not be affected by the proposed project because it is 5 kilometers (3 miles) from the proposed construction.

The construction of a new bridge at the US 89 crossing of South Fork Cut Bank Creek (reference post 13) would result in the loss of riparian habitat and potential perch sites for wintering bald eagles. The proposed road widening would limit the amount of riparian habitat removal to the extent possible. While some perch trees would be removed, numerous available perch trees would remain. Construction of a parking area at Cut Bank Creek on Duck Lake Road does not appear to require removal of perch trees.

The wintering period for bald eagles typically occurs between October 31 and March 31. Construction activities typically shut down during this period, although activities may continue through December and begin earlier in spring if weather permits. However, construction activities are not expected to adversely affect wintering bald eagle populations in the project vicinity.

The *Montana Bald Eagle Management Plan* (MBEWG 1994) provides guidance for management of migratory bald eagles. Factors affecting migratory bald eagles include exposure to lead poisoning; secondary poisoning from insect and predator control programs; collisions and electrocutions with power transmission; and loss of perching, foraging, and roosting opportunities due to human disturbance. Construction activities during the migratory period may cause bald eagles to avoid the immediate construction area. Ground squirrel populations displaced by construction are expected to recolonize areas adjacent to the roadway once construction is complete. No poisons for insects or predators would be used to implement the proposed project.

The development of roadside pullouts may affect bald eagle habitat if these areas are located adjacent to riparian areas.

Indirect Effects

No indirect effects on bald eagles are expected to result from the proposed project.

Effects from Interrelated and Interdependent Actions

Interrelated and interdependent actions would be the same as those described above for the slender moonwort. While the material source sites for the proposed project have not been identified, these materials are normally extracted as near the project site as available. Development of material source sites in the project vicinity may affect bald eagles if the site is located within 800 meters (2,600 feet) (line of sight) or 400 meters (1,300 feet) (out of the line of sight) from documented bald eagle use areas. If blasting is implemented at material source sites, nesting bald eagles within 1.6 kilometers (1 mile) could be adversely affected by this activity. Potential displacement of migratory bald eagles from the vicinity of material source sites is not expected to adversely affect this species.

Cumulative Effects

Planned actions in the project area include the construction of a resort facility north of Saint Mary, continued oil and gas exploration, construction along the Going-to-the-Sun Road, and construction of a water pipeline from lower Two Medicine Lake through East Glacier and extended to Browning. These projects may contribute to the cumulative loss of riparian areas and bald eagle perch sites. To minimize this effect, each project would be expected to examine expected impacts on bald eagle habitat and implement appropriate conservation measures. However, some cumulative loss of riparian habitat may occur.

Conservation Measures

It is the Montana Department of Transportation's standard practice to raptor-proof electric facilities when they are relocated due to construction activities, and the proposed project would restrict vegetation clearing outside the construction limits. One additional conservation measure for bald eagles would be required: If a nesting pair of bald eagles is identified within a 1.6 kilometer (1-mile) radius of a material source site, blasting would be restricted to the period outside the nesting season for bald eagles, which extends from March 15th through August 31st.

Effect Determination

The proposed project would not affect nesting bald eagles in the project vicinity. Construction activities may cause migratory bald eagles to avoid the project corridor. The new bridge at South Fork Cut Bank Creek would remove suitable perch trees for bald eagles; however, these effects would be minor and construction activities may affect but are not likely to adversely affect bald eagles.

Grizzly Bear

Direct Effects

The primary effects of the proposed project on grizzly bears would be disturbance of foraging habits during construction, loss of habitat, a potential decrease in habitat value, and increased difficulty crossing the US 89 project corridor. These impacts are attributed to the extent of vegetation disturbance and the wider road surface combined with reduced vegetative cover along the roadway.

Construction activities in the project corridor may disrupt grizzly bear access to foraging habitats and may displace grizzly bears from key foraging areas near construction sites. April through June represents the primary period of activity for grizzly bears in the project area with riparian and aspen groveland habitats receiving the most use of all available habitats. These habitats are important foraging areas for grizzly bears when they emerge from their dens and there are few other foraging opportunities available. Construction activities in the project corridor would likely be conducted in phases so that only a portion of the corridor is under construction at a given time. The construction season typically extends from April through November, although activities may continue through December and begin earlier in spring if weather conditions allow.

The proposed project would remove aspen groveland and riparian habitat in the US 89 project corridor and aspen groveland in the Duck Lake Road project corridor potentially used by grizzly bear. Most of the habitat affected is roadside vegetation that likely provides cover when grizzly bears are crossing the roadway but is not used for foraging due to the proximity of the roadway. Areas disturbed by construction but not covered by fill would also likely begin to revert to their original condition once construction is complete. Only one riparian area in the US 89 project corridor, Lake Creek (reference post 12), would be crossed at a new location. The proposed structure at this location would improve hydrology in the system and would facilitate long-term wildlife movement through this corridor. Within three aspen groveland patches, the roadway alignment would shift, creating a new opening. The improved roadway would cross the remaining riparian areas and aspen grovelands at the existing alignment, which would create wider openings but would not cause impacts at new locations in these habitats. The portion of the Duck Lake Road option that may support grizzly bears (reference post DLR-27 to DLR-34) would remain on the existing alignment.

In addition to the loss of habitat, the wider road surface and vegetation clearing in the project corridor would incrementally increase the difficulty for wildlife crossing the road. The availability of adequate cover during movements between habitats is a critical component of bear habitat (Carney 2002 personal communication). It is generally accepted that grizzly bears avoid roads and usually avoid crossing them (Ruediger et al. 1999). However, bear responses to roads have been shown to vary.

In the Bow River watershed in Alberta, Canada, Gibeau et al. (2001) reported variable crossing rates by grizzly bears for the principal highways. Principal highways included the Trans Canada Highway (four lanes), Highway 40 (two lanes), Highway 93 (two lanes), and the Bow Valley

Parkway (two lanes). Gibeau et al. (2001) found that highway crossings by grizzly bears were concentrated in specific locations and occurred during the day as well as the night. Areas with a high frequency of bear crossings were characterized by close proximity to a major drainage, rugged terrain, high quality habitat, and low human access. These findings demonstrate that cover and low human occurrence are key features at crossing sites in this study.

Aune and Kasworm (1989) concluded that on the east front of the Rocky Mountains, grizzly bears generally avoid habitats within 500 meters (1,600 feet) of roads during all seasons. However, many important foraging components used by bears are found closely associated with roads, indicating that bears may be distributed closer to roads during the foraging season. Aune and Kasworm (1989) also found that bears avoid roads in the fall, when berries are key foods. This behavior pattern seems likely for the project area, because bear movements peak in the corridor from April through June, to take advantage of the abundant foods in riparian areas and aspen grovelands while other food sources at high elevations are still under snow. Bears move back to higher elevations mostly outside the project corridor when berries in avalanche slides have ripened.

Currently, grizzly bears appear to readily cross the US 89 project corridor and the portion of the Duck Lake Road corridor between reference posts DLR-27 and DLR-34. While there are no published data on the frequency and locations of bear crossings in the US 89 and Duck Lake Road project corridors, crossings have been observed at reference posts 11 through 13 in the South Fork Cut Bank Creek drainages and reference posts 21 through 21.7 in the South Fork Milk River drainages (Carney 2002 personal communication). In addition, bears were recorded in habitats on both sides of the US 89 project corridor on numerous occasions during the 1987 to late 1990s habitat study.

Existing conditions that likely facilitate bear and other wildlife movement across the roadway include the overall low traffic volumes; the dense vegetation in close proximity to the road, which provides secure cover; the low posted speed limit (70 kilometers per hour/45 miles per hour) and road sinuosity north of reference post 13, which helps maintain reasonable travel speeds; and the nature of the corridor's use as a scenic and wildlife viewing route for tourists accessing Glacier National Park.

Most of these conditions would be maintained after the roadway improvements are implemented. The area of greatest concern from Browning to Kiowa is the vicinity of reference posts 10 to 11. Overall, road widening and vegetation clearing for the segment from Browning to Kiowa would increase the road corridor width between 4.2 and 20.6 meters (11 and 65 feet).

The portion of the corridor north of reference post 13 would retain a 70 kilometer per hour (45 mile per hour) speed limit and much of its sinuosity, although some curves would be eliminated and others softened. This portion of the corridor currently averages about 10 meters (35 feet) in width. The areas of greatest concern from Kiowa to Hudson Bay Divide are reference posts 12 to 13, and reference posts 21 to 22. Vegetation clearing to widen and improve the roadway in this segment would result in an average width of 20 to 24 meters (65 to 80 feet).

Numerous provisions have been incorporated into the preliminary design for the US 89 corridor to retain and restore the existing condition of the corridor, which facilitates wildlife movement. These provisions include minimizing vegetation clearing and restoring vegetation in disturbed areas beyond the clear zone of the roadway, particularly in known wildlife movement areas. In addition, the improved roadway would not contribute to increases in traffic volumes beyond the expected regional growth, which would occur even if the project was not constructed, and would not cause a change in use by local or tourist traffic.

Roadside pullouts and scenic vistas with picnic tables and garbage facilities may attract bears if the garbage is not properly handled. These factors would be considered in determining the final configuration and design of these facilities, so that these conflicts are avoided.

Indirect Effects

Indirect effects of the proposed action that may affect grizzly bears include increased travel speeds in localized areas where sharp curves are eliminated. One area of concern is the vicinity of reference post 21. The elimination of a series of sharp curves between reference posts 20 and 21 would likely result in increased travel speeds in this portion of the corridor. This area is highly used by a variety of wildlife and is a known bear crossing area. Increased travel speeds at this location may increase the risk of bear/vehicle collisions. During his observations in Yellowstone National Park, Gunther (2003 personal communication) attributed travel speeds to driver comfort rather than posted speed limits. Road improvements in Yellowstone National Park led to increased travel speeds and increased wildlife/vehicle collision rates (Gunther 2003 personal communication). The applicability of Gunther's study to an assessment of the effect of travel speeds on the likelihood of vehicle-grizzly bear collisions on US 89 in the project corridor is uncertain, however. Most of the collisions recorded by Gunther in Yellowstone involved ungulates (elk, deer, bison, and moose). In eight years of study, only two grizzlies were killed in collisions and these occurred at relatively low vehicle speeds (35 and 45 mph). The level of risk for this location is additionally difficult to assess, since the proposed widening and realignments would provide drivers with more distance and width to react to wildlife on the road, which would facilitate avoidance of collisions. No indirect effects on grizzly bears are expected from the Duck Lake Road option, because bears are not expected where sharp curves would be reduced and travel speeds where bears are likely would be limited by nearby intersections and road grades.

Effects of Interrelated and Interdependent Actions

Interrelated and interdependent actions would be the same as those described above for the slender moonwort. Development of material source sites would likely occur as near the project corridor as feasible and may be located within the boundaries of the grizzly bear recovery area. Development of material source sites within the boundaries of the grizzly bear recovery area would result in additional adverse effects on grizzly bears. Development of material source sites in this area would result in additional loss of grizzly bear habitat and could disrupt spring grizzly bear movement from Glacier National Park to the project area to access key foraging habitats and fall movements in the reverse direction to access berries in avalanche chutes.

Cumulative Effects

Planned activities in the project area are the same as those described for slender moonwort. These activities may also disturb grizzly bears during implementation and the Saint Mary resort facility may increase human presence in the vicinity of habitat areas. It is expected that these projects would go through the Blackfoot Nation's environmental review process and include appropriate measures to minimize impacts on grizzly bear habitat.

The Saint Mary resort facility is expected to attract numerous visitors each year and may generate increased traffic volumes or accelerate predicted increases in the project corridor. At present, the resort facility is in the early planning stages and no traffic analysis for the resort facility has been completed. Until the planning progresses further, it will remain unclear which route visitors would use to access this facility or the population centers it would serve. Therefore, at this time, it is difficult to predict if this facility would affect traffic volumes in the corridor or result in a cumulative impact on grizzly bear.

The proposed action is not expected to cause increased traffic volumes beyond those predicted for expected regional and national growth. However, traffic volumes for the portion of the corridor north of Kiowa (reference post 12) would exceed 2,000 vehicles per day for months May through October by year 2025. South of Kiowa, traffic volumes would exceed 2,000 vehicles per day for months July through August, and on weekend days in June and September, by year 2025. For the Duck Lake Road corridor, traffic volumes would exceed 2,000 vehicles per day for July and August, by year 2025.

According to Ruediger et al. (1999), when traffic volumes reach 2,000 to 4,000 vehicles per day, the roadway becomes a substantial barrier to wildlife movement. This is attributed to substantial increases in road kill and the continuous clustering of cars, which results in an insufficient number of breaks in traffic flow to provide opportunities for wildlife to cross (Ruediger 2002 personal communication). Therefore, while the US 89 corridor is not currently a barrier to most wildlife movement, it is expected that during the life of the improved roadway, increases in traffic volumes would make this roadway increasingly difficult for wildlife to cross without some accommodations for wildlife passage.

The information above relates to wildlife in general. Concerning the effects of traffic specifically on grizzly bears, it should be noted that grizzly bears rarely suffer fatal collisions on highways (Ruediger 2000). The reason for this is uncertain but it may be attributed to the grizzly bear's general avoidance of highways, low population densities, and/or adaptation to successfully crossing of highways. While it may seem intuitive that an increase in traffic volume would increase the risk of bear-vehicle collisions, historically, direct mortality of grizzly bears as a result of crossing highways of various traffic volumes has not been a significant problem and therefore is not expected to be a problem for this project. Of greater concern is the potential barrier effect of increased traffic volumes on grizzly bear crossings.

As reported in the Gibeau et al. (2001) study of variable crossing rates by grizzly bears for the principal highways in the Bow River watershed, summer average daily traffic volumes for Trans-Canada Highway (four lanes), Highway 40 (two lanes), Highway 93 (two lanes), and the Bow

Valley Parkway (two lanes) were 21,000 vehicles, 3,075 vehicles, 3,530 vehicles, and 2,230 vehicles, respectively. Between 1994 and 1998, six bears crossed the Trans-Canada Highway a total of 33 times, 11 bears crossed Highway 40 a total of 130 times, two bears crossed Highway 93 a total of 17 times, and six bears crossed Bow Valley Parkway 51 times. Of the 12 bears studied in the Trans-Canada Highway basin, none of the 6 studied adult female bears crossed the highway (21,000 vehicles per day), one subadult female crossed, and one of five studied male bears accounted for the majority of crossings. In contrast, all of the 11 grizzly bears studied in the Highway 40 basin, regardless of sex or maturity, crossed the highway (3,075 vehicles per day). The study notes that the traffic volumes on Highway 40 may be less than reported.

The Gibeau et al. (2001) study indicates that grizzly bears crossed the highway unimpeded at traffic volumes near 3,000 but the highway posed a barrier particularly for female bears at 21,000 vehicles per day. It is unclear from this study at what traffic volume threshold between 3,000 and 21,000 a barrier effect becomes significant for grizzly bears. The threshold of 2,000 to 4,000 vehicles has been estimated and applied by some but this threshold is uncertain (Ruediger 1999) and not yet substantiated by research for grizzly bears. The current traffic volumes (700 – 2,500) pose little to no barrier to grizzly bear crossing. However, as traffic volumes increase, bears in the US 89 project corridor will likely need to adjust their crossing habits in response. At some presently unknown traffic volume threshold some bears may eventually be deterred from habitats on the east side of the corridor. Others bears may adapt to increased traffic volumes by learning where and when to cross or by timing their crossings with low traffic volumes (Brandenburg 1996). The proposed design and conservation measures will likely improve highway permeability for bears and may allow bears to remain unaffected below a higher traffic volume. Since the traffic volume threshold associated with adverse affects is uncertain, there is the potential within the project life that traffic could increase to a level at which adverse effects on grizzly bears result if some bears remain deterred from the corridor and from access to spring foraging habitats.”

Conservation Measures

The following corridor-wide conservation measures will be implemented as part of the project to minimize impacts on grizzly bears and to facilitate wildlife movement through the US 89 project corridor:

- To ensure that final designs for proposed crossing structures meet minimum requirements for the targeted species, Montana Department of Transportation will consult with Blackfoot Nation and US Fish and Wildlife Service biologists during the design of the structures for comments on bridge lengths at Lake Creek and South Fork Cut Bank Creek.
- A new highway structure is proposed at reference post 12 at Lake Creek. This structure will be constructed to incorporate wildlife crossing features. The project design engineers will continue to involve staff biologists in the design and configuration of the highway structure at this location to

enhance its attractiveness as a crossing location for wildlife. Along with structure design, a revegetation plan will be implemented at this site to provide additional crossing cover, and wildlife fencing may be incorporated to funnel wildlife through the crossing area.

- A new highway bridge will be constructed at main stem South Fork Cut Bank Creek (reference post 13). This structure will be enlarged from a 9-meter (30-foot) opening to a wider opening, to provide a narrow area of dry land passage underneath the bridge during most months of the year. Wildlife fencing may be incorporated to funnel wildlife toward the crossing area.
- The existing US 89 highway bridge over North Fork Cut Bank Creek (reference post 17) was constructed within the last 10 years in conjunction with improvements to the US 89 intersection with Starr School Road and, therefore, does not require replacement at this time. In order to improve this structure for wildlife crossing purposes, shrubs and trees will be planted along the banks of the river at the bridge crossing to enhance the vegetative cover at this site.
- Contractors and construction crews will be educated regarding the need for proper sanitation in grizzly bear habitat and would be instructed to report all grizzly bear sightings immediately to tribal wildlife biologists.
- All food and garbage on the construction site will be stored in bear-proof containers, and all garbage will be removed daily from temporary offices and sleeping quarters.
- Construction staging areas, field offices, and sleeping quarters will be located a minimum of 150 meters (500 feet) from reported grizzly bear crossing areas, such as the riparian area east of Kiowa (reference post 10 to 11), Lake Creek (reference post 12), South Fork Cut Bank Creek (reference post 13) and the South Fork Milk River branches (reference posts 21 and 21.7).
- Right-of-way fencing will be installed throughout the project corridor and may result in the natural expansion of some aspen stands within the road right-of-way.
- At all riparian areas throughout the corridor, construction limits and roadway fill widths will be minimized, and as much vegetation as feasible will be retained adjacent to the roadway.
- Scenic pullouts will be located and designed in consultation with Blackfeet wildlife biologists. At a minimum, scenic pullouts will include the following provisions:

- Scenic pullouts will include warnings to visitors that they are in grizzly bear habitat and that they must remove all garbage from the site.
- Scenic pullouts will be limited to the project corridor and will not provide access to areas where humans may encounter grizzly bears, such as riparian areas.
- Scenic pullouts will be designed to provide viewing opportunities and to discourage picnicking.
- Prior to selection of material source sites, MDT and its contractor will consult with the Blackfoot Fish and Wildlife Department tribal biologists so that potential impacts to grizzly bear habitat are minimized in site selection.

The following conservation measures will be implemented as part of the project at the locations specified below to minimize impacts on grizzly bear in the project corridor:

- Segments of the existing roadway that currently bisect aspen grovelands and would be abandoned will be reclaimed. These areas occur at approximately reference post 14 and 15 and require detailed restoration plans including soil treatment, planting specifications, if needed, and fencing provisions.

An agreement was reached on the grizzly timing restriction as summarized below.

- Construction will be staged to allow construction (including earthmoving) during any given construction year at only one of the following three locations: the riparian area east of Kiowa (stationing 190+00 to 217+00, approximately reference post 10 to 11.5), Lake Creek and South Fork Cut Bank Creek (stationing 228+00 to 238+00, approximately reference post 12.5 to 13), and South Fork Milk River, south and middle branches (stationing 354+20 to 376+00, approximately reference post 19.5 to 22). During any given construction year, no work will be conducted for the entire construction season at two of the three locations specified above. At the one location per year where construction is allowed, no work will be conducted from 6:00 PM to 9:00 AM from April 1 to June 30.
- Construction plans will specify that clearing and grubbing beyond the construction limits (not the right-of-way limits) for the riparian area east of Kiowa (stationing 190+00 to 217+00, approximately reference post 10 to 11.5), Lake Creek and South Fork Cut Bank Creek (stationing 228+00 to 238+00, approximately reference post 12.5 to 13), and South Fork Milk River (stationing 354+20 to 376+00, approximately reference post 19.5 to

22), and any temporary clearing necessary for culvert or utility line installation or similar activities outside the construction limits but within the right-of-way would be kept to the smallest area possible, to be reclaimed following construction.

- Construction plans will specify that contractor stockpiles of topsoil must be contained within the construction limits and may not be stored at environmentally sensitive areas. Locations where this measure will be implemented will be specified in the special provisions (modifications to the Standard and Supplemental Specifications applicable to an individual project) for this project and will include cultural sites and high quality wetlands.
- The V-shaped ditch will be applied to the extent feasible to minimize vegetation disturbance at the following locations along the project corridor: riparian area east of Kiowa (stationing 190+00 to 217+00, approximately reference post 10 to 11.5), Lake Creek and South Fork Cut Bank Creek (stationing 228+00 to 238+00, approximately reference post 12.5 to 13), and South Fork Milk River (stationing 354+20 to 376+00, approximately reference post 19.5 to 22).
- Onsite visits would be conducted by Montana Department of Transportation and tribal botanists and biologists to develop appropriate post-construction revegetation plans that include a woody species component to enhance the vegetative cover at the following locations: riparian area east of Kiowa (stationing 190+00 to 217+00, approximately reference post 10 to 11.5), Lake Creek and South Fork Cut Bank Creek (stationing 228+00 to 238+00, approximately reference post 12.5 to 13), and South Fork Milk River (stationing 354+20 to 376+00, approximately reference post 19.5 to 22).

Determination of Effect

Construction activities in the project corridor may disrupt grizzly bear access to spring foraging habitats and would deter bears from habitats near construction activities. Most bears would likely seek alternative routes to access habitats and would concentrate in habitats further from the road corridor. Development of material source sites is likely to result in the additional loss of grizzly bear habitat and disruptions in grizzly bear access to spring and fall foraging habitats. However, material source sites for the project will not be identified until the project's final design phase when material quantities and types needed for construction are determined in detail. For this reason, the extent of the effect due to material source site development is sufficiently uncertain that conservation measures cannot be developed at this time. Nonetheless, development of material source sites will have to comply with the Endangered Species Act.

The proposed action would result in at least a doubling of the roadway width (pavement, roadside ditches, and adjacent slopes), despite the implementation of proposed conservation measures. The wider roadway coupled with potential increased travel speeds at localized areas where sharp curves are eliminated increases the difficulty for bears crossing the road as well as the risk of vehicle/grizzly bear collisions.

Current traffic volumes in the project corridor do not appear to be a barrier to wildlife movement and no grizzly bear mortalities have been reported. However, traffic volumes are expected to increase at a rate of approximately 3 percent each year, with or without implementation of the project. This growth rate would cause traffic volumes to exceed 2,000 vehicles per day during the spring foraging period for bears by year 2025. Though traffic volumes may cumulatively have an effect on grizzly bear movement in the corridor, it is not directly or indirectly linked to the proposed action.

Considering all potential project impacts on grizzly bears discussed above, overall, the project is likely to adversely affect grizzly bears.

Gray Wolf

Direct Effects

The primary direct effects of the proposed project on wolves would be a disruption of wolf movements through the US 89 project corridor during construction activities and a contribution to the impediment of wolf travel through the project area. These impacts are attributed to the proposed construction activities, wider road surface and reduced vegetative cover along the roadway.

Construction activities in the corridor would likely deter wolves from the construction site and may cause wolves to travel further distances seeking suitable crossing locations. Since there are no wolf packs in the project area, this impact would likely affect lone dispersing wolves and would not result in adverse impacts on these individuals.

Little is known about wolf use of habitats during dispersal, especially across fragmented habitats (Weaver et al. 1996). Kohn et al. (1999) found that wolves avoided developed lands and did not cross highways in areas adjacent to human development. Crossings were more likely in homogenous areas, particularly lowland complexes with greater visibility and ease of travel. Sightings reported in the project area indicate that wolves currently cross the US 89 corridor, although it is not known at what frequency or location. Loss of roadside vegetation and widening of the US 89 roadway would incrementally increase the difficulty associated with crossing the existing roadway. Existing conditions that facilitate wildlife and grizzly bear movements in the project corridor likely also facilitate wolf movement through the corridor. These conditions and implementation of the measures to mitigate the effects of road widening described for grizzly bears would likely facilitate wolf movement through the corridor after completion of the project.

Effects on wolves under the Duck Lake Road option would be similar to those described above, but of a lesser degree because the Duck Lake Road corridor provides less suitable habitat for gray wolves than the US 89 corridor.

Indirect Effects

Indirect effects of the proposed action that may affect wolves include higher travel speeds, which increase the chance for wolf-vehicle collisions (Gunther 2003 personal communication). However, the posted speed limit in the corridor would not increase and much of the corridor would retain its sinuous nature. One area of concern on US 89 has been identified: the vicinity of reference post 21. At this location, proposed improvements would eliminate several sharp curves, which may result in increased travel speeds. The proposed widening and realignments at this location would provide drivers with more distance and width to react to wildlife on the road, which would facilitate avoidance of collisions. Currently, no wolf mortalities from vehicle collisions are reported for the project corridor and an increase in the mortality rate from vehicle collisions is not expected for this species.

Effects of Interrelated and Interdependent Actions

Interrelated and interdependent actions associated with the US 89 improvement project could disrupt gray wolf movement in the project vicinity.

Cumulative Effects

Cumulative effects on wolves would be similar to those described for the grizzly bear. As described for grizzly bears, it is expected that during the life of the improved roadway, increases in traffic volumes would make this roadway increasingly difficult for wildlife to cross. However, the proposed conservation measures for the road widening are likely sufficient to maintain the few gray wolf crossings that may occur at current and future traffic volumes, because wolf use of the project corridor is likely limited to dispersing individuals and because wolves are most commonly observed during lower traffic volume months in the spring and fall.

Conservation Measures

As described above, the proposed crossing structures and vegetation retention guidelines would facilitate wildlife movement through the project corridor. No additional conservation measures for gray wolves are proposed.

Determination of Effects

Because wolf use of the US 89 project corridor is likely limited to dispersing individuals, and because conservation measures to facilitate wildlife movement in the US 89 project corridor are expected to benefit wolves, the proposed project may affect, but is not likely to adversely affect gray wolves.

Canada Lynx

Direct Effects

The primary direct effects of the proposed project on lynx would be a contribution to the impediment of lynx movement through the project corridor and loss of conifer habitat at the edge of large tracts of suitable habitat (referred to as *fringe habitat*). These impacts would result from road widening and loss of roadside vegetation.

Road widening and loss of roadside vegetation would incrementally increase the difficulty associated with crossing the existing roadway. Currently, there is no information to determine the level at which traffic volumes or roadway designs may influence lynx movements or create an impediment to movement (FR March 24, 2000), and no data are available on Canada lynx movements through the project corridor.

Lynx successfully cross many types of roads, including unpaved forest roads, secondary paved roads, and state and interstate highways (FR March 24, 2000). Little information is available on lynx highway crossing characteristics. It is likely that highways with high volumes of traffic and associated suburban developments inhibit lynx home range movement and dispersal, and may contribute to loss of habitat connectivity. Because the US 89 project corridor is located in fringe habitat for the lynx, and all impacts would occur within the existing road corridor, loss of conifer and mixed forest habitats in the corridor are not expected to adversely affect lynx. Lynx may occur in these areas following food sources or attempting to disperse; however, there is limited habitat availability on the east side of the road corridor, and regular crossings of US 89 are not expected. Further, conservation measures to facilitate wildlife movement in the South Fork Milk River drainage (see section above under grizzly bear) are expected to benefit lynx.

Establishment of a scenic vista near the Hudson Bay Divide may result in the loss of additional fringe habitat for Canada lynx.

There is no suitable habitat for Canada lynx in the Duck Lake Road corridor and no effects on lynx are expected from implementation of this option.

Indirect Effects

Indirect effects of the proposed action that may affect lynx include higher travel speeds, which increase the chance for lynx-vehicle collisions (Gunther 2003 personal communication). However, the posted speed limit in the corridor would not increase and the portion of corridor that may be used by lynx would largely retain its sinuous nature. Only one area of concern in the US 89 corridor has been identified: the vicinity of reference post 21. However, lynx habitat in the US 89 corridor is considered fringe habitat and few crossings of the US 89 corridor are expected. Additionally, lynx are primarily nocturnal animals and no lynx mortalities have been reported for the US 89 corridor. Based on the 2000 traffic counts, the highest traffic volumes in the project corridor occur during the day, prior to and immediately following the lunch hour. Road improvements and potential increases in traffic speed are not expected to result in increases in the risk of mortality for lynx. No indirect effects are expected for lynx under the Duck Lake Road option.

Effects of Interrelated and Interdependent Actions

Interrelated and interdependent actions associated with the US 89 improvement project may result in the loss of additional Canada lynx habitat. If material source sites are located in large, contiguous tracts of conifer forests, the project may result in the loss of additional Canada lynx habitat.

Cumulative Effects

Cumulative effects on lynx would be similar to those described for the grizzly bear. As described for grizzly bears, it is expected that during the life of the improved roadway, increases in traffic volumes would make this roadway increasingly difficult for wildlife to cross. However, the proposed conservation measures for the road widening are likely sufficient to maintain the few lynx crossings that may occur at current and future traffic volumes, because lynx are likely to cross the roadway during the night and evening hours when traffic volumes are low.

Conservation Measures

As previously described, numerous measures are proposed to facilitate wildlife crossing through the US 89 project corridor. Because lynx habitat is limited to the portion of the corridor near Hudson Bay Divide, it is proposed that construction plans specify that from reference post 23.5 to 24.5 clearing and grubbing are limited to the minimum amount necessary beyond the construction limits (not the right-of-way limits), and any temporary clearing necessary for culvert or utility line installation or other similar activities outside the construction limits but within the right-of-way will be kept to the smallest area possible, to be reclaimed following construction.

Determination of Effects

Because the US 89 project corridor is located in fringe habitat for the lynx and all impacts would occur within the existing corridor, loss of conifer and mixed forest habitats in the corridor would not result in substantial effects on lynx. Lynx may occur in these areas when following food sources or attempting to disperse; however, there is limited habitat availability on the east side of the project corridor, and regular crossings of US 89 are not expected. Further, conservation measures to facilitate wildlife movement in the project corridor are expected to benefit lynx. While there is no suitable habitat for Canada lynx in the Duck Lake Road corridor, implementation of this option may affect lynx, depending on the location of material source sites required to support reconstruction of the roadway. As a result, the proposed action may affect, but is not likely to adversely affect Canada lynx.

Bull Trout

Direct Effects

Bull trout do not occur in the Missouri River drainage and therefore would not be affected by the proposed action. Bull trout in the Saint Mary River may be affected by project construction

under the Duck Lake Road option if runoff from recently cleared and graded areas and soil stockpiles results in increased sediment entering streams in the corridor. However, implementation of best management practices and a temporary erosion and sediment control plan during construction would minimize this effect. Accidental spills of fuels, oils, concrete leachate, and chemicals used during construction could also enter project area streams; however, a spill prevention, control, and countermeasures plan would be implemented to manage spills. Because bull trout do not occur in the project area streams, no direct effects from habitat loss or construction disturbance are expected.

Indirect Effects

No indirect effects on this species have been identified for this project.

Effects of Interrelated and Interdependent Actions

Interrelated and interdependent actions would be the same as those described above for the slender moonwort. In addition, a roadside pullout is proposed in the Duck Lake Road corridor at reference post DLR-4.5. However, the location of this pullout is within the Missouri River drainage, which does not support bull trout. Impacts on fisheries from construction of this pullout are discussed in the Fisheries Resources section of this chapter.

Development of material source sites along Duck Lake Road may generate increased sediment in tributary streams to Saint Mary River. However, implementation of BMPs and a temporary erosion and sediment control plan during construction would minimize this effect.

Cumulative Effects

The proposed water pipeline project would not contribute to cumulative effects on populations of bull trout because bull trout do not occur in the watersheds affected by the project. While the proposed Saint Mary Resort facility would be located within watersheds that support bull trout, no bull trout are known in the immediate project vicinity and are therefore not likely to be directly or adversely affected by this project.

Conservation Measures

The following measures would be implemented during construction impacts to minimize potential impacts on bull trout in the Saint Mary River drainage.

- Erosion control, best management practices, and spill control measures will be implemented, monitored, and maintained during construction.
- A stormwater pollution prevention plan including provisions for spill prevention and emergency spill cleanup will be prepared and implemented for this project.

Determination of Effects

The measures stated in this section will be implemented as part of the project to avoid and minimize fisheries impacts. For this reason, the project may affect but is not likely to adversely affect bull trout.

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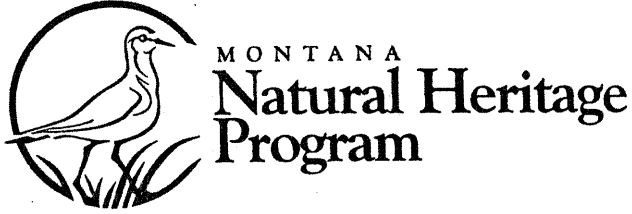
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APPENDIX A

Agency Correspondence



P.O. Box 201800 • 1515 East Sixth Avenue • Helena, MT 59620-1800 • fax 406.444.0581 • tel 406.444.3009 • <http://nris.state.mt.us>

May 31, 2002

Kathleen Adams
Herrera Environmental Consultants, Inc.
101 East Broadway, Suite 610
Missoula, Montana 59802

Dear Kathleen,

I am writing in response to your request for information on species of special concern in the vicinity of U.S. Highway 89 from Browning to the Hudson Bay Divide. Enclosed is a map of the area showing general element occurrence locations and a table, organized by latitude, listing the species and features of special concern encompassed by this map.

Please keep in mind the following when using and interpreting the enclosed information and maps:

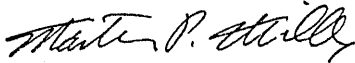
- (1) These materials are the result of a search of our database for species of concern that occur in an area defined by the requested road segment with an additional one-mile buffer surrounding the requested area. This is done to provide you with a more inclusive set of records and to capture records that may be immediately adjacent to the requested area.
- (2) Location information for animals represents occupied breeding habitat; location information for plants represents known occurrences of plant species, and, like animals, has an implied range that may not be fully conveyed by the mapped data. Most locations are depicted as points, but some, especially those that cover large area, are depicted as polygons on the map. The approximate boundaries of these polygons are color-coded to help differentiate vertebrate classes and plants.
- (3) This report may include sensitive data, and is not intended for general distribution, publication or for use outside of your agency. In particular, public release of specific location information may jeopardize the welfare of threatened, endangered, or sensitive species or communities.
- (4) The accompanying map(s) display management status, which may differ from ownership. Also, this report may include data from privately owned lands, and approval by the landowner is advisable if specific location information is considered for distribution. Features shown on this map do not imply public access to any lands.
- (5) Additional biological data for the search area(s) may be available from other sources. We suggest you contact the U.S. Fish and Wildlife Service for any additional information on threatened and endangered species (406-449-5225). Also, significant gaps exist in the Heritage Program's fisheries data, and we suggest you contact the Montana Rivers Information System for information related to your area of interest (406-444-3345).
- (6) The results of a data search by the Montana Natural Heritage Program reflect the current status of our data collection efforts. These results are not intended as a final statement on sensitive species within a given area, or as a substitute for on-site surveys, which may be required for environmental assessments.

Attached is an explanation of the codes used in the table, as printed from our website. Also, high-quality photos of both species and habitat are available on the web for most of the plant species (www.nris.state.gov/mtnhp).

We have extensive information on file for all these sites and species. If there is a more specific area for which you would like additional data, give me a call and we'll provide you with further details.

I hope the enclosed information is helpful to you. Please feel free to contact me at (406)-444-2817 or via my e-mail address, below, should you have any questions or require additional information.

Sincerely,



Martin P. Miller, Data Assistant
Montana Natural Heritage Program
(martinm@state.mt.us)



United States Department of the Interior

FISH AND WILDLIFE SERVICE

MONTANA FIELD OFFICE
100 N. PARK, SUITE 320
HELENA, MONTANA 59601
PHONE (406) 449-5225, FAX (406) 449-5339

M.17 FHWA Hwy.89 Corridor (Blackfeet Res.)

July 1, 2002

Ms. Kathleen Adams
Herrera Environmental Consultants, Inc.
101 East Broadway, Suite 610
Missoula, Montana 59802

Dear Ms. Adams:

This responds to your letter dated May 21, 2002, in which you requested an updated list of threatened, endangered, proposed, and candidate species that may occur in the vicinity of the proposed U.S. Highway 89 reconstruction project on the Blackfeet Indian Reservation in Glacier County, Montana. The U.S. Fish and Wildlife Service's (Service) Montana Field Office received your letter on May 28, 2002.

As your letter indicated, the Service has provided species lists for this project on June 28, 2000, and August 2, 2000, as project development has progressed. Those lists included threatened bald eagles (*Haliaeetus leucocephalus*), threatened grizzly bears (*Ursus arctos horribilis*), threatened Canada lynx (*Lynx canadensis*), threatened bull trout (*Salvelinus confluentus*), endangered gray wolves (*Canis lupus*), and proposed as threatened mountain plovers (*Charadrius montanus*). Since those letters have been prepared, a new species that may occur in the vicinity of this project has been added to the Services' list of candidate species; slender moonwort (*Botrychium lineare*).

The Service appreciates your efforts to ensure information associated with the environmental review of this project is kept current. If you have questions regarding this letter or the Section 7 consultation process, please contact Mr. Scott Jackson at (406)449-5225, ext. 201.

Sincerely,

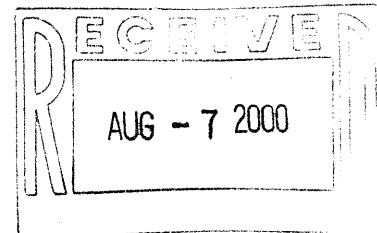
R. Mark Wilson
Field Supervisor



United States Department of the Interior

FISH AND WILDLIFE SERVICE

MONTANA FIELD OFFICE
100 N. PARK, SUITE 320
HELENA, MONTANA 59601
PHONE (406) 449-5225, FAX (406) 449-5339



M.17 FHWA Hwy.89 Corridor (Blackfeet Res.)

August 2, 2000

Ms. Kathleen Adams
Herrera Environmental Consultants, Inc.
2200 Sixth Avenue, Suite 601
Seattle, Washington 98121

Dear Ms. Adams:

In response to your May 5 letter requesting a list of threatened, endangered and proposed species that may occur in the vicinity of the US Highway 89 reconstruction project on the Blackfeet Indian Reservation in Glacier County, Montana, the US Fish and Wildlife Service (Service) responded with a June 28 letter indicating which species may be present in that corridor. That list included bald eagles (*Haliaeetus leucocephalus*), grizzly bears (*Ursus arctos horribilis*), Canada lynx (*Lynx canadensis*), gray wolves (*Canis lupus*), and mountain plovers (*Charadrius montanus*). After attending an interdisciplinary team meeting regarding this project yesterday, the Service is clearer on the scope of the proposed action and is, therefore, amending that list to include the threatened bull trout (*Salvelinus confluentus*) in the Saint Mary River drainage.

Thank you for the opportunity to correct this oversight. If you have questions regarding this letter or the Section 7 consultation process, please contact Mr. Scott Jackson at (406)449-5225, ext. 201.

Sincerely,

Acting Field Supervisor

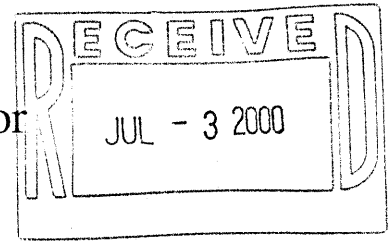
Copy to: Pat Basting, Environmental Services, MDOT, 2701 Prospect Ave., PO Box
201001, Helena, MT 59620-1001



United States Department of the Interior

FISH AND WILDLIFE SERVICE

MONTANA FIELD OFFICE
100 N. PARK, SUITE 320
HELENA, MONTANA 59601
PHONE (406) 449-5225, FAX (406) 449-5339



M.17 FHWA - Hwy. 89 Corridor (Blackfeet Res.) June 28, 2000

Ms. Kathleen Adams
Herrera Environmental Consultants, Inc.
2200 Sixth Avenue, Suite 601
Seattle, Washington 98121

Dear Ms. Adams:

This responds to your letter dated May 5, in which you requested a list of threatened and endangered species that may occur in the vicinity of the US Highway 89 corridor on the Blackfeet Indian Reservation in Glacier County, Montana. Your letter was received in the Montana Field Office of the US Fish and Wildlife Service (Service) on May 11. These comments were prepared under the authority of, and in accordance with, the provisions of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 et. seq.) and the Fish and Wildlife Coordination Act (16 U.S.C. 661 et. seq.).

In accordance with section 7(c) of the Act, the Service has determined that the following listed and proposed species may be present in the project area:

Listed Species

Expected Occurrence

bald eagle (*Haliaeetus leucocephalus*); threatened
grizzly bear (*Ursus arctos horribilis*); threatened
Canada lynx (*Lynx canadensis*); threatened
gray wolf (*Canis lupus*); endangered

spring or fall migrant
resident
resident
resident; transient

Proposed Species

Expected Occurrence

mountain plover (*Charadrius montanus*); proposed as
threatened

potential occurrence in shortgrass
prairie habitat

Section 7(c) of the Act requires that Federal agencies proposing major construction activities complete a biological assessment to determine the effects of the proposed actions on listed and proposed species and use the biological assessment to determine whether formal consultation is required. A major construction activity is defined as "a construction project (or other undertaking having similar physical impacts) which is a major Federal action significantly affecting the quality of the human environment as referred to in the National Environmental Policy Act (NEPA)" (50 CFR Part 402). If a biological assessment is not required (i.e. all other actions), the Federal agency is still required to review their proposed activities to determine

whether listed species may be affected. If such a determination is made, formal consultation with the Service is required.

For those actions wherein a biological assessment is required, the assessment should be completed within 180 days of initiation. This time frame can be extended by mutual agreement between the Federal agency or its designated non-Federal representative and the Service. If an assessment is not initiated within 90 days, this list of threatened and endangered (T/E) species should be verified with the Service prior to initiation of the assessment. The biological assessment may be undertaken as part of the Federal agency's compliance of section 102 of NEPA and incorporated into the NEPA documents. We recommend that biological assessments include the following:

1. A description of the project.
2. A description of the specific area that may be affected by the action.
3. The current status, habitat use, and behavior of T/E species in the project area.
4. Discussion of the methods used to determine the information in Item 3.
5. An analysis of the affects of the action on listed species and proposed species and their habitats, including an analysis of any cumulative effects.
6. Coordination/mitigation measures that will reduce/eliminate adverse impacts to T/E species.
7. The expected status of T/E species in the future (short and long term) during and after project completion.
8. A determination of "is likely to adversely affect" or "is not likely to adversely affect" for listed species.
9. A determination of "is likely to jeopardize" or "is not likely to jeopardize" for proposed species.
10. Citation of literature and personal contacts used in developing the assessment.

If it is determined that a proposed program or project "is likely to adversely affect" any listed species, formal consultation should be initiated with this office. If it is concluded that the project "is not likely to adversely affect" listed species, the Service should be asked to review the assessment and concur with the determination of no adverse effect.

Pursuant to section 7(a) (4) of the Act, if it is determined that any proposed species may be jeopardized, the Federal agency should initiate a conference with the Service to discuss conservation measures for those species. For more information regarding species of concern occurring in the project area, including proposed and candidate species, please contact the Montana Natural Heritage Program, 1515 East 6th Ave., Helena, 59601, (406) 444-3009.

A Federal agency may designate a non-Federal representative to conduct informal consultation or prepare biological assessments. However, the ultimate responsibility for Section 7 compliance remains with the Federal agency and written notice should be provided to the Service upon such a designation. We recommend that Federal agencies provide their non-Federal representatives

with proper guidance and oversight during preparation of biological assessments and evaluation of potential impacts to listed species.

Section 7(d) of the Act requires that the Federal agency and permit/applicant not make any irreversible or irretrievable commitment of resources which would preclude the formulation of reasonable and prudent alternatives until consultation on listed species is completed.

Any power lines in the vicinity, if not properly constructed, could pose electrocution hazards for bald eagles. To conserve this species, and other large raptors protected by Federal law, we urge that any power lines that need to be modified or reconstructed as a result of this project be raptor-proofed following the criteria and techniques outlined in the publication, "Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996." A copy may be obtained from: Jim Fitzpatrick, Treasurer, Carpenter Nature Center, 12805 St. Croix Trail South, Hastings, MN 55033. The use of such techniques would likely be most beneficial adjacent to expected raptor foraging areas (i.e. stream crossings or wetlands that support populations of waterfowl).

If wetlands might be impacted by the proposed construction project, Corps of Engineers (Corps) Section 404 permits may eventually be required. In that event, depending on permit type and other factors, the Service may be required to review permit applications and will recommend any protection or mitigation measures to the Corps as may appear reasonable and prudent based on the information available at that time.

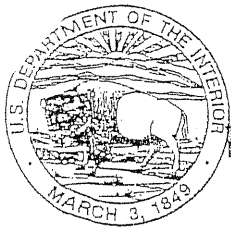
If you have questions regarding this letter, please contact Mr. Scott Jackson at the address above or by phone at (406) 449-5225, ext. 201.

Sincerely,

A handwritten signature in black ink, appearing to read "Wang", written in a cursive style.

Acting Field Supervisor

BIOLOGICAL OPINION



United States Department of the Interior

RECEIVED

JAN 31 2005

ENVIRONMENTAL

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
MONTANA FIELD OFFICE
100 N. PARK, SUITE 320
HELENA, MONTANA 59601
PHONE (406) 449-5225, FAX (406) 449-5339

M.17 FHWA Hwy. 89 Corridor
(Blackfeet Reservation)

January 28, 2005

Carl James
Federal Highway Administration
Montana Division
2880 Skyway Drive
Helena, Montana 59602

Dear Mr. James:

This letter transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the highway reconstruction work proposed to be conducted on U.S. Highway 89 in Glacier County, Montana (STPP-58-1(19)0; Control No. 4045) and its effects on threatened grizzly bears (*Ursus arctos horribilis*). The project proposal includes improvements to 41 kilometers of U.S. Highway 89 extending from Browning west and north to the Hudson Bay Divide, and improvements along 51 kilometers of Duck Lake Road extending north from Browning to the town of Babb. This project is being proposed jointly by the Federal Highway Administration (Administration) and the Montana Department of Transportation (Department), in cooperation with the Blackfeet Nation of the Blackfeet Indian Reservation. The Department is the Administration's designated non-Federal representative for this project. This document was prepared in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Section 7(b)(3)(A) of the Act requires that the Secretary of Interior issue biological opinions on Federal agency actions that may affect listed species or critical habitat. Biological opinions determine if the action proposed by the action agency is likely to jeopardize the continued existence of listed species or destroy or adversely modify critical habitat. Section 7(b)(3)(A) of the Act also requires the Secretary to suggest reasonable and prudent alternatives to any action that is found likely to jeopardize the continued existence of listed species or result in an adverse modification of critical habitat, if any has been designated. This biological opinion addresses only impacts to federally-listed species and does not address the overall environmental acceptability of the proposed actions.

This biological opinion is based on information provided in this project's biological assessment (BA) dated July 14, 2004, conversations with State, Federal and tribal agency personnel, and other sources of information. A complete administrative record of this consultation is on file in this office.

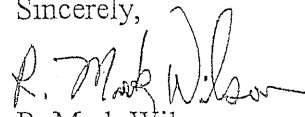
Consultation History

The Service has provided informal consultation on this proposed project in the form of attending meetings and participating in telephone discussions since 1999. We have reviewed and offered comments on a number of revisions of the BA and on draft NEPA documents relative to this project. The Administration had previously requested formal consultation relative to this proposed project's effects on grizzly bears in a letter to the Service dated September 5, 2002. However, the Administration subsequently withdrew that request and formal consultation was terminated. On August 9, 2004, the Service's Montana Field Office received your letter dated August 5, 2004, in which the Administration again requested initiation of formal consultation regarding this project's effects on grizzly bears. This most recent request and updated BA supercede earlier versions and will be used for this formal consultation process. The revised BA concluded that the proposed project would be likely to adversely affect grizzly bears, hence the initiation of formal consultation.

The BA also determined that this proposed project would not be likely to adversely affect threatened bald eagles (*Haliaeetus leucocephalus*), threatened Canada lynx (*Lynx canadensis*), threatened gray wolves (*Canis lupus*), nor threatened bull trout (*Salvelinus confluentus*). The Service concurs with this determination and, therefore, formal consultation is not required for these species. The Service bases its concurrence on information displayed in the BA, and in particular on the conservation measures that would be implemented as a part of this project to assure that these species are not adversely affected by road reconstruction activities.

Your interest and cooperation in meeting our joint responsibilities under the Act are appreciated. If you have questions regarding this consultation, please contact Scott Jackson, of my staff, at (406)449-5225, extension 201.

Sincerely,



R. Mark Wilson
Field Supervisor

Enclosure

Copies (w/enclosure) to:

ARD-ES, FWS, Denver, CO
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File 7759; Biological Opinions - 2005

ENDANGERED SPECIES ACT SECTION 7 CONSULTATION

BIOLOGICAL OPINION

for the effects to the threatened grizzly bear (*Ursus arctos horribilis*)
from the reconstruction of U.S. Highway 89
between Browning and the Hudson Bay Divide
in Glacier County, Montana

Project: Browning - Hudson Bay Divide
STPP 58-1(19)0; Control Number 4045

Agency:

Federal Highway Administration
Montana Division
Helena, Montana

Consultation Conducted by:

U.S. Fish and Wildlife Service
Montana Field Office
Helena, Montana

January 28, 2005

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BIOLOGICAL OPINION

I. Description of proposed action

The Montana Department of Transportation (Department, MDT) and the Federal Highway Administration (Administration, FHWA) are jointly proposing to reconstruct the U.S. Highway 89 corridor between Browning and the Hudson Bay Divide in Glacier County, Montana, a distance of 41 kilometers (km). In addition to the reconstruction of U.S. Highway 89, project related improvements would also be made along a 51-km section of Duck Lake Road between Browning and Babb. The intent would be to designate Duck Lake Road as an alternate truck route to Highway 89, thereby reducing the amount of truck traffic on Highway 89. Duck Lake Road would be signed as an alternate truck route, although trucks would not be restricted from using Highway 89. Improvements would be made to ensure that Duck Lake Road would perform as a truck route (Herrera 2004). More specific project related activities are discussed below.

The Administration and the Department have defined the purpose of and need for action in the transportation corridor between Browning and Saint Mary - Babb based on three specific categories of issues with the existing U.S. Highway 89 roadway (MDT and FHWA 2004):

- Traffic flow - U.S. Highway 89 accommodates a wide variety of vehicular traffic with different movement characteristics. The existing two-lane roadway is narrow, with sharp curves, steep grades, minimal opportunities for passing slow-moving vehicles, and few pullouts. Because of these roadway characteristics and the variety of vehicles using the roadway, it is not comfortable and frequently not possible to drive at the posted speed limit (maximum legal speed). Average daily traffic volumes are projected to increase over the next 25 years, exacerbating the effects of the roadway configuration on traffic flow.
- Roadway safety - Many of the factors that contribute to the need for action based on traffic flow are also factors for roadway safety. The diverse mix of traffic and traveling characteristics results in traveler conflicts associated with vehicle speed and frequency of stops. Much of the existing Highway 89 roadway between Browning and the Hudson Bay Divide does not meet current State and Federal roadway design requirements.
- Roadway maintenance - U.S. Highway 89 is both difficult and expensive to maintain during the winter months. Moreover, the current state of the highway does not facilitate easy maintenance during the summer months, when traffic volumes are high.

Both the U.S. Highway 89 improvements and the Duck Lake Road improvements would occur entirely within the Blackfeet Indian Reservation. The project area is located along the eastern front of the Rocky Mountains and is bordered on the west by Glacier National Park. In this area two distinct physiographic regions come together; the northern Rocky Mountains and the northern Great Plains. The project area is composed primarily of mixed-grass prairie vegetation

in the lower elevations and coniferous forests at higher elevations. Deciduous vegetation occurs along stream courses and floodplains and there are many prairie potholes and wetlands in the area. In addition, aspen grovelands occur in the transitional areas between the two physiographic regions as elevations increase. These grovelands are the southern-most reach of this type of habitat originating at the foot of the Canadian Rockies in Alberta. These forested patches provide increased habitat diversity and structure to the interspersed grassland communities and support numerous wildlife species, including threatened grizzly bears (*Ursus arctos horribilis*) (Herrera 2004).

The U.S. Highway 89 corridor would remain in a two-lane configuration, but would be widened to meet minimum design standards. The existing highway includes two travel lanes and minimal shoulders and has a total width of 6.7 to 9.0 meters. The proposed widened highway would include two 3.6-meter travel lanes with a 1.8-meter shoulder on each side for an overall paved roadway surface of 11 meters. The shoulder would also include a 0.45-meter rumble strip. From the pavement edge, a 6:1 slope would extend down and outward for a distance of 3.6 meters. An additional clearing of 3 meters of vegetation would occur outside the catch points (Herrera 2004).

The preferred ditch design is a flat-bottomed ditch. The flat bottom would be 3 meters wide and is designed to provide for snow storage, reduce snow drifting, improve safety by removing roadside obstacles, and be relatively easy to maintain. In areas where there is a lack of right-of-way or there is a need to avoid sensitive areas or more extensive earthwork, design adjustments may include low retaining walls, raising or lowering the roadway profile, slight alignment shifts, or alternate ditch designs. The overall width of the roadway plus adjoining re-sloped ground would vary from a minimum of about 22 meters to a maximum of about 75 meters, depending on the topography adjacent to the highway (Herrera 2004).

The footprint of the road would be as large as 208 hectares (ha). An estimated 59 ha of existing vegetation would be permanently lost because of the widened roadway. In addition, approximately 86 ha of vegetation would be temporarily cleared for construction. The road would be reconstructed with imported gravels and crushed rock placed over compacted native soils. It is anticipated that project related construction would occur in phases over a period of several years (Herrera 2004). Additional vegetation would be cleared in areas used for construction related activities that would be expected to occur, but that would not be specifically planned until construction contracts are awarded, such as material source extraction sites. While it is known that such activities would be necessary for project implementation, the number, location, and size of these excavation sites, as well as how and when they would be operated, has yet to be determined.

In addition to being widened, the highway would be realigned in nine locations to eliminate or increase the radius of existing horizontal curves that are below standard. These nine sections comprise a total of 7.7 km of roadway that would be offset from the current alignment ranging in distance from 30 to 250 meters (Herrera 2004).

The horizontal alignment would be consistent with design speeds of 90 km/hour (kph) (55 miles/hour (mph)) from Browning to Kiowa, and 70 kph (45 mph) from Kiowa to Hudson Bay Divide. The design speed is based on the terrain and the functional classification of the road. The vertical alignment would be adjusted as necessary to accommodate the changes to the horizontal alignment. Grades would generally stay within design standards; four percent from Browning to Kiowa, seven percent from Kiowa to Hudson Bay Divide. The road would be designed and constructed so it can be driven safely and comfortably at the design speed. Posted speed limits along this highway would remain the same before and after construction of these road improvements (Herrera 2004).

A number of additional features would be included in this project. They include the following:

- The construction of at least five pullouts and informational kiosks at scenic areas or locations with cultural significance.
- The replacement of bridges and culverts, including the replacement of culverts at the Lake Creek crossing with a bridge, which will be constructed to incorporate wildlife crossing features. The new bridge at the South Fork of Cut Bank Creek will be enlarged to provide a narrow area of dry land underneath the bridge during most months of the year for wildlife passage. During the final design stage, culverts would be sized to accommodate natural streamflow fluctuations and enhance fish passage.
- The right-of-way would be fenced to reduce vehicle-livestock collisions.
- Where cultural or habitat concerns are not a constraint, cut-and-fill slopes would be moderated to blend with the natural terrain.
- Disturbed areas beyond the clear zone would be replanted with vegetation to reduce the width of visible disturbance and to provide cover for wildlife.
- In areas where the roadway would be realigned outside of the highway corridor, the existing roadway would be removed and the area restored (Herrera 2004).

The proposed improvements along the Duck Lake Road would occur in three separate locations involving a total of approximately 12.3 km of roadway. These areas include the following improvements:

- In the vicinity of the bridge over Cut Bank Creek 7.7 km north of Browning, an access road would be constructed along the east side of the Duck Lake Road embankment, starting 30 meters south of the bridge, and up to five parking spaces would be provided. This would address safety issues related to people accessing the stream for recreational purposes that currently park their vehicles along the roadway. The footprint of this proposed improvement would be less than 5,000 square meters.

- The second area of improvement would be a substandard 90-degree curve at reference post DLR-24. Approximately 900 meters of roadway would be realigned to make this a less abrupt curve. The road would be widened in this section from its current width of approximately 8 meters to 9.8 meters. Six hectares of ground would be disturbed in relation to this activity.
- The third and largest area of improvement along Duck Lake Road would be an 11.4 km section east of the intersection with Highway 89 near Babb. Throughout this length, the roadway is subject to frost heaves, which in conjunction with the steep grades, produce hazardous driving conditions during the winter and spring. To alleviate this, the roadbed would be reconstructed along its existing alignment, incorporating a much thicker structural layer of imported, free-draining gravels that are resistant to frost heaves. The highway would be widened throughout this section from a current width of between 7.3 to 9 meters, to a width of 9.8 meters. The profile grade of the roadway would be adjusted to minimize changes in grade and to eliminate grades of more than five percent. The intersection with Highway 89 would also be realigned approximately 25 meters south to allow trucks to more easily make the turn onto Duck Lake Road. In addition, a chain-up area for trucks would be added (Herrera 2004).

The amount of vegetation that would be permanently lost because of the Duck Lake Road improvements would total 18 ha. An additional 16 ha of vegetation would be temporarily cleared for construction. It is anticipated that these project related construction activities would also occur in phases over a period of several years (Herrera 2004).

In addition to the activities described above, the following corridor-wide conservation measures would be implemented as part of the project to minimize impacts on grizzly bears and to facilitate wildlife movement through the U.S. Highway 89 project corridor (Herrera 2004):

- A new bridge proposed at the Lake Creek crossing will be constructed to incorporate wildlife crossing features. The project design engineers will continue to involve staff biologists in the design and configuration of this structure to enhance its attractiveness as a crossing location for wildlife. In addition, a revegetation plan will be implemented at this site to provide additional crossing cover. Wildlife fencing may be incorporated to funnel wildlife through the crossing area.
- A new highway bridge will be constructed at the main stem of South Fork Cut Bank Creek. This structure will include a wider bridge opening than the existing bridge and will provide for dryland passage of wildlife underneath the bridge during most months of the year. Wildlife fencing may be incorporated to funnel wildlife toward the crossing area.
- To ensure that final designs for proposed crossing structures meet minimum requirements for the targeted species, the Department will consult with biologists from the Blackfoot

Nation and the Service during the design of the structures for comments on bridge length and height at Lake Creek and South Fork Cut Bank Creek.

- Shrubs and trees will be planted along the banks of North Fork Cut Bank Creek at the highway bridge crossing location to enhance the vegetative cover at this site and improve wildlife crossing opportunities at this existing structure.
- Contractors and construction crews will be educated regarding the need for proper sanitation in grizzly bear habitat and will be instructed to report all grizzly bear sightings immediately to tribal wildlife biologists.
- All food and garbage on the construction site will be stored in bear-proof containers and all garbage will be removed daily from temporary offices and sleeping quarters.
- Construction staging areas, field offices, and sleeping quarters will be located a minimum of 150 meters from reported grizzly bear crossing areas, such as the riparian area east of Kiowa, Lake Creek, South Fork Cut Bank Creek, and the South Fork Milk River branches.
- Right-of-way fencing will be installed throughout the project corridor and may result in the natural expansion of some aspen stands within the road right-of-way.
- At all riparian areas throughout the corridor, construction limits and roadway fill widths will be minimized and as much vegetation as feasible will be retained adjacent to the roadway.
- Scenic pullouts will be located and designed in consultation with Blackfoot Nation wildlife biologists. At a minimum, scenic pullouts will include the following provisions:
 - Scenic pullouts will include warnings to visitors that they are in grizzly bear habitat and that they must remove all garbage from the site.
 - Scenic pullouts will be limited to the project corridor and will not provide access to areas where humans may encounter grizzly bears, such as riparian area.
 - Scenic pullouts will be designed to provide viewing opportunities and to discourage picnicking.
- Prior to selection of material source sites, MDT and its contractor will consult with the Blackfoot Fish and Wildlife Department tribal biologists so that potential impacts to grizzly bear habitat are minimized in site selection.

- Segments of the existing roadway that currently bisect aspen grovelands and that would be abandoned will be reclaimed. These areas will require detailed restoration plans including soil treatment, planting specifications, if needed, and fencing provisions.
- Construction will be staged to allow construction (including earthmoving activities) during any given construction year at only one of the following three locations: the riparian area east of Kiowa (stationing 190+00 to 217+00), Lake Creek and South Fork Cut Bank Creek (stationing 228+00 to 238+00), and South Fork Milk River, south and middle branches (stationing 354+20 to 376+00). During any given construction year, no work will be conducted for the entire construction season at two of the three locations specified above. At the one location per year where construction is allowed, no work will be conducted from 6:00 PM to 9:00 AM from April 1 to June 30.
- Construction plans will specify that clearing and grubbing beyond the construction limits (not the right-of-way limits) will be kept to the smallest area possible and reclaimed following construction within the following areas: the riparian area east of Kiowa (stationing 190+00 to 217+00), Lake Creek and South Fork Cut Bank Creek (stationing 228+00 to 238+00), and South Fork Milk River (stationing 354+20 to 376+00). This provision will also apply to any temporary clearing necessary for culvert or utility line installation or similar activities outside the construction limits but within the right-of-way.
- Construction plans will specify that contractor stockpiles of topsoil must be contained within the construction limits and may not be stored at environmentally sensitive areas. Locations where this measure will be implemented will be specified in the Special Provisions for this project and will include cultural sites and high quality wetlands.
- The V-shaped ditch will be applied to the extent feasible to minimize vegetation disturbance at the following locations along the project corridor: the riparian area east of Kiowa (stationing 190+00 to 217+00), Lake Creek and South Fork Cut Bank Creek (stationing 228+00 to 238+00), and South Fork Milk River (stationing 354+20 to 376+00).
- On-site visits would be conducted by biologists and botanists from the Department and the Blackfeet Nation to develop appropriate post-construction vegetation plans that include a woody species component to enhance the vegetative cover at the following locations: the riparian area east of Kiowa (stationing 190+00 to 217+00), Lake Creek and South Fork Cut Bank Creek (stationing 228+00 to 238+00), and South Fork Milk River (stationing 354+20 to 376+00).

II. Status of the species and critical habitat

Species description

Grizzly bears are among the largest terrestrial mammals in North America. South of the U.S. - Canada border, adult females range from 114 to 159 kilograms (kg) and adult males range from 182 to 273 kg. Grizzly bears are relatively long-lived, living 25 years or longer in the wild. Grizzlies are omnivorous, opportunistic feeders that require foods rich in protein or carbohydrates in excess of maintenance requirements in order to survive seasonal pre-and post-denning requirements. Grizzly bears are homeo-hypothermic hibernators, meaning their body temperature drops no more than 5°C during winter when deep snow, low food availability, and low ambient air temperatures appear to make winter sleep essential to grizzly bears' survival (Craighead and Craighead 1972a, 1972b). Grizzly bears excavate dens and require environments well-covered with a blanket of snow for up to five months, generally beginning in fall (September-November) and extending until spring (March-April) (Craighead and Craighead 1972b; Pearson 1972).

Listing History

The grizzly bear was classified as threatened in the lower 48 states under provisions of the Endangered Species Act (Act) on July 28, 1975 (40 FR 31736). The U.S. Fish and Wildlife Service (Service, USFWS) identified the following as factors establishing the need to list: (1) present or threatened destruction, modification, or curtailment of habitat or range; (2) overutilization for commercial, sporting, scientific, or educational purposes; and (3) other manmade factors affecting its continued existence. The two primary challenges in grizzly bear conservation are the reduction of human-caused mortality and the conservation of remaining habitat (USFWS 1993). Critical habitat has not been designated for the grizzly bear.

The grizzly bear recovery plan (Recovery Plan) was completed during January 1982, and was revised during 1993 (USFWS 1993). The 1993 revised Recovery Plan delineated grizzly bear recovery zones in six mountainous ecosystems in the U.S. The Recovery Plan details recovery objectives and strategies for the grizzly bear recovery zones in the ecosystems where grizzly bear populations still persist. These recovery zones are the Northern Continental Divide Ecosystem, Greater Yellowstone Ecosystem, Cabinet-Yaak Ecosystem, and Selkirk Ecosystem. The Recovery Plan also includes recovery strategies for the North Cascades ecosystem in Washington, where only a very few grizzly bears are believed to remain, and for the Selway-Bitterroot ecosystem of Idaho and Montana, where suitable grizzly bear habitat still occurs (USFWS 1993).

Life history

The search for energy-rich food appears to be a driving force in grizzly bear behavior, habitat selection and intra/inter-specific interactions. Grizzlies historically used a wide variety of

habitats across the North America, from open to forested, temperate through alpine and arctic habitats, once occurring as far south as Mexico. They are highly dependent upon learned food locations within their home ranges. Adequate nutritional quality and quantity are important factors for successful reproduction. Diverse structural stages that support wide varieties of nourishing plants and animals are necessary for meeting the high energy demands of these large animals. Grizzly bears follow phenological vegetative, tuber or fruit development, would seek out concentrated food sources including carrion, live prey (fish, mammals, insects), and are easily attracted to human food sources including gardens, grain, compost, bird seed, livestock, hunter gut piles, bait, and garbage. Bears that lose their natural fear and avoidance of humans, usually as a result of food rewards, become habituated, and may become food-conditioned. Grizzly bears will defend food and have been known to charge when surprised. Both habituation and food conditioning increase chances of human-caused grizzly bear mortality as a result of real or perceived threats to human safety or property. Nuisance grizzly bear mortalities can be a result of legal management actions, defense of human life, or illegal killing.

Adult grizzly bears are individualistic and normally solitary, except females with cubs, or during short breeding relationships. They will tolerate other grizzly bears at closer distances when food sources are concentrated, and siblings may associate for several years following weaning (Murie 1944, 1962; Jonkel and Cowan 1971; Craighead 1976; Egbert and Stokes 1976; Glenn et al. 1976; Herrero 1978). Across their range, home range sizes vary from about 130 km² or more for females to several hundred square kilometers for males, and overlap of home ranges is common. Grizzlies may have one of the lowest reproductive rates among terrestrial mammals, resulting primarily from the late age at first reproduction, small average litter size, and the long interval between litters. Mating occurs from late May through mid-July. Females in estrus will accept more than one adult male (Hornocker 1962), and can produce cubs from different fathers the same year (Craighead et al. 1995). Age of first reproduction and litter size may be nutritionally related (Herrero 1978; Russell et al. 1978). Average age at first reproduction in the lower 48 states for females is 5.5 years, and litter size ranges from one to four cubs who stay with the mother up to two years. Males may reach physiological reproductive age at 4.5, but may not be behaviorally reproductive due to other dominant males preventing mating.

Natural mortality is known to occur from intra-specific predation, but the degree to which this occurs in natural populations is not known. Parasites and disease do not appear to be a significant cause of natural mortality (Jonkel and Cowan 1971; Kistchinskii 1972; Mundy and Flook 1973; Rogers and Rogers 1976). As animals highly dependent upon learned habitat, displacement into unknown territory (such as subadult dispersal) may lead to submarginal nutrition, reduced reproduction or greater exposure to adult predatory bears or human food sources (which can lead to human-caused mortality). Starvation and loss in dens during food shortages have been surmised, but have not been documented as a major mortality factor. Natural mortality in rare, relatively secretive animals such as grizzlies can be extremely difficult to document or quantify.

Human-caused mortality has been slightly better quantified, but recent models speculate that reported mortality may be up to 50 percent of actual mortality (McLellan et al. 1999). Between 1800 and 1975, grizzly populations in the lower 48 states have declined drastically. Fur trapping, mining, ranching, and farming pushed westward, altering habitat and resulting in the direct killing of grizzly bears. Grizzly bears historically were targeted in predator control programs in the 1930's. Predator control was probably responsible for extirpation in many states that no longer support grizzlies. More recent human-caused mortality in Montana includes legal hunting (canceled in 1991), management control actions, defense of life, vehicle and train collisions, defense of property, mistaken identity by black bear or other big game hunters, poaching, and malicious killing. Grizzly bears normally avoid people, possibly as a result of many generations of bear sport hunting and human-caused mortality. Displacement away from human activities has been documented to reduce fitness of grizzly bears, affecting survival in some instances. Avoidance of roads can lead grizzly bears to either avoid essential habitat along roads, or could put them at greater risk of exposure to human-caused mortality if they do not avoid roads.

Status and distribution

The grizzly bear originally inhabited a variety of habitats from the Great Plains to the mountains of western North America, from central Mexico to the Arctic Ocean. With the advent of Euroamerican colonization in the early nineteenth century, grizzly bear numbers were reduced from over 50,000 to less than 1,000 in North America south of the Canadian border. The current distribution of grizzly bears south of Canada is less than two percent of their former range. In the conterminous 48 states, only five remaining areas in mountainous ecosystems of Washington, Wyoming, Idaho, and Montana currently contain either self-perpetuating or remnant populations of grizzly bears (USFWS 1993). These remaining populations are often associated with National Parks and wilderness areas.

The Recovery Plan (USFWS 1993) established recovery zones for the grizzly bear in each grizzly bear ecosystem. Recovery zones are areas large enough and of sufficient habitat quality to support a recovered bear population, and are the areas within which the population and habitat criteria for achievement of recovery will be measured. The Recovery Plan details recovery objectives for each of the following grizzly bear recovery zones in the ecosystems where grizzly bear populations persist. These ecosystems are described below.

Status of Grizzly Bears in the NCDE

The Northern Continental Divide Ecosystem (NCDE) contains 24,800 km² of occupied grizzly bear habitat in the Rocky Mountains of northern Montana into contiguous areas of Alberta and British Columbia, Canada. It includes Glacier National Park, parts of the Flathead and Blackfoot Indian Reservations, parts of the Flathead, Helena, Kootenai, Lewis and Clark, and Lolo National Forests, Bureau of Land Management lands, and a significant amount of State and private lands. Four wilderness areas (Mission Mountains, Bob Marshall, Great Bear, and Scapegoat) are included (USFWS 1993). Grizzly bears also frequently use areas outside the defined NCDE

recovery zone (U.S. Forest Service 2002). Much of the proposed U.S. Highway 89 reconstruction between Browning and the Hudson Bay Divide occurs within this recovery zone, and almost all of the activities related to this project (including the Duck Lake Road improvements) would occur within occupied grizzly bear range.

The exact size of the grizzly bear population in the NCDE or elsewhere is unknown. The nature of the species and the rugged terrain it inhabits makes a complete population census difficult, if not impossible. Population parameters more readily monitored are used as an alternative index to population size (Knight and Eberhardt 1987). The Recovery Plan identified unduplicated females with cubs as one surrogate index for estimating a minimum number of grizzly bears within a recovery zone. The Recovery Plan does not rely entirely on this minimum population estimate to assess the status of grizzly bear populations. Instead, the Recovery Plan incorporates a number of measurable parameters with which to assess population status: number of females with cubs, the distribution of family groups, and the relationship between the minimum population estimate and known, human-caused grizzly bear mortality (USFWS 1993).

Recovery zones were formally delineated into smaller Bear Management Units (BMUs) for the purpose of habitat evaluation and monitoring. The NCDE recovery zone encompasses 23 BMUs (USFWS 1993). BMUs were designed to:

- Assess the effects of existing and proposed activities on grizzly bear habitat without having the effects diluted by consideration of too large an area;
- Address unique habitat characteristics and grizzly bear activity and use patterns;
- Identify contiguous complexes of habitat which meet year-long needs of grizzly bears; and
- Establish priorities for areas where land use management needs would require cumulative effects assessments.

Bear Management Units are usually subdivided into smaller units, termed subunits. Subunits are approximately the size of an adult female grizzly bear home range (roughly 130 km²) and usually provide the basic scale for the analysis of impacts to grizzlies from a variety of land management activities (USFWS 2004c). The Browning - Hudson Bay Divide project on U.S. Highway 89 lies within the Southeast Glacier BMU of the NCDE, which encompasses approximately 936 km². No subunits have been identified for this BMU (Carney 2004 personal communication).

The Recovery Plan defines a recovered grizzly bear population as one that can sustain the existing level of known and unknown human-caused mortality that exists in the ecosystem and that is well distributed throughout the recovery zone. Demographic recovery criteria outlined for the NCDE recovery zone include:

- observation of ten females with cubs-of-the-year (unduplicated sightings) inside Glacier National Park and 12 females with cubs outside Glacier National Park over a running six-year average both inside the recovery zone and within a ten mile area immediately surrounding the recovery zone, excluding Canada;
- 21 of 23 BMUs occupied by females with young from a running six-year sum of verified observations with no two adjacent BMUs unoccupied;
- known human-caused mortality not to exceed 4 percent of the population estimates based on the most recent three-year sum of females with cubs;
- no more than 30 percent of this 4 percent mortality limit shall be females;
- mortality limits cannot be exceeded during any two consecutive years for recovery to be achieved; and
- recovery in the NCDE cannot be achieved without occupancy in the Mission Mountains portion of the ecosystem (USFWS 1993).

Monitoring results reported through 1999 indicate that the NCDE grizzly bear population criteria for several population recovery parameters were met, including 1) numbers of females with cubs, 2) numbers of BMUs with family groups, 3) occupancy requirements for BMUs, and 4) total human-caused grizzly bear mortality. However, female grizzly bear mortality exceeded recovery criteria limits during that time period. Calendar year 2001 was the first year that annual total mortality (six-year average) and annual female mortality (six-year average) were both exceeded (Servheen, unpublished, 2002). In 2002, three population parameters did not meet demographic recovery criteria: females with cubs inside Glacier National Park (six-year average), annual mortality (six-year average) and annual female mortality (six-year average) (Servheen, unpublished, 2003). In 2003, five parameters were not within recovery goals (Table 1): six-year average for total females with cubs both inside and outside of Glacier National Park, six-year average for annual mortality and female mortality (USFWS, unpublished, 2004a). The Mission Mountains are currently occupied with a population estimated at approximately 15-20 grizzly bears.

Preliminary data for 2004 indicate an increase in overall grizzly bear mortality within the NCDE recovery zone over the past four years. As of late November, total known human-caused mortality in the NCDE during 2004 is 31; 18 of those were female grizzly bears (Servheen, unpublished, 2004b).

Grizzly bear population trend information is limited in the NCDE. During 1987 to 1996, research in the Swan Mountains indicated a tenuous finite rate of increase of 0.977, which was related to high female mortality (Mace and Waller 1998). It is important to note that annual mortality rates for bears utilizing private rural and wilderness areas was 21 and 15 times higher,

Table 1. 2003 status of the NCDE grizzly bear population in relation to the demographic recovery criteria (USFWS; unpublished, 2004a).

Population Parameter	Target / Limit	2003 Number
Females w/cubs (6-year average)	22	19.0 [†]
Inside GNP* (6-year average)	10	8.0 [†]
Outside GNP (6-year average)	12	11.0 [†]
Mortality limit as 4% of minimum population estimate	Less than 12.9	17.5 [†]
Female mortality limit as 30% of total mortality	Less than 3.9	6.8 [†]
Distribution of females with young	21 of 23 BMUs; Missions occupied	23 of 23 BMUs; Missions occupied

* Glacier National Park

[†] Below target or exceeds limit

respectively, than for bears using only multiple-use lands (Mace and Waller 1998). Mortalities in the wilderness areas resulted from mistaken identities during the black bear hunting season and human defense of life. In rural areas, mortalities resulted from malicious killing and the management removal of habituated or food-conditioned bears (Mace and Waller 1998). Recent data (Servheen, unpublished, 2004a) indicate that the majority of human-caused mortalities in the NCDE continue to be management removal of nuisance or habituated grizzly bears, collision with trains and illegal killings. The majority of these mortalities occur on roaded, rural private lands.

Although the Service is concerned with the recent number of grizzly bear mortalities in the NCDE recovery zone, recent information suggests that the mortality limits in the Recovery Plan are clearly conservative. Currently, the mathematics used to calculate sustainable mortality limits depend on field counts of females and cubs. There is no established protocol for this count, and counting effort varies considerably between years. The Service acknowledges that females with cubs are typically poorly counted in the NCDE recovery zone, therefore the number of female grizzly bears recorded each year represents a conservative minimum.

Years during which the effort to count female grizzly bears is poor yield very conservative counts of females with cubs. These conservative counts result in a conservative minimum population estimate, which results in conservative sustainable mortality limits. The conservative nature of the human-caused mortality estimates are in part intentional, as the Recovery Plan attempted to incorporate limits that assured recovery of the population. However, recent information indicates the sustainable mortality limits in the Recovery Plan may be unreasonably conservative. The U.S. Geological Survey (USGS) initiated a survey in the northern one-third of the NCDE (including Glacier National Park, adjacent national forest lands and a portion of the Blackfoot Indian Reservation). Preliminary results provide evidence that the minimum unduplicated females with cubs population parameter as currently estimated may underestimate the total number of grizzly bears in this ecosystem by a substantive margin.

For example, the methodology used in the Recovery Plan (Knight et al. 1988, 1993 *in* Servheen 1993) and observations of unduplicated females with cubs from 1999 through 2001 (Servheen, unpublished, 2002) results in an estimated minimum number of grizzly bears in the NCDE in 2001 of 316 bears. The USGS DNA-based mark-recapture study in the greater Glacier area collected information from 1998 through 2000. Preliminary, provisional population estimates from USGS suggested 381 grizzly bears in 1998 and 273 in 2000 for the northern one-third of the NCDE alone. Analysis of the USGS data is not yet complete, nor are estimates peer reviewed or published. However, comparison of population estimates derived from these two methods illustrates the limitations of using a conservative *minimum* population estimate alone to derive sustainable mortality rates for the NCDE grizzly bear population. The DNA-based study is ongoing and a peer-reviewed estimate of the grizzly bear population in the entire NCDE recovery zone could be available by 2006 (Kendall 2003).

Further, a recent mapping effort (U.S. Forest Service 2002) used the last five years of location data to map the area outside the recovery zone where grizzly bears may occur. Although information is limited, grizzly bear occurrences are being increasingly documented to the east, the south and the west (in northern portion) of the recovery zone line. Additional information, although not statistically validated, suggests that the grizzly bear population in the NCDE is expanding. Location data documents a relatively recent (five to ten years) expansion of grizzly bears outside the recovery zone boundaries to the east, south and west of the NCDE (U.S. Forest Service 2002). Because of the broad distribution of grizzly bear locations and known grizzly bear distribution within the recovery zone, this expansion is likely due to increased grizzly bear numbers in several areas of the recovery zone.

Factors affecting baseline habitat in the NCDE

Fragmentation: Grizzly bear habitat is being fragmented by human developments and activities that are concentrated in intermountain valleys. Habitat fragmentation is significant to large carnivores requiring wide vegetative and topographic habitat diversity (Servheen 1986). Loss and fragmentation of habitat is particularly relevant to the survival of grizzly bears. Grizzly bears are large animals with great metabolic demands requiring extensive home ranges. Movements of grizzly bears may approach 100 airline kilometers and their home ranges can encompass from 130 km² to over 260 km² in the NCDE. Large expanses of unfragmented habitat are important for feeding, breeding, sheltering, traveling, and other essential behavioral patterns. Grizzly bears occur at low densities, have low reproductive rates, exhibit individualistic behavior and are largely dependent on riparian habitats such as those found in valley bottoms, also used extensively by people; thus grizzly bear populations are susceptible to human influences. Grizzly bears may avoid key habitats due to human generated disturbances, or become habituated and food conditioned, which ultimately leads to the animal being destroyed. Historically, as human settlements, developments, and roads increased in grizzly bear habitat, grizzly bear populations became fragmented. As fragmented population segments become smaller and/or isolated, they are more vulnerable to extinction, especially when human-caused mortality pressures continue. Linkage zones are rather recent concepts in broad management direction for grizzly bears and

other wide-ranging species (Servheen and Sandstrom 1993). Linkage zones, or zones of habitat connectivity within or between populations of animals, foster the genetic and demographic health of the species.

Access management: The Recovery Plan (USFWS 1993) identifies access management on public lands, particularly national forests and parks which contain the majority of grizzly bear habitat, as an important tool for conserving grizzly bears and their habitat. Generally, the miles of open roads on national forests in the NCDE increased substantially during the late 1970s and the early 1980s as a product of an aggressive timber harvesting program. Since that time, road management on national forests has changed and road inventories have been updated. For example, miles of open roads on the Flathead National Forest decreased by 25 percent between 1986 and 1995, the miles of roads restricted year-long decreased by approximately 33 percent, and the miles of roads closed year-long increased by over 50 percent. The number of miles of roads open on the Flathead Forest in 1993 was approximately equal to the number of miles open in the early 1970s (USFWS 2004c).

Most of the public land within the NCDE occurs within four national forests (Flathead, Lewis and Clark, Helena, and Lolo) and Glacier National Park. These lands have been formally delineated into BMUs, and most BMUs have been divided into smaller subunits. The Flathead National Forest is the largest administrator of lands within the NCDE, with 11 BMUs divided into 70 subunits within its boundaries. Sixteen of these subunits occur entirely within designated wilderness and are not subject to land management actions such as timber harvest or road construction. Of the remaining 54 subunits within the Flathead Forest, 40 are comprised predominantly of national forest lands (i.e., they are interspersed with less than 25 percent private, corporate, or State lands). Of these 40 subunits, 18 are meeting current access standards for security core area; 18 are meeting open motorized access density standards; and 21 subunits are meeting current standards for total motorized access density (USFWS 2004c).

Fourteen of the 54 non-wilderness subunits delineated on the Flathead National Forest encompass more than 25 percent private or corporate lands along with national forest lands. On these subunits with intermingled landowners, it is reasonable to assume that additional road building, timber harvest, and residential or other human development, would continue. Eleven of these subunits are managed under the Swan Valley Conservation Agreement, a cooperative access and timber management strategy between the Forest Service, Montana Department of Natural Resource and Conservation, Plum Creek Timber Company and the Service. The objectives of the agreement are to maintain connectivity for grizzly bears across the Swan Valley and to reduce mortality risks to grizzly bears. Access management in the agreement area includes a cooperative effort to limit high open road densities to less than 33 percent of a subunit, and to voluntarily limit high open road densities to much lower proportions of a subunit (USFWS 2004c).

One BMU with three subunits of the NCDE is located within the Helena National Forest. These subunits meet access guidelines with the exception of the Red Mountain subunit, which currently

contains an open motorized access density of 24.7 percent of the subunits exceeding 1 mile per square mile. There are seven BMU subunits on the Lolo National Forest. Of these, all but one subunit has met access objectives, and work to reduce road densities is ongoing in the Swan subunit. The Lewis and Clark National Forest's six BMUs consist of four BMUs with less than 75 percent ownership, which are highly roaded. Of the other two BMUs with greater than 75 percent Forest Service ownership, one is in a wilderness area and one is partially within a wilderness. The subunits within these BMUs are considered low or sparsely roaded. Glacier National Park is largely unroaded (USFWS 2004c).

Status of Grizzly Bear Populations in Other Recovery Zones

Grizzly bears presently occupy over 23,300 km² in and surrounding Yellowstone National Park. This ecosystem includes Yellowstone National Park, Grand Teton National Park, John D. Rockefeller Memorial Parkway, significant portions of the Shoshone, Bridger-Teton, Targhee, Gallatin, Beaverhead, and Custer National Forests, Bureau of Land Management lands, and over 222 km² of State and private lands in Montana, Wyoming and Idaho (USFWS 1993).

As in other ecosystems, the exact size of the grizzly bear population in the Yellowstone ecosystem is not known. All recovery parameters for the Recovery Zone were met in 2003 (Schwartz and Haroldson 2004). Recovery parameters had been met for at least the last five years through 2003. Although the annual report for the year 2004 has not been completed, it is known that the mortality threshold for female bears was exceeded. As of late September 2004, a total of six female grizzly bear deaths had occurred during the year (Yellowstone Grizzly Bear Ecosystem Subcommittee *in litt.* 2004). The number of females with cubs has surpassed the recovery criterion for a number of years (Haroldson 2004) and bears now occur where they have not been reported for many years. The six-year running average of females with cubs within the Recovery Zone and a 10-mile perimeter has gradually increased from 15 in 1986 to 38 in 2003 (Haroldson 2004). In 2002, the highest annual count of females with cubs for the greater Yellowstone area was documented: 52 females with 102 cubs (Haroldson 2003). The mean litter size of two in 2003 was consistent with past years (Haroldson 2004).

The best available information suggests the Yellowstone Ecosystem grizzly bear population is stable and is likely increasing. However, the long term conservation of the population continues to depend largely on managing bear-human conflict, which often results in human-caused mortality of grizzly bears. Years in which natural bear food production and availability are high can result in younger age classes of grizzly bears accustomed to fairly good food availability. A year of drought and poor food production can compel grizzly bears to search widely for food. Such wide ranging movements can bring grizzly bears into closer contact with humans, increasing bear-human conflicts and resultant control/management actions.

The Cabinet/Yaak Ecosystem in northwestern Montana and northeastern Idaho has over 5,100 km² of forested and mountainous habitat occupied by grizzly bears. The population in the Cabinet Mountains portion of this area is thought to be less than 15 bears. The Yaak section of

this ecosystem currently supports a minimum of approximately 20 bears. The Yaak population estimate does not include credible reports from the public of grizzly bear observations, which suggest a population estimate of 20 to 30 bears in the Yaak section of the Cabinet-Yaak Ecosystem would be conservative (Kasworm et al. 2000). There are grizzly bears to the north of the U.S./Canada border, and interchanges of radio-collared bears across the border have been documented (USFWS 1993).

Grizzly bear populations in the Cabinet-Yaak Ecosystem, which includes 22 BMUs, and the Selkirk Ecosystem, which contains 10 BMUs on the U.S. side of the border, have never attained the Recovery Plan criteria for females with cubs. As of 1999, neither the criterion for running six-year average number of females observed with cubs nor the recovery goal of distribution of those females throughout these ecosystems were reached. The Recovery Plan criterion for known, human-caused mortality was met for the Cabinet-Yaak population, but not for the Selkirk Ecosystem. However, the mortality goal for the Cabinet-Yaak Ecosystem is zero due to low population size and precarious status of this population, and actual mortality exceeded that goal. In 1999, the Service determined that the combined Selkirk - Cabinet-Yaak ecosystem grizzly bear recovery zones were warranted for endangered status, but this action was precluded by higher priority listing actions. At that time, the Service suggested that these two populations might be interconnected (FR 26725-26733).

The Selkirk Ecosystem of northwestern Idaho, northeastern Washington, and southeastern British Columbia includes 2,800 km² in the U.S. portion and 2,270 km² in the Canadian portion of the recovery zone. The Selkirk recovery zone is the only defined grizzly bear recovery zone that includes part of Canada because the habitat in the U.S. portion is not of sufficient size to support a minimum population. The habitat is contiguous across the border and radio-collared bears are known to move back and forth across the border. Therefore, the grizzlies north and south of the border are considered one population (USFWS 1993).

Grizzly bear recovery efforts in the Selway-Bitterroot Ecosystem and North Cascades Ecosystem are in the planning stages. In the North Cascades Ecosystem, most of the grizzly bear population occurs north of the Canada - U.S. border, but a few grizzlies persist south of the border. Grizzly bears were extirpated from the Selway-Bitterroot Ecosystem decades ago, however suitable habitat occurs. The Service released a final environmental impact statement and decision notice addressing the impacts of reintroducing grizzly bears into the Bitterroot Ecosystem in east central Idaho (USFWS 2000).

Analysis of the species likely to be affected

The biological assessment (BA) prepared for the U.S. Highway 89, Browning - Hudson Bay Divide project determined that the proposed activities would be likely to adversely affect grizzly bears. Therefore, formal consultation with the Service has been initiated and this biological opinion has been written to determine whether or not activities associated with this project are likely to jeopardize the continued existence of grizzly bears or result in the destruction or adverse

modification of grizzly bear critical habitat. This project is proposed to occur within the Northern Continental Divide Ecosystem currently occupied by grizzly bears as described in the BA for this project (Herrera 2004). Grizzly bears are listed as threatened under the Act. Critical habitat has not been designated for this species, therefore none would be affected by this proposed project.

Other listed species

In addition to grizzly bears, other federally-listed species that may be present in the project area include the threatened bald eagle (*Haliaeetus leucocephalus*), threatened gray wolf (*Canis lupus*), threatened Canada lynx (*Lynx canadensis*), and threatened bull trout (*Salvelinus confluentus*). Based on information provided in the BA for this project, including implementation of the stated design features and conservation measures, the Service concurs with the Administration that the proposed project may affect, but would not be likely to adversely affect these species. Therefore, further consultation under the Act is not required relative to these species and they will not be considered further in this biological opinion. If an occurrence of one of these listed species is newly discovered in the proximity of this project corridor as construction progresses, the Administration should consult with the Service regarding that new information.

III. Environmental baseline

Under the provisions of section 7(a)(2), when considering the “effects of the action” on listed species, the Service is required to consider the environmental baseline. Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area which have already undergone section 7 consultation, and the impacts of State and private actions which are contemporaneous with the consultation in progress.

Action area, as defined by the Act, includes the entire area that would be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. For the purposes of this biological opinion, the action area is defined as a two kilometer swath on either side of affected portions of U.S. Highway 89 and Duck Lake Road, as well as around other areas where construction related activities would occur.

Status of the species within the action area

Activities necessary to improve portions of U.S. Highway 89 and Duck Lake Road would occur within the Southeast Glacier BMU of the NCDE, while some segments of the project would occur outside of the NCDE grizzly bear recovery zone. However, because grizzlies regularly occur on the Blackfeet Reservation east of the recovery zone boundary, most project related activities would occur within the known distribution of grizzly bears (U.S. Forest Service 2002). Grizzly bears are present throughout the action area primarily between April and November. All grizzlies using this area winter in and along the boundary of Glacier National Park and emerge

from their dens between March and May. Female grizzlies with cubs generally return to their dens in October and males return to their dens between November and December. Grizzly bears appear to be active at all times of the day, especially when there are no human disturbances nearby and during the berry season. In the presence of human disturbance, bears typically are most active in the early morning and late evening (Herrera 2004).

From April through June, bears along the eastern edge of Glacier National Park move to lower elevations seeking suitable foraging habitat, including areas of the Blackfoot Indian Reservation that occur within the action area. Important early-spring foraging habitats in the project area include aspen grovelands and riparian areas with newly emerging vegetation and the carrion of livestock that did not survive the winter and spring. Research conducted by the Blackfoot Nation from 1987 through the late 1990s found aspen grovelands and riparian areas to be preferred habitat for grizzly bears on the reservation. Radio-collared bears were located on numerous occasions in the riparian areas associated with the South Fork Cut Bank Creek drainages and the South Fork Milk River drainages. Bears have also been observed crossing the highway at these locations many times and were regularly recorded in habitats on both sides of the U.S. Highway 89 corridor. In recent years, bears have been reported frequently at ranches along the Duck Lake Road near Duck Lake. Because foraging habitat is limited in early spring, April through June represents the primary period of activity for bears in the project area, with riparian and aspen groveland habitats receiving most use of all available habitats. Grizzly bears that inhabit the project corridor are also reported at dumpsters near Kiowa and Saint Mary. Bears that become food conditioned often cause problems later and must be trapped and relocated or put to death (Herrera 2004).

During the Blackfoot Nation's grizzly bear study from 1987 through the late 1990s, approximately 40 bears were tracked and monitored to identify habitat use on the reservation. Based on the data collected during that time period, the bears in the study displayed variable foraging strategies. Bears entered the reservation beginning in April to forage in grovelands and riparian areas. Some bears spent only a few weeks in early spring on the reservation before moving back into Glacier Park. Other bears moved back into the park by mid-June when food availability in the park increased. By mid-July, most bears had returned to the park to take advantage of the numerous foraging opportunities including cutworms, avalanche lilies, and berries. Still other bears remained on the reservation throughout the fall, likely foraging on insects, forbs, and berries. Berries are primarily available in riparian and conifer habitats. Livestock depredations on the reservation typically peak in the late fall when other food sources are diminished. Based on the results of the study, it was concluded that most bears using the reservation spend approximately half their time in the park and the other half on the reservation (Herrera 2004).

There are no reliable data on the number or sex of grizzly bears on the reservation. It is expected that both males and females (including those with cubs), representing a wide range of ages, use the habitats on the reservation. Tribal biologists handle an average of 15 bears per year as a result of livestock depredations and other conflicts with human activities. The number of calls and complaints increases slightly every year (Herrera 2004). During each of at least the past six

years, there have been known human-caused grizzly bear mortalities in the BMU that includes the action area. Causes of death for these grizzlies during the past six years include collisions with trains, management removals for conflicts with livestock and garbage, hunter self-defense, and collisions with cars. Several of these mortalities, including a reported road-killed grizzly on U.S. Highway 89, occurred on the Blackfeet Reservation in the general vicinity of this project (Servheen, unpublished, 2004b).

Factors affecting species environment within the action area

Grizzly bear habitat and populations were once continuous and contiguous throughout the Rocky Mountains. Grizzly numbers, habitat, and distribution were reduced through the actions of humans. Present grizzly bear range south of Canada consists of six fragments of habitat supporting five populations and constituting two percent of their former range. Valleys containing human developments of varying intensity separate each of these populations. As human development continues in these intervening areas, they become increasingly effective barriers to grizzly bear movement. It is widely accepted in conservation biology that island populations of any species are subject to high rates of extinction and that these rates are directly related to the size of the island. Wide ranging mammals are particularly sensitive to the detrimental effects of insular distribution (USFWS 1993).

Bears that occur in areas like the Blackfeet Reservation and other areas within the NCDE, where human development immediately adjacent to grizzly habitat is extensive, live with high levels of mortality risk from a number of human-related causes. Known, human-caused, non-hunting mortality for grizzly bears in the NCDE averaged nine bears per year from 1987-1992. Total human-caused mortality averaged 11 bears per year. These mortalities will likely continue due to inevitable interactions between bears and people throughout the ecosystem and will likely increase as the population increases. Average annual non-hunting mortality has remained almost constant since 1975, indicating that these kills are not likely to decline from present levels despite further intensive management (USFWS 1993). As stated earlier, as of late November, total known human-caused mortality in the NCDE during 2004 is 31; 18 of those were female grizzly bears. One of those female bears was killed in the Southeast Glacier BMU where this project would occur (Servheen, unpublished, 2004b), and three other female grizzlies (a sow with two female cubs) were killed just east of this BMU boundary, all for management reasons related to human-related food and garbage (Carney 2004 personal communication).

Identified sources of direct mortality include poaching, killing by vandals, and malicious killing. Accidental killings are a result of mistaken identity by black bear hunters. Control by livestock operators, apiarists, outfitters, hunter defense of quarry, and resort operators for protection of property also results in direct mortality. Accidental deaths also result from road kills by automobiles and trains, and from handling errors when bears are captured for management or research. Mortality occasionally results from actions of private citizens for self-defense or defense of others (USFWS 1993).

Identified sources of indirect mortality are those actions that bring bears and people into conflict such as road use, land development, and recreation. These actions include, but are not limited to, road construction, livestock grazing operations, timber harvest, mining, water development, and energy exploration and development (USFWS 1993). Many of these activities occur within proximity to this project corridor.

There have been several analyses on grizzly bear mortalities for the NCDE. During 1992-2001, Montana Fish, Wildlife and Parks reported 143 grizzly bear deaths that were known and human-caused. These mortalities were attributed to the following sources (percentages have been rounded to the nearest whole number): 22 percent (32) management removal due to food conditioning; 15 percent (21) due to illegal, malicious killing; 13 percent (18) due to train collisions; 11 percent (16) under investigation; 8 percent (12) illegal mistaken identification; 8 percent (12) livestock conflicts; 6 percent (9) legal self defense; 6 percent (9) related to human fatalities; 3 percent (5) vehicle collision; 3 percent (5) unknown; 3 percent (4) capture related (USFWS 2002).

During 1999-2003, the Service reported a total of 84 known human-caused grizzly bear mortalities in the NCDE. They were attributed to the following causes: 31 human food/livestock; 22 train and vehicle collision; 17 malicious illegal; 11 legal self-defense/hunter; 3 human fatality. Of the human-caused mortalities during this period, 31 were female, 48 were male and 5 were unknown (USFWS 2004b).

Throughout the NCDE, there have been a total of 16 known grizzly bear mortalities caused by collisions with vehicles since 1980. Only two of those fatalities occurred during each of the decades of the 1980s and 1990s. However, twelve known road kill mortalities have occurred in the NCDE in just the past five years (2000 - 2004) (Servheen 2005 personal communication).

Since 1975, the grizzly bear has been afforded threatened status under the Act. Much effort has been expended by various Federal and State land and wildlife agencies, tribal governments, and segments of the public to conserve the species. Currently, the two leading challenges in grizzly bear conservation are the reduction of human-caused mortality and the conservation of remaining habitat. In the NCDE, annual monitoring of population parameters demonstrates that progress is being made. This has been achieved through rigorous sanitation projects within and surrounding the recovery zone, education and information programs, and increased law enforcement. In 1985, Federal and State agencies cooperated in the development of the Interagency Grizzly Bear Management Guidelines. The Guidelines detail protocol for nuisance bear management and also detail grizzly bear habitat management policies. Since the inception of the Guidelines, all agencies have worked to implement the policies stated in the Guidelines within and surrounding grizzly bear recovery zones (USFWS 1993).

IV. Effects of the action

Under section 7(a)(2) of the Act, "effects of the action" refers to the direct and indirect effects of an action on the species or critical habitat, along with the effects of other activities that are

interrelated or interdependent with that action. Direct effects are considered immediate effects of the project on the species or its habitat. Indirect effects are those caused by the proposed action and are later in time, but are still reasonably certain to occur. Interrelated actions are those that are part of a larger action and depend upon the larger action for their justification.

Interdependent actions are those that have no independent utility apart from the action under consultation (50 CFR 402.02). The effects of the action are added to the environmental baseline to determine the future baseline and to form the basis for the determination in this opinion.

Should the Federal action result in a jeopardy situation and/or adverse modification conclusion, the Service may propose reasonable and prudent alternatives that the Federal agency can take to avoid violation of section 7(a)(2). The effects discussed below are the result of direct and indirect impacts of implementing the proposed project.

General effects of roads on grizzly bears

Negative impacts associated with roads have influenced grizzly bear populations and habitat use patterns in numerous, widespread areas. The Interagency Grizzly Bear Committee (1987) summarized impacts reported in the literature, including:

- Avoidance/displacement of grizzly bears away from roads and road activity;
- Changes in grizzly bear behavior, especially habituation to humans, due to ongoing contact with roads and human activities conducted along roads;
- Habitat loss, modification, and fragmentation due to roads and road construction, including vegetative and topographic disturbances; and
- Direct mortality from road kills, legal and illegal harvest, and other factors resulting from increased human-bear encounters.

Mortality is the most serious consequence of roads in grizzly bear habitat. Mortalities result directly from collisions with vehicles and illegal shooting, or indirectly through habituation to human presence. Continued exposure to human presence, activity, noise, and other elements without negative consequence can result in habituation, which is essentially the loss of a grizzly bear's natural wariness of humans. Habituation increases the potential for conflicts between people and grizzly bears. Habituated grizzly bears often obtain human food or garbage and become involved in nuisance bear incidents, and/or threaten human life or property. Such grizzly bears generally experience high mortality rates as they are eventually destroyed or removed from the population through management actions. Habituated grizzly bears are also more vulnerable to illegal killing because of their increased exposure to people. In the Yellowstone region, humans killed habituated grizzly bears over three times as often as non-habituated grizzly bears (Mattson et al. 1992). Recent information indicates that the majority of NCDE grizzly bear mortalities occur on roaded, rural private lands, such as those traversed by this project, as opposed to multiple-use public lands or wilderness areas (Servheen, unpublished, 2004a).

Some grizzly bears, particularly subadults, readily habituate to humans and consequently suffer increased mortality risk. However, many grizzly bears under-use or avoid otherwise preferred habitats that are frequented by people. Such under-use of preferred habitat represents modification of normal grizzly bear behavior. Negative association with roads arises from the grizzly bears' fear of vehicles, vehicle noise and other human-related noise around roads, human scent along roads, and hunting and shooting along or from roads. Grizzly bears that experience such negative consequences learn to avoid the disturbance and annoyance generated by roads. Even occasional human-related vehicle noise can result in annoying grizzly bears to the extent that they continue to avoid roads.

All factors contributing to direct links between roads and displacement from habitat have not been quantified. As with mortality risk, the traffic level is likely an important factor in assessing the potential displacement caused by any road. Research indicates, however, that grizzly bears consistently were displaced from roads and habitat surrounding roads, often despite relatively low levels of human use (Mattson et al. 1987, McLellan and Shackleton 1988, Aune and Kasworm 1989, Kasworm and Manley 1990, Mace and Manley 1993, Mace et al. 1996), and despite these areas containing preferred habitat for breeding, feeding, shelter and reproduction (Aune and Stivers 1982). Mace et al. (1996) also reported that as traffic levels of roads increased, grizzly bear use of adjacent habitat decreased. Many studies have found that grizzly bears generally avoid habitat within 500 meters of roads (Mattson et al. 1987, Aune and Kasworm 1989, Kasworm and Manley 1990, Mace et al. 1996, Waller and Servheen in press). In Yellowstone National Park, Mattson et al. (1992) reported that wary grizzly bears avoided areas within two kilometers of major roads and four kilometers of major developments or town sites. Roads in low elevation habitats may result in avoidance of or displacement from important spring seasonal habitat for some grizzly bears or high mortality risk for those individuals that venture into and attempt to exploit resources contained in these low elevation areas (Mace et al. 1999).

Project specific direct effects

The primary effects of the proposed project on grizzly bears would be disturbance of foraging habitats during construction, loss of habitat, decrease in habitat value adjacent to the highway corridor, and increased difficulty crossing U.S. Highway 89. These impacts would be attributed to disturbance of vegetation from construction of a wider road surface, combined with reduced vegetative cover along the roadway and the increased traffic volumes and speed anticipated to occur after project completion (Herrera 2004).

Construction activities in the project corridor may disrupt grizzly bear access to foraging habitats and may displace grizzly bears from key foraging areas near construction sites. April through June represents the primary period of activity for grizzly bears in the project area with riparian and aspen groveland habitats receiving the most use. These habitats are important foraging areas for bears when they emerge from their dens and there are few other foraging opportunities available. Construction activities in the project corridor would likely be conducted in phases so that only a portion of the corridor would be under construction at any given time. The

construction season typically extends from April through November, although activities may continue through December and begin earlier in spring if weather conditions allow (Herrera 2004). The construction season coincides entirely with the period of grizzly bear use on the Blackfeet Reservation.

The proposed project would remove aspen groveland and riparian habitat in the U.S. Highway 89 project corridor and aspen groveland in the Duck Lake Road project corridor that are used by grizzly bears. Most of the habitat affected would be roadside vegetation that likely provides cover when grizzly bears are crossing the roadway, but that is probably not used much for foraging because of its proximity to the highway. Most stream crossings would occur on their existing alignments, so riparian vegetation disturbance would be minor at those sites. However, the Lake Creek crossing would occur at a new location, so riparian habitat destruction at that location would be more extensive. Within three aspen groveland patches, the highway alignment would shift and would, therefore, create openings and disturbed habitat within those areas. Other aspen groveland and riparian habitat would be crossed on existing alignments, which would create wider openings but would not cause impacts at new locations in these habitats (Herrera 2004).

In addition to the loss of habitat, the wider road surface and vegetation clearing in the project corridor would incrementally increase the difficulty for wildlife crossing the highway. The availability of adequate cover during movements between habitats is a critical component of bear habitat. It is generally accepted that grizzly bears avoid roads and usually avoid crossing them (Herrera 2004).

Gibeau et al. (2001) found that highway crossings by grizzly bears were concentrated in specific locations and occurred during the day as well as the night. Waller and Servheen (in press) also found locations where grizzly bears crossed a major highway to be spatially clustered. However, their study reported that grizzly bears crossed more often at night, even when outside their normal periods of activity, to take advantage of periods with lower traffic volumes. Areas with a high frequency of bear crossings were characterized by close proximity to a major drainage, rugged terrain, high quality habitat, and low human access. Thus, cover and low human occurrence are key features at preferred crossing sites (Herrera 2004).

Existing conditions that likely facilitate bear and other wildlife movement across the Highway 89 corridor include the relatively low traffic volumes during much of the year and at night; the dense vegetation in close proximity to the road which provides secure cover; the low posted speed limit of 70 kph (45 mph) and road sinuosity north of Kiowa which helps maintain reasonable travel speeds; and the nature of the corridor's use as a scenic and wildlife viewing route for tourists accessing Glacier National Park (Herrera 2004).

These conditions would be maintained to some extent after the roadway improvements are implemented. The area of greatest concern between Browning and Kiowa is in the segment just east of the tributary to South Fork Cut Bank Creek, east of Kiowa. Overall, road widening and

vegetation clearing for the segment from Browning to Kiowa would increase the road corridor width between 4.2 meters and 20.6 meters (Herrera 2004).

The portion of the corridor north of Kiowa would retain a 70 kph (45 mph) speed limit and much of its sinuosity, although some curves would be eliminated and others softened. This portion of the corridor currently averages about 10 meters in width. The areas of greatest concern along the project corridor between Kiowa and Hudson Bay Divide are just north of Kiowa where the highway crosses Lake Creek and South Fork Cut Bank Creek, and further north where Highway 89 crosses the south and middle branches of South Fork Milk River. Vegetation clearing to widen and improve the roadway in these areas would result in an average width of 20 to 24 meters (Herrera 2004).

Numerous provisions have been incorporated into the preliminary design for the U.S. Highway 89 corridor to retain and restore the existing conditions of the corridor that currently serve to facilitate wildlife movement. These provisions include minimizing vegetation clearing and restoring vegetation in disturbed areas beyond the clear zone of the roadway, particularly in known wildlife movement areas (Herrera 2004).

Roadside pullouts and scenic vistas with picnic tables and garbage facilities may attract bears if the garbage is not properly handled. These factors would be considered in determining the final configuration and design of these facilities so that these conflicts can be avoided (Herrera 2004).

Project specific indirect effects

Much of the purpose and need justification stated for this project relates to concern about traffic. Concerns for the road's level of service and safety for the traveling public exist because the configuration and condition of the existing roadway don't allow traffic to move as fast and efficiently as transportation agencies require. These concerns about uneven traffic flow and speed are exacerbated by predictions that average daily traffic volumes are projected to increase substantially over the next 25 years. Therefore, this U.S. Highway 89 project has been proposed to improve road conditions and address these concerns by creating a wider and somewhat straighter highway corridor that would accommodate higher traffic levels and facilitate increased traffic speeds, resulting in a more even flow of vehicles (MDT and FHWA 2004).

Indirect effects of the proposed action that may affect grizzly bears include an increase in the speed of vehicle traffic in localized areas where sharp curves would be eliminated. One such area of concern is in the area just south of the South Fork Milk River where the elimination of a series of sharp curves would likely result in increased travel speeds in this portion of the corridor. This area is highly used by a variety of wildlife species and is a known bear crossing area. Increased travel speeds at this location may increase the risk of bear/vehicle collisions. Observations in Yellowstone National Park led to conclusions that driver comfort (e.g., road and weather conditions and road design) affected travel speeds more than posted speed limits. Road improvements in Yellowstone National Park resulted in increased travel speeds and increased wildlife/vehicle collision rates. Even relatively low traffic speeds can result in significant

wildlife mortality. Vehicles that struck and killed two grizzly bears during an eight-year study in Yellowstone Park were only traveling at 56 kph (35 mph) and 72 kph (45 mph). The level of risk for this project associated with the South Fork Milk River location is difficult to assess because the proposed widening and realignments would provide drivers with more distance and width to react to wildlife on the road, hopefully facilitating avoidance of collisions (Herrera 2004).

Another indirect effect associated with upgrading U.S. Highway 89 that may affect grizzly bears is related to traffic levels. According to Ruediger et al. (1999), when traffic volumes reach 2,000 to 4,000 vehicles per day, roadways become a substantial barrier to wildlife movement. This is attributed to substantial increases in road kill and the continuous clustering of cars, which results in an insufficient number of breaks in traffic flow to provide opportunities for wildlife to cross. Traffic volumes for the portion of the U.S. Highway 89 corridor north of Kiowa would exceed 2,000 vehicles per day during the May through October period by the year 2025. South of Kiowa, traffic volumes would exceed 2,000 vehicles per day for the months of July and August, and on weekend days in June and September, by 2025. For the Duck Lake Road corridor, traffic volumes would exceed 2,000 vehicles per day during July and August by 2025. Therefore, while the Highway 89 corridor is likely not currently a barrier to most wildlife movement, it is expected that during the life of the improved roadway, increases in traffic volumes would make this roadway increasingly difficult for wildlife to cross without some accommodations for wildlife passage (Herrera 2004).

The information above relates to general wildlife interactions with traffic volumes. In regards specifically to grizzly bears, there have not been large numbers of grizzly bears killed by vehicle collisions. This may be attributed to the grizzly's general avoidance of highways, their low population densities, and/or the bear's adaptation to successfully crossing highways. While it may seem intuitive that an increase in traffic volume would increase the risk of bear-vehicle collisions, direct mortality of grizzly bears as a result of crossing highways with various traffic volumes historically has not been a significant problem for the overall grizzly bear population in the NCDE (Herrera 2004). However, grizzly bears are hit and killed on roads throughout their range in the conterminous U.S. almost every year. Within the NCDE, grizzly bear mortalities from vehicle collisions have increased dramatically within the past five years (Servheen 2005 personal communication). More locally, grizzly bear mortalities from vehicle collisions have been confirmed on U.S. Highway 2 south of the project area, and a grizzly was reported hit by a car on U.S. Highway 89 during 2000, just north of the project area (USFWS, unpublished, 2004). Highway traffic volumes will invariably continue to rise in response to predicted regional and national growth, and within the next few decades many highways through grizzly bear habitat that have historically had relatively low levels of traffic will reach traffic levels that may become problematic for grizzly bears and other wildlife. Within the Blackfoot Reservation, U.S. Highway 89 and Duck Lake Road are examples of highways where expected traffic volumes will be reaching levels of concern for wildlife crossings within the life of this project. The highest predicted volumes of traffic are expected to occur during the time of year when grizzly bears are most likely to be present in this corridor. Mortality risks to grizzly bears will increase accordingly along these road corridors.

Besides direct mortality, another concern related to increased traffic volumes and grizzly bear movements is the potential barrier effect. Existing traffic volumes likely don't restrict grizzly bear crossings of U.S. Highway 89 to any great extent. However, as traffic levels increase, it is reasonable to expect that bears in the Highway 89 corridor will respond by adjusting their crossing habits. At some threshold level, some bears may eventually be deterred from habitats on the east side of the highway corridor. Other bears may adapt to increase traffic volumes by learning where and when to cross or by timing their crossings to correspond with periods of low traffic volume. The proposed project design and conservation measures will likely improve highway permeability for bears to some degree and allow bears to remain relatively unaffected below some higher traffic volume. Because the traffic volume threshold associated with adverse effects to grizzly bears isn't empirically known, there is the potential within the project life that traffic could increase to a level at which adverse effects to grizzly bears result if some bears remain deterred from the corridor and from access to spring foraging habitats (Herrera 2004).

Interrelated and interdependent effects

Interrelated and interdependent actions associated with the U.S. Highway 89 improvement project include development of material source sites for gravel extraction. The roadway has been designed in an attempt to balance the amount of cut and fill. However, materials would be needed for the structural surfacing of the road including coarse crushed gravel, fine crushed gravel, and plant mix surfacing (i.e., asphalt). While the material source sites for this project have not been identified, these materials are normally extracted as near the project site as available. Material source site development includes the excavation of soils and rock for use in the construction of the roadway. Generally these materials are excavated from the selected site with excavators and materials are then deposited into dump trucks for delivery to the work site or to a crushing operation where large rocks are ground into usable construction materials. Blasting may also be used to exploit resources within the material source site. Crushing operations may be located at the material source site or nearer the project corridor. The combination of activities necessary at such sites often results in large and loud undertakings that operate continuously for long periods of time. Depending on the location of the material source site, development of access roads to the site may also be required (Herrera 2004).

Development of material sources sites would likely occur as near the project corridor as feasible and may, therefore, be located within the boundaries of the grizzly bear recovery area. Because of the types and quality of habitats present, development of material source sites within the boundaries of the grizzly bear recovery area would result in additional adverse effects to grizzly bears. Such development in this area would result in additional loss of grizzly bear habitat and could displace grizzly bears by disrupting their spring movements from Glacier National Park to the project area for accessing key foraging habitats, and their fall movements in the reverse direction when bears are moving from the Blackfeet Reservation back into the park to access berries in avalanche chutes (Herrera 2004).

V. Cumulative effects

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation and analysis pursuant to Section 7 of the Act.

Predominant land uses in the lower elevations of the project area are business and residential development, livestock grazing, and crop production. The transitional areas (mid-elevations) have some residences and businesses such as campgrounds and general stores, as well as livestock grazing. The densely forested portion of the project corridor that occurs at higher elevations is largely unpopulated. Along the Glacier National Park boundary, tribal lands are managed for timber harvesting and wildlife. The reservation also has a few small oil and gas fields, and mineral exploration is ongoing (Herrera 2004).

Planned actions in the project area include the construction of a resort facility north of Saint Mary, construction of a water pipeline from East Glacier to Browning along U.S. Highway 2, and continued oil and gas exploration. These activities may also disturb grizzly bears during implementation, and the Saint Mary resort facility may increase human presence in the vicinity of important habitat. It is expected, however, that these projects would go through the Blackfeet Nation's environmental review process and include appropriate measures to minimize impacts on grizzly bear habitat (Herrera 2004).

The Saint Mary resort facility is expected to attract numerous visitors each year and may generate increased traffic volumes or accelerate predicted traffic increases in the project corridor. At present, the resort facility is in the early planning stages and no traffic analysis related to it has been completed. Therefore, it is difficult to predict if this planned facility would affect traffic volumes in the U.S. Highway 89 corridor or result in a cumulative impact on grizzly bears (Herrera 2004).

Road development, residential development, oil and gas exploration, ranching and livestock grazing, irrigation withdrawals, and commercial development have contributed to the loss of wildlife habitat and the conversion of native grasslands to pastures dominated by nonnative species, which exhibit different characteristics from native lands. Most of these activities are likely to continue in the project vicinity and would contribute to the cumulative loss of grizzly bear habitat in the project area. Future actions may cause traffic volumes in the corridor to increase at a greater rate than currently predicted. This would cumulatively increase the difficulty with which grizzlies and other wildlife could cross the highway corridor, especially during the summer months when traffic volumes would be at their highest levels. Implementation of measures to facilitate wildlife movement in the project corridor would reduce some of the impacts cumulatively affecting grizzly bears in the project area (MDT and FHWA 2004).

VI. Conclusion

Jeopardy analysis for the species

After reviewing the current status of grizzly bears, the environmental baseline for the action area, the effects of the proposed reconstruction of U.S. Highway 89 between Browning and the Hudson Bay Divide, along with the Duck Lake Road improvements in Glacier County, Montana, and the cumulative effects, it is the Service's biological opinion that this project, as proposed, is not likely to jeopardize the continued existence of the NCDE grizzly bear population. No critical habitat has been designated for this species, therefore none would be affected. Implementing regulations for section 7 (50 CFR 402) define "jeopardize the continued existence of" as to "engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." Our rationale for this non-jeopardy conclusion is summarized in, but not limited to, the following factors:

- Although not statistically validated, there is information that suggests the grizzly bear population in the NCDE is expanding. Location data documents a relatively recent (five to ten years) expansion of grizzly bears outside the recovery zone boundaries to the east, south and west of the NCDE. Due to the broad distribution of grizzly bear locations and known grizzly bear distribution within the recovery zone, this expansion is likely due to increased grizzly bear numbers in several areas of the recovery zone.
- Recent survey work in the northern one-third of the NCDE (including Glacier National Park, adjacent national forest lands and a portion of the Blackfeet Indian Reservation) suggests that the minimum unduplicated females with cubs population parameter as currently employed conservatively underestimates the total number of grizzly bears in this ecosystem. The USGS conducted a DNA-based mark-recapture study in the greater Glacier area from 1998 through 2000. Preliminary, provisional population estimates suggested 381 grizzly bears in 1998, and 273 in 2000 for the northern one-third of the NCDE alone.
- Recent information indicates that the majority of human-caused mortalities in the NCDE continue to be management removal of habituated nuisance bears, collision with trains, and illegal killings. Vehicle collisions comprise a relatively small percentage of grizzly bear mortalities in the NCDE.
- No grizzly bears have been reported killed as a result of being struck by a vehicle within the project area, and there has been only one such mortality reported on U.S. Highway 89 in the vicinity of this project area. Perhaps because of the types of traffic, the relatively low traffic volumes, and the relatively low speed of traffic occurring within the project area for much of the year, grizzly bear mortalities associated with this stretch of Highway 89 have been very low.

- There are several measures included in the proposed action that would minimize impacts to grizzly bears (see the description of proposed action section).

Our conclusion that the proposed action is not likely jeopardize the continued existence of the NCDE grizzly bear population is based primarily on the information presented in the biological assessment prepared for the proposed U.S. 89 Browning - Hudson Bay Divide corridor study (Herrera 2004), information in our files, and informal discussions between the Service and biologists and other personnel from other agencies and groups.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act, and Federal regulation pursuant to section 4(d) of the Act, prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission that creates the likelihood of injury to listed wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Federal Highway Administration and their designated non-Federal representative (Montana Department of Transportation) so that they become binding conditions of any grant, permit or contract issued to the construction contractors who are selected to construct this project, as appropriate, for the exemption in section 7(o)(2) to apply. The Administration has a continuing duty to regulate the activity covered by this Incidental Take Statement. If the Administration: (1) fails to assume and implement the terms and conditions; or (2) fails to require the chosen construction contractors to adhere to the terms and conditions of the Incidental Take Statement through enforceable terms that are added to the permit, grant or contract document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Administration must report the progress of the action and its impact on the species to the Service as specified in the Incidental Take Statement [50 CFR 402.14(i)(3)].

Amount or extent of take anticipated

Roads affect wildlife at both the individual and population levels, especially for rare species like grizzly bears with large home ranges that include many roads. Individuals are affected through

traffic mortality, and also by the behavioral or physical barrier presented by the road. Local effects occur through reductions in the local population size because of traffic mortality, and also through reduced landscape connectivity because of the barrier effect of the road. Ultimately, regional effects may then occur in the form of reduced regional population size and persistence resulting from this combination of mortality and reduced connectivity. However, it is difficult to differentiate between the effects of increased mortality and the effects of decreased landscape connectivity on the regional population scale (Forman et al. 2003). The effects at the population level may not be as apparent, at least not for several generations. This is especially true for carnivore species, as a result of their long life spans that allow individuals to exist for some time without persisting as a population (Evinck et al. 1998).

Individual animals react differently to roads. Dispersing individuals (most often males) may travel hundreds of miles and obviously cross major highways when doing so. Many have huge home ranges that include a network of roads, including highways. These ranges are traversed on a regular basis and would include females with young. Roads may act as a more complete deterrent to crossing for females and young, and a partial obstacle for solitary males.

In addition to the need to access habitat requirements, an animal's individual behavior also plays an important role in wildlife crossings of roads. Little is known about the movement behavior of animals crossing roads. However, the few studies carried out so far indicate varied responses between species and between individuals of the same species. Response to traffic volumes, road surface composition, use of highway crossing structures, and types of terrain used for crossing sites all varied amongst and between the mid to large-sized carnivore species studied (Forman et al. 2003).

As previously stated, there were twelve known grizzly bear fatalities caused by collisions with vehicles on roads within the NCDE between 2000 and 2004, at least one of which occurred on U.S. Highway 89 in the vicinity of this proposed project. The Service considers that road killed grizzly bears are a result of, but not the purpose of, the existence and operation of highways. Such takings are, therefore, considered incidental to the highway's existence and operation. The number of individual grizzly bears affected by the proposed improvements to a segment U.S. Highway 89 and Duck Lake Road is likely relatively low; however, these effects are still considered a taking even if only one grizzly bear is involved.

The Service anticipates that the direct and indirect effects associated with the proposed improvements to the U.S. Highway 89 corridor could add to the existing level of incidental take of grizzly bears occurring because of the existence and operation of the highway corridor. These ongoing effects could potentially result in two forms of incidental take. One form of incidental take may result from lethal collisions or non-lethal collisions resulting in harm to grizzly bears. The Service anticipates that no more than one grizzly bear will be hit by a vehicle in this road corridor during any 10-year period in the future. Any incidental take will be calculated beginning with the year in which construction of the proposed project commences. Therefore, should more than one grizzly bear be taken incidentally to the construction and operation of this segment of U.S. Highway 89 or Duck Lake Road during any 10-year period in the future, the Administration

must immediately reinitiate formal consultation with the Service. Additionally, should the level of incidental take associated with the existence and operation of U.S. Highway 89 between Browning and the Hudson Bay Divide and Duck Lake Road reach, but not exceed, the anticipated incidental take level, the Administration should informally consult with the Service regarding the adequacy of existing mechanisms to minimize potential take.

We also anticipate that take may occur indirectly as another form of harm, whereby the presence and operation of the highway would modify grizzly bear habitat to the extent that it would impair essential behavioral patterns, including breeding, feeding, or sheltering. The presence and operation of highways may impede the ability of grizzly bears to access essential habitats. This could result in a lack of adequate food resources, which could in turn result in reduced fitness and impairment of reproduction or recruitment of young. These effects on individual grizzly bears will be difficult to detect and are largely unquantifiable in the short term and may be measurable only as long-term effects on the species' habitat and population levels. The number of grizzly bears that use the project area is unknown but grizzly bear observations have been documented in this highway corridor for many years. Although the Service anticipates that incidental take of grizzly bears would occur from the displacement effects of highway existence and operation, the best scientific and commercial data available are not sufficient to enable the Service to numerically quantify a specific amount of incidental take that would occur due to impaired reproduction caused by displacement. In such instances, we use surrogate measures to determine whether expected levels of take would be exceeded. In this case, reinitiation of consultation is required if the following conservation measures, which were previously described, are not fully implemented. These are the components of the proposed action that have been incorporated into the project to facilitate passage of grizzly bears across the Highway 89 corridor.

- A new bridge proposed at the Lake Creek crossing will be constructed to incorporate wildlife crossing features. The project design engineers will continue to involve staff biologists in the design and configuration of this structure to enhance its attractiveness as a crossing location for wildlife. In addition, a revegetation plan will be implemented at this site to provide additional crossing cover. Wildlife fencing may be incorporated to funnel wildlife through the crossing area.
- A new highway bridge will be constructed at the main stem of South Fork Cut Bank Creek. This structure will include a wider bridge opening than the existing bridge and will provide for dryland passage of wildlife underneath the bridge during most months of the year. Wildlife fencing may be incorporated to funnel wildlife toward the crossing area.
- To ensure that final designs for proposed crossing structures meet minimum requirements for the targeted species, the Department will consult with biologists from the Blackfeet Nation and the Service during the design of the structures for comments on bridge length and height at Lake Creek and South Fork Cut Bank Creek.

- Shrubs and trees will be planted along the banks of North Fork Cut Bank Creek at the highway bridge crossing location to enhance the vegetative cover at this site and improve wildlife crossing opportunities at this existing structure.
- At all riparian areas throughout the corridor, construction limits and roadway fill widths will be minimized and as much vegetation as feasible will be retained adjacent to the roadway.
- Segments of the existing roadway that currently bisect aspen grovelands and that would be abandoned will be reclaimed. These areas will require detailed restoration plans including soil treatment, planting specifications, if needed, and fencing provisions.
- Construction plans will specify that clearing and grubbing beyond the construction limits (not the right-of-way limits) will be kept to the smallest area possible and reclaimed following construction within the following areas: the riparian area east of Kiowa (stationing 190+00 to 217+00), Lake Creek and South Fork Cut Bank Creek (stationing 228+00 to 238+00), and South Fork Milk River (stationing 354+20 to 376+00). This provision will also apply to any temporary clearing necessary for culvert or utility line installation or similar activities outside the construction limits but within the right-of-way.
- The V-shaped ditch will be applied to the extent feasible to minimize vegetation disturbance at the following locations along the project corridor: the riparian area east of Kiowa (stationing 190+00 to 217+00), Lake Creek and South Fork Cut Bank Creek (stationing 228+00 to 238+00), and South Fork Milk River (stationing 354+20 to 376+00).
- On-site visits would be conducted by biologists and botanists from the Department and the Blackfeet Nation to develop appropriate post-construction vegetation plans that include a woody species component to enhance the vegetative cover at the following locations: the riparian area east of Kiowa (stationing 190+00 to 217+00), Lake Creek and South Fork Cut Bank Creek (stationing 228+00 to 238+00), and South Fork Milk River (stationing 354+20 to 376+00).

Effect of the take

In the accompanying biological opinion, the Service has determined that this level of anticipated take is not likely to result in jeopardy to the species within the NCDE recovery zone. Critical habitat has not been designated for the grizzly bear; therefore, none would be affected.

Reasonable and prudent measures

Biological opinions typically provide reasonable and prudent measures which are expected to reduce the amount of incidental take. Reasonable and prudent measures are those measures

necessary and appropriate to minimize the incidental take resulting from the proposed action. These reasonable and prudent measures are non-discretionary and must be implemented by the Administration in order for the exemption in section 7(o)(2) to apply.

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of listed species.

1. The Administration and Department shall identify and implement means to reduce the potential for incidental take of grizzly bears from direct mortality and from habitat fragmentation and displacement as a result of project-related increases in highway width and increases in traffic volume and speed.
2. The Administration and the Department shall implement the reporting requirements as described in the terms and conditions below.

Terms and conditions

In order to be exempt from the prohibitions of section 9 of the Act, biological opinions typically provide terms and conditions which implement the reasonable and prudent measures and outline reporting and monitoring requirements. These terms and conditions are non-discretionary.

1. To fulfill reasonable and prudent measure #1, the following terms and conditions shall be implemented:
 - a) Reconstruction of the highway and the stream crossing structures shall be conducted as described in the biological assessment and biological opinion that were prepared for this project. This shall include implementation of the following conservation measures described therein:
 - i.) A new bridge proposed at the Lake Creek crossing will be constructed to incorporate wildlife crossing features. The project design engineers will continue to involve staff biologists in the design and configuration of this structure to enhance its attractiveness as a crossing location for wildlife. In addition, a revegetation plan will be implemented at this site to provide additional crossing cover. Wildlife fencing may be incorporated to funnel wildlife through the crossing area.
 - ii.) A new highway bridge will be constructed at the main stem of South Fork Cut Bank Creek. This structure will include a wider bridge opening than the existing bridge and will provide for dryland passage of wildlife underneath the bridge during most months of the year. Wildlife fencing may be incorporated to funnel wildlife toward the crossing area.

- iii.) To ensure that final designs for proposed crossing structures meet minimum requirements for the targeted species, the Department will consult with biologists from the Blackfeet Nation and the Service during the design of the structures for comments on bridge length and height at Lake Creek and South Fork Cut Bank Creek.
- iv.) Shrubs and trees will be planted along the banks of North Fork Cut Bank Creek at the highway bridge crossing location to enhance the vegetative cover at this site and improve wildlife crossing opportunities at this existing structure.
- v.) At all riparian areas throughout the corridor, construction limits and roadway fill widths will be minimized and as much vegetation as feasible will be retained adjacent to the roadway.
- vi.) Segments of the existing roadway that currently bisect aspen grovelands and that would be abandoned will be reclaimed. These areas will require detailed restoration plans including soil treatment, planting specifications, if needed, and fencing provisions.
- vii.) Construction plans will specify that clearing and grubbing beyond the construction limits (not the right-of-way limits) will be kept to the smallest area possible and reclaimed following construction within the following areas: the riparian area east of Kiowa (stationing 190+00 to 217+00), Lake Creek and South Fork Cut Bank Creek (stationing 228+00 to 238+00), and South Fork Milk River (stationing 354+20 to 376+00). This provision will also apply to any temporary clearing necessary for culvert or utility line installation or similar activities outside the construction limits but within the right-of-way.
- viii.) The V-shaped ditch will be applied to the extent feasible to minimize vegetation disturbance at the following locations along the project corridor: the riparian area east of Kiowa (stationing 190+00 to 217+00), Lake Creek and South Fork Cut Bank Creek (stationing 228+00 to 238+00), and South Fork Milk River (stationing 354+20 to 376+00).
- ix.) On-site visits would be conducted by biologists and botanists from the Department and the Blackfeet Nation to develop appropriate post-construction vegetation plans that include a woody species component to enhance the vegetative cover at the following locations: the riparian area east of Kiowa (stationing 190+00 to 217+00), Lake Creek and South Fork Cut Bank Creek (stationing 228+00 to 238+00), and South Fork Milk River (stationing 354+20 to 376+00).

2. To fulfill reasonable and prudent measure #2, the following terms and conditions shall be implemented:

- a) Upon locating a dead or injured grizzly bear (or other federally-listed species), notification must be made within 24 hours to the Service's Montana Field Office at (406)449-5225. Record information relative to the date, time and location of the dead or injured animal when found, and if possible, the cause of injury or death of each animal and provide this information to the Service.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from direct and indirect effects associated with improvements made to the U.S. Highway 89 corridor. With implementation of these measures, we expect that take of grizzly bears is not expected to exceed the anticipated levels discussed. If the terms and conditions outlined above are not adhered to, the level of incidental take anticipated in this biological opinion may be exceeded. Such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Administration must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

CONSERVATION RECOMMENDATIONS

Sections 2(c) and 7(a)(1) of the Act direct Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as Service suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibility for the species.

1. To assist in lowering the overall mortality risk of grizzly bears that live in the U.S. Highway 89 corridor, the Service recommends that the Administration and the Department develop a partnership with the Blackfeet Nation and others to cooperatively acquire bear-proof garbage containers that are needed at sites within the Highway 89 corridor. Substantial numbers of known human-caused grizzly bear mortalities in the NCDE, especially on the Blackfeet Indian Reservation, are the result of management actions involving habituated and food-conditioned bears that have repeatedly come in conflict with human food or garbage and are subsequently removed from the population. Grizzly bears whose home ranges overlap portions of the Highway 89 corridor are exposed to human food and garbage in a number of locations, particularly in and around developed areas such as Kiowa and Saint Mary. Highway construction related activities, as well as the long-term existence and operation of an improved roadway through important grizzly bear habitat, increases the mortality risk of the bears that inhabit this corridor. These same grizzly bears also face risks related to other human developments

and their attendant attractants (e.g., human food and garbage, livestock, livestock and pet food, etc.) that occur in proximity to preferred grizzly bear habitat. Additional bear-proof garbage facilities in this corridor would appreciably decrease opportunities these grizzly bears have to become habituated or conditioned to human garbage and would reduce the overall risk to grizzly bears of management removals from the NCDE population.

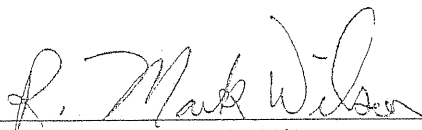
2. The Service urges the Administration and the Department to include additional measures within this project that would facilitate wildlife crossings of highways in the project area. Several sites were discussed in the draft environmental impact statement (pages 223 - 224) where large concrete culverts could be installed to improve connectivity of important habitats across roadways. These sites are located at reference posts 18.6 and 21.7 along U.S. Highway 89, and at reference post DLR-33.5 along the Duck Lake Road.
3. The Service strongly encourages the Administration and the Department to search for and implement innovative approaches to increase the permeability of Montana's highway corridors to wildlife, especially for mid to large-sized forest carnivore species. There is a growing awareness of the serious additive effects of highways on wildlife through habitat fragmentation, wildlife mortality, loss of habitat, avoidance of otherwise suitable habitat by wildlife, and related increases in human activity in proximity to highway corridors. The development of trials of various techniques and structures, along with modifications to existing structures, would provide valuable information on the efficacy of these strategies in a range of locations. Such information would be indispensable when planning future highway projects, allowing decisions regarding potential crossing applications to be based on actual data rather than on assumptions or estimates. This would focus and prioritize limited construction and conservation budgets and facilitate using the best technology at the most appropriate locations, maximizing benefits to wildlife as efficiently as possible. Another very important aspect of this approach is that reducing vehicle collisions with wildlife increases the safety of the traveling public. With close to 1,000,000 collisions annually in this country between cars and deer, and the approximately 29,000 human injuries and 211 human fatalities that result each year (Forman et al. 2003), this aspect should be emphasized when discussing the need to provide effective wildlife crossing opportunities on our highways.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the actions outlined in the request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency

action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. As some levels of take are unquantifiable, the Service retains the discretion to decide when the level of incidental take exempted in this opinion has been exceeded and to decide when consultation should be reinitiated.



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January 28, 2005

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