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7. ENVIRONMENTAL CONSEQUENCES AND MITIGATION

7.1. TRAFFIC OPERATION AND SAFETY

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The Montana Department of Transportation's (MDT) Preferred Alternative and the Confederated Salish and Kootenai Tribes' (CSKT) Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

7.1.1. Impacts Common To All Alternatives

With or without highway improvement, traffic demand is expected to continue to increase at an annual rate of three percent, which is the average annual rate of increase since 1970. By the design year ~~2015~~2020 (approximately 20 years after the earliest year portions of the proposed action are expected to be implemented), traffic will be slightly more than double the existing volume.~~, with average daily traffic (ADT) ranging from 10,510 at the permanent counter south of Ravalli to 13,110 in the Arlee area, 16,050 in the Ronan area and 21,700 in the Polson area.~~ Truck traffic is expected to continue to be 13.7% of total traffic south of Montana Secondary (MTS)~~Federal Aid Secondary Highway (FAS)~~ 212 and 10% north of MTS~~FAS~~ 212.

Figure 7.1-1 shows the projected design year ~~2015~~2020 ADT and design hourly volume (DHV) at various locations along the highway. The historic 30 HV factors of ~~12.9~~12.6 and 10.7% for rural and community sections of the roadway (Section 6.1.4) have been applied to projected ADT to determine the DHV.

~~It is estimated that, for 1991 traffic volume, travel time will be reduced slightly on four lane highways as compared with the existing highway. As projected increases in traffic volume occur, travel time will then increase, on a four-lane highway, to near 1991 travel time on the existing two lane highway.~~Major increases in travel times are expected, as projected ~~2015~~2020 traffic volumes occur, with No Action or Lane Configuration A. Travel times on any of the four-lane configurations (Lane Configuration B, C or D) will be reduced only slightly as projected year 2020~~2015~~ volumes occur. There are no measurable differences in travel times among Lane Configurations B, C and D, each of which is a four-lane highway. ~~(Table 7.1-1)~~

[Table 7.1-1 in the draft EIS has been removed, and tables have been renumbered in the final EIS.]

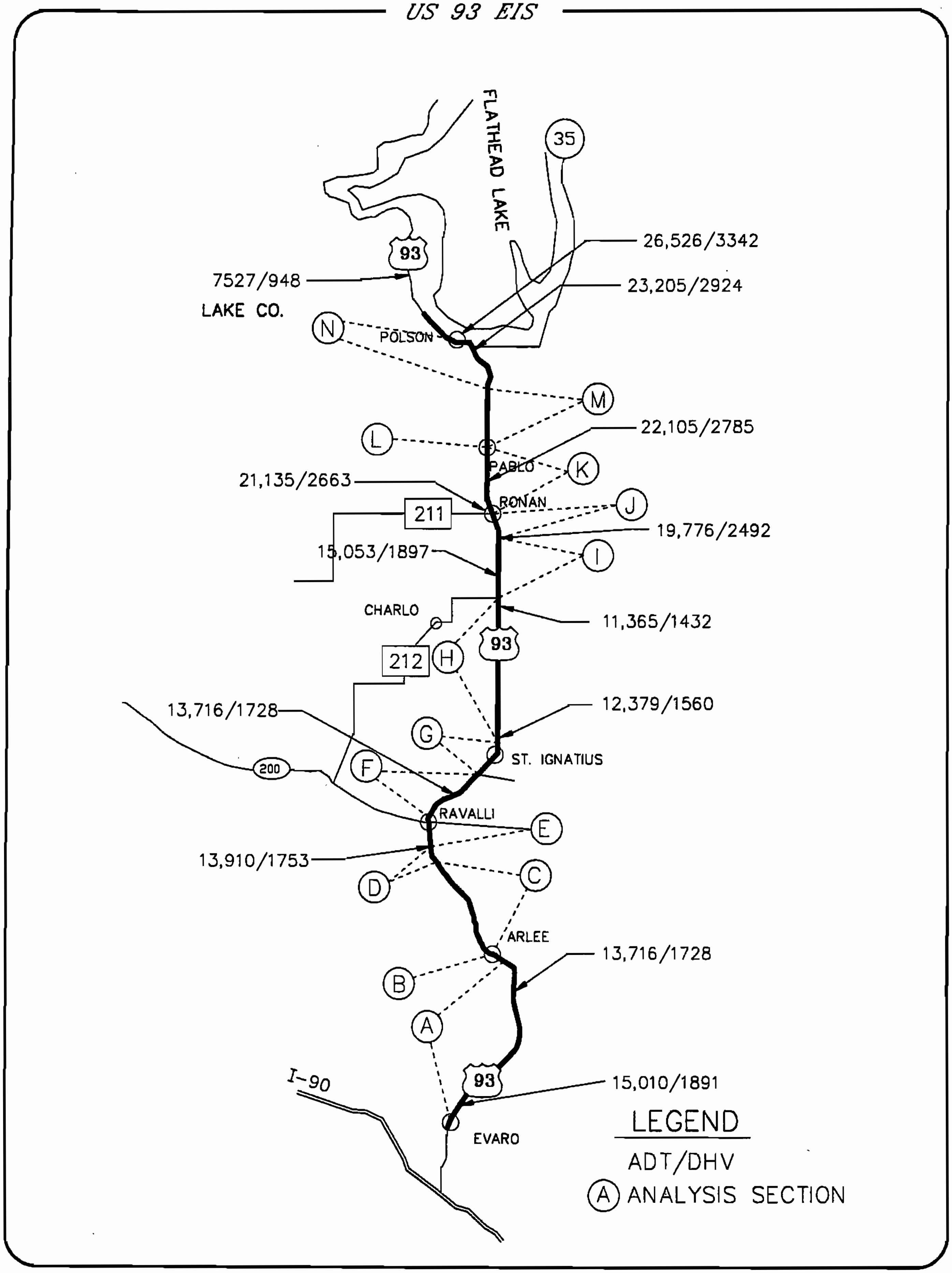
With any of the proposed lane configurations or alignment alternatives, safety benefits will occur due to improved alignments, grades, sight distance, shoulders, signing, left-turn bays, right-turn lanes and other related highway improvements.

Also, with any of the proposed lane configurations or alignment alternatives, substantial safety improvements will occur by the implementation of partial access control (also called limited access control) which will reduce the number of existing and future intersections and driveways on the highway.

Intersections and Signals

With all of the alternatives under consideration, including No Action, left turns from some side streets onto U.S. Highway 93 (US 93) will become more difficult as traffic volume increases. As indicated on Table ~~7.1-2~~7.1-1, LOS for this movement is projected to deteriorate to ~~D and~~ E by the design year 2020~~2015~~, at most intersections. At these service levels, long delays can be expected. At Round Butte Road (MTS~~FAS~~ 211) in Ronan and at Montana Highway (MT) 35 in Polson, where traffic signals are~~is~~ already in-place, LOS is projected to be B and C.

In addition to Round Butte Road in Ronan and MT 35 in Polson, it is estimated that signals may be warranted, and should be considered, at "B" Street (Butch Larsen/Taelman Street) in Arlee and Division Street in Pablo before the



2020 ADT & DHV

FIGURE 7.1-1

Table 7.1-1 2020 Intersection Operation

Intersection	Peak Hour Level-Of-Service*
B Street, Arlee (Butch Larsen/Taelman St.)***	D
MT 200, Ravalli	D
Main Access to St. Ignatius	D
MTS 212	E
Round Butte Road (MTS 211), Ronan***	B**
Division Street, Pablo	E
Clairmont Road, Pablo	E
Old U.S. 93, North of Pablo	E
MT 35	C**
Unsignalized streets in Polson***	E/F*
First Street East - Signalized***	B**

Morrison-Maierle. 1993.
* Left turns from side street onto U.S. Highway 93. ** With a traffic signal. *** If alternative alignments are constructed around these communities, traffic volumes will decrease substantially, and the LOS will be improved at these intersections.
This table has been revised in the final EIS using traffic volumes for the year 2020.

design year ~~2015~~2020. Signals may also be warranted at other locations. Where signals are installed, it is anticipated that LOS for left turns from side streets onto US 93 will be ~~B~~C or better through the design year.

Local governments, schools and other community organizations have expressed opinions that additional signals are needed on US 93, particularly as a means to assist and improve safety for school children and other pedestrians crossing the highway. As traffic volume increases, these intersections should be monitored and evaluated to determine if signals should be considered based on warrants specified by the Federal Highway Administration (FHWA).[1] The warrants take into consideration traffic characteristics such as traffic volume, vehicle type, pedestrian volume, pedestrian age, school crossings, vehicle speed, accident experience, interruptions and delays.

If warrants are met and before signals are installed, a complete study and intersection evaluation must be conducted to ensure the installation will improve safety overall and not create a safety problem of a different type or in a different location.

[1]Federal Highway Administration, Manual on Uniform Traffic Control Devices, 1988.

7.1.2. No Action

7.1.2.1. Roadway Geometrics

No Action will not correct the deficiencies in the existing geometric design of the highway, as described in Section 6.1.2. Substandard horizontal curves, vertical grades, vertical curves and shoulder width will not be improved and the resulting improvements in safety will not occur. As traffic volume continues to increase, the number of accidents are also expected to continue to increase.

If the highway is not improved, the large number of existing approaches will not be improved or reduced and the resulting reduction in intersection related accidents will not occur.

The highway will continue to pass through Arlee, Ronan and Polson, and existing adverse effects on traffic operation and safety, and the community, will not be improved.

7.1.2.2. Level-of-Service

An analysis of level-of-service (LOS) and capacity has been conducted for the design year ~~2015~~2020 for the existing highway and for alignment and lane configuration alternatives under consideration using methods outlined in the ~~1985~~1994 Highway Capacity Manual[2] and design hourly volumes described in the previous section.

Results of the LOS analysis for the existing, two-lane highway for the design year ~~2015~~2020 are summarized in Table ~~7.1-3~~7.1-2. The existing highway will operate generally at LOS ~~E or~~ F. In areas where passing lanes exist in one direction, the highway will operate at LOS B in the direction of the passing lane~~, LOS F in the opposing direction~~ and LOS ~~E~~F overall.

LOS F represents heavily congested flow with traffic demand exceeding capacity (LOS E). As the capacity of the highway is exceeded, operations are characterized by stop and go waves, and flow is unstable, which further reduces the number of vehicles the highway can carry.

7.1.3. Existing Alignment (Except Arlee, Ronan and Polson)

The following sections describe traffic operation and safety impacts if Lane Configuration A, B, C or D is constructed on the existing US 93 corridor.

7.1.3.1. Roadway Geometrics

With any of the lane configurations under consideration, geometric design standard deficiencies (Section 6.1.2) will be corrected to achieve current 60 miles per hour (mph) design standards. The radius of the curve at Mileposts 25.3 to 25.5 in Ravalli Canyon will be increased from 1,050 feet to 1,200 feet (degree of curvature of 4°45') which will provide for a 60 mph design speed. The radius of the curve at Mileposts 27.5 to 27.7 at the base of Ravalli Hill will be increased from 820 feet to 950 feet (degree of curvature of 6°00') which will provide for a 55 mph design speed. Increasing the radius of this curve further, to meet 60 mph design standards, will cause substantial additional excavation and embankment with related environmental impacts that may outweigh the benefits to be gained.

Substandard vertical grades at the Jocko River crossing, Mileposts 18.8 to 19.1 will be improved to four percent to meet design standards for 60 mph. This will require reconstruction of the existing bridge over the river. As indicated in Section 7.11, the replacement of the bridge is also required to adequately accommodate expected flood flows.

[2]Transportation Research Board, National Research Council, Highway Capacity Manual, Special Report 209, ~~1985~~1994.

Table 7.1-2 LOS of Existing Highway

Segment	Level-of-Service Year 2020
A - Evaro to Arlee	F(B)*
C - Arlee to Ravalli Canyon	F
D - Ravalli Canyon to Ravalli	F
E - Ravalli	E
F - Ravalli Hill	F(B)*
G - St. Ignatius	F
H - St. Ignatius to MTS 212	F
I - MTS 212 to Ronan	F
K - Ronan to Pablo	F
L - Pablo	F
M - Pablo to Caffrey Road	F
N - Caffrey Road to MT 35	F(B)*

*Level-of-service overall(in direction of passing lane)
This table has been revised in the final EIS using traffic volumes for the year 2020.

The grades on Post Creek Hill (Mileposts 38 to 40) that currently exceed four percent are for short lengths and can be improved to meet 60 mph standards without excessive additional excavation and embankment.

Improvement of the existing six-percent grades on Ravalli Hill (Mileposts 27.7 to 29.0) and on Polson Hill (Mileposts 57.3 to 57.8) is probably not desirable because it will cause substantial additional excavation and embankment with related environmental impacts that may outweigh the benefits to be gained.

All vertical curves (a curve in the vertical alignment designed to effect a gradual change between different vertical grades) will be constructed to meet 60 mph design standards. To achieve this, only minor revisions of the existing vertical alignment will be required.

All of the lane configurations will have eight-foot shoulders to meet design standards for the existing and projected future traffic volume. The wider shoulders will provide additional width for 1) emergency stopping on the roadway; 2) farm equipment, wide loads or other equipment using the roadway; 3) pedestrians and bicyclists (Sections 6.6 and 7.6); 4) a recovery zone for errant or out-of-control vehicles and 5) snow removal and storage. As a result, safety and driving comfort will improve.

The bridge over the railroad at Milepost 9.7 will require widening or reconstruction to accommodate any of the lane configurations.

The Jocko River bridge at Milepost 19.0 will require reconstruction because it is not wide enough to accommodate any of the lane configurations, will not accommodate estimated flood flows if it is widened (Section 7.11) and is too low to allow improvement of the existing substandard vertical grades.

The bridge over Post Creek will require widening or reconstruction because it is not wide enough to accommodate any of the lane configurations. As discussed in Section 7.12, a proposed mitigation measure for possible wildlife impacts is to increase the span of this structure to allow wildlife traveling along Post Creek to cross under the highway.

The bridge at Ninepipe Reservoir is not in good condition and is not wide enough to accommodate any of the lane configurations. It must be reconstructed.

Any of the lane configurations under consideration will require widening or reconstruction of the railroad bridge at Milepost 9.7. Portions of the railroad line near Polson between Mileposts 58.4 and 59.2 will require relocation. Other than these areas, construction will generally not affect the railroad. There will be some areas where temporary construction permits may be required to construct fill slopes, particularly if Lane Configuration B, C or D is constructed. Portions of the existing highway are constructed on easements granted to MDT by the railroad. To avoid additional impacts on the railroad if Lane Configuration B, C or D is constructed, the centerline of the new roadway must be adjusted away from the railroad in some areas to avoid encroachments closer to the railroad and outside the existing highway easements. The railroad has indicated that it cannot allow additional encroachments and will not grant additional easements in these areas.

7.1.3.2. Intersections and Driveways

With all of the lane configurations, intersections and approaches to the highway will be improved to provide angles of intersection with US 93 near perpendicular -- this will improve sight distance. Approach grades will be improved to three percent or less near the highway (within 75 feet on public approaches and within 25 feet on private approaches) and 10% or less away from the highway -- this will reduce problems with stopping as vehicles approach US 93 on down grades and with starting and accelerating on up grades. The number of approaches will be reduced as much as practical by eliminating unused approaches, consolidating approaches and by using frontage roads -- this will help improve safety, capacity, service level and driving comfort.

On most of the existing US 93 in the area, access currently is controlled through driveway and approach regulations where access is managed by MDT through application of road approach standards and permit requirements. Land owners desiring to construct a driveway approach need only obtain a permit from the Missoula District of MDT after demonstrating that it will be constructed properly and will not create a particular safety hazard. Sight distance for safety is the primary factor used to determine if it is appropriate to issue a permit for an approach.

MDT has purchased rights for partial access control (also called limited access control) for approximately 40% of the land adjacent to highway ROW between Ronan and Polson. Access rights have not been purchased for the remainder of the proposed action.

Implementation of partial access control is considered to be desirable for all of the lane configurations for most areas along the roadway except in the existing communities such as Arlee, Ravalli, St. Ignatius, Ronan, Pablo and Polson. Partial access control allows access at selected public roads and at private driveways as identified in deeds and other legal documents. Partial access control will be purchased from affected landowners along the highway. As part of the implementation of partial access control, approaches to US 93 will be eliminated where alternative access can be provided and consolidated with other approaches as much as practical. This will serve to reduce the number of existing and future approaches to the highway and thereby preserve and enhance safety, capacity and driving comfort.

Implementation of full control of access, which allows access only at specified road connections or interchanges, would create major adverse impacts for property owners adjacent to the highway, or it would require the construction of extensive sections of frontage road, which would have substantial additional right-of-way (ROW) requirements and related adverse environmental impacts. It is not recommended.

Access Management Plan

MDT will prepare and implement a specific access control plan for the proposed action. The plan will be site specific to consider a broad range of access, safety, traffic and land use factors on a parcel-by-parcel basis for determining numbers and types of approaches. The factors will be based on, but not limited to, the following:

- Character of traffic.
- Adjacent land use.
- Adjacent land division and ownership.
- Geometrics and design standards.
- Cost of special design features.
- Cost of future accidents.
- Cost of purchasing access rights.
- Public safety.
- Future development.
- Balance with needs for growth and economic well being.
- Environmental values

MDT will use information in the final EIS and other information available from the Confederated Salish and Kootenai Tribes and Lake and Missoula counties to develop the access control plan for US 93.

This plan also will be based on the 1992 MDT Access Management Plan (which is currently used by MDT as a guide for access management throughout Montana) and on a modified MDT access management plan that is currently being prepared based on recommendations of the statewide intermodal transportation plan, TranPlan 21. These plans are described in following sections.

1992 MDT Access Management Plan

The current MDT Access Management Plan (April 1992) has provisions of general policy about access management approved by the Montana Transportation Commission (MTC). Access management is the process of managing points of access to the highway through the use of access control or a permitting system.

The 1992 MDT Access Management Plan establishes the purpose of access management:

- Maintain the flow of traffic and the functional integrity of the highway.
- Enhance public safety.
- Preserve the public's investment in the highway.
- Reduce future maintenance costs.
- Permit highway expansion on existing locations.

The 1992 access management plan also recognizes the need to be responsive to changing patterns of land use.

Access control limits the rights of owners or occupants of abutting land or other persons to access, light, air or view in connection with the highway. It applies to private approaches, entering directly onto through lanes of the highway, and public street or road intersections with the highway.

Partial access control allows access at selected public roads and private driveways. Full access control allows access only at specified road connections or interchanges.

The plan indicates that generally, access rights will not be purchased within cities or at locations where the existing pattern of ownership and density of use results in a density of approaches having an average spacing of 200 feet or less measured on one side of the road. The access management plan recognizes topographic, land use and traffic conditions in situations such as the proposed action do require purchase of access rights, despite high density of approaches.

Once partial access control is established, new public and private access cannot be constructed without approval of MTC.

Access control on established or reconstructed highways may be acquired by purchase -- the value of property to be acquired for access rights is to be determined by an appraisal process and as a part of an access control plan.

Revocable farm field approaches may be permitted for use only as access to agricultural property. Farm field approaches will be revoked if they are used for any purpose other than agriculture.

Abutting property owners have no legal right of access to highways constructed in new locations. No compensation is paid for imposing access control on highways in new locations. Appropriate compensation will be paid for land and improvements acquired for ROW and for other legally compensable damages.

Modified Access Management Plan

MDT has completed a statewide multimodal transportation plan, *TranPlan 21*. It outlines policy goals and actions to provide uniform standards to govern access currently not available in the 1992 MDT Access Management Plan.

A modified access management plan is being prepared, using recommendations of TranPlan 21, that will provide more clear guidance to maintain the functional integrity and safety of the state highway system. It will have a classification system for management of access to transportation corridors. The classification system will consider existing level and character of land use to be coordinated with the existing highway functional classification system. In conjunction with the access classification system, MDT also will develop a list of technical methods for managing access. Implementation of new technical methods may require additional legislative authority.

As they become available, the provisions of the modified access management plan will be incorporated into the specific access management plan for the proposed action.

7.1.3.3. Safety

~~In areas~~With any of the proposed lane configurations, including ~~where~~ Lane Configuration A (an improved two-lane highway), ~~is constructed, some~~ improvement in safety ~~reduction in accident rates~~may occur due to the eight-foot shoulder to replace the existing four to six-foot shoulders. This will provide additional area for recovery of errant or out-of-control vehicles and for emergency stopping with less effect on through traffic traveling at highway speeds. Additional safety improvements will occur where additional designated left-turn bays and passing lanes are provided -- rear-end accidents and left-turn accidents, in particular, should be reduced.

Lane Configuration B, which includes four traffic lanes with no median to separate opposing traffic flows, is considered a multi-lane undivided arterial highway. The American Association of State Highway and Transportation Officials (AASHTO) reports the accident rate for all reported accidents on multi-lane undivided arterials, as an average for all volumes, is higher than that on two-lane arterials. AASHTO indicates that this occurs because of heavier volumes, more intersections and more development along multi-lane undivided arterials as compared with two-lane arterials.

When traffic volumes, intersection density and development remain approximately the same~~However~~, experience in ~~the State of~~ Montana and in the area of the proposed action indicates that accident rates and severity ~~rates~~ drop substantially when a two-lane highway is replaced by a four-lane highway.

For example, as indicated in Section 6.1.3.1, when the nearly six-mile-long section of US 93 from Interstate Highway 90 to Evaro was improved from two lanes to four lanes, substantial reductions in accidents, particularly fatal and injury accidents, occurred even though traffic volume increased. This six-mile-long I-90 to Evaro section of US 93 has similar drivers and weather conditions, and it has traffic volume, terrain and junction density similar to US 93 in the area of the proposed action. Indications are that this reduction in the frequency and severity of accidents may also occur between Evaro and Polson if Lane Configuration B, C or D (four-lane highways) is constructed.

AASHTO also indicates that, if traffic volume requires the construction of multi-lane arterials in rural areas where speeds are apt to be high, the consensus is that opposing traffic should be separated and that improvement of an existing two-lane arterial to a multi-lane facility preferably should include a median. According to AASHTO, an arterial highway is considered to be divided if two full lanes are provided in each direction of travel and the median is four feet or more wide and constructed or marked in a manner to preclude its use by moving vehicles except in emergencies or for left turns. The advantages of dividing the multi-lane arterial highway are increased safety, comfort and ease of operation. Of importance is the reduction of head-on collisions -- these accidents are usually more serious than other accidents.[3]

~~To help further improve safety where Lane Configuration B is constructed, at least a four-foot wide painted median should be considered.~~ However, a four to six feet wide painted median is not considered wide enough to be effective for achieving the safety and operational advantages listed above and does not justify the construction costs that would be incurred nor the environmental impacts that would result.

AASHTO indicates that a four-lane rural facility should have adequate median width to provide for protected left turns and that vehicles making a left turn should not be required to stop in the passing lane of a roadway designed for high volume and speed. When adequate median width for left turns is provided, rear-end collisions and inconveniences to through traffic resulting from left-turn movements are greatly reduced. Lane Configuration C will meet these criteria and provide width for protected left turns. An arterial highway with a continuous two-way left-turn center median (Lane Configuration C) is generally considered a safer facility.[4]

FHWA refers to a continuous two-way left-turn center median as a continuous two-way left-turn lane (C2WLTL). The following information on C2WLTLs is from a literature search provided to the Interdisciplinary (ID) Team by FHWA[5]:

> *"Considerable evidence shows that a C2WLTL is a cost-effective method of increasing the operational efficiency and safety of a highway where there is a demand for left-turns off of and onto the major roadway."*

> *"Speed limits from 25 to 55 mph will accommodate C2WLTLs."*

[3]Ibid.

[4]American Association of State Highway and Transportation Officials, A Policy on Geometric Design of Highways and Streets, 1990.

[5]Federal Highway Administration, Montana Division, Studies on Safety Concerns of 5-lane C2WLTL vs. 4-Lane Divided Highway, letter, with attachments, dated 22 July 1991. Copies of the letter and attachments were distributed to the project Interdisciplinary Team and the Tribal Staff in August 1991.

"Accident reductions averaging about 35% have been attributed to C2WLTLs."

"C2WLTLs also increase capacity and are well accepted by the driving public."

Further safety improvement can be achieved by the use of a wide median such as is provided with Lane Configuration D. With a wide median, head-on accidents can be virtually eliminated. Pedestrians crossing the divided arterial are required to watch traffic in only one direction at a time and are able to pause in the median before crossing the remaining lanes of traffic. Crossing and left-turning vehicles can slow down or stop between the one-way pavements to take advantage of breaks in traffic and cross when it is safe to do so. Headlight glare can be almost eliminated by wide medians.

7.1.3.4. Level-of-Service

~~In rural areas, desirable operation is defined as LOS B or better.[6] As described in Section 6.1.5, LOS B characterizes the region of traffic flow wherein speeds of 55 mph or slightly higher are expected on level terrain. Passing demand needed to maintain desired speeds becomes important and approximately equals the passing capacity at the lower boundary of LOS B. Drivers are delayed up to 45% of the time on the average.~~

~~As indicated in Table 7.1-3, Lane Configuration A will operate similarly to the existing highway, generally at LOS E or F, in the design year. In areas where passing lanes are added in one direction (Post Creek Hill, for example), the highway will operate at LOS B in the direction of the passing lane and LOS F overall. Refer to LOS descriptions in Section 6.1.5. Addition of the passing lane will substantially improve the operation in the direction of the additional lane, but will not improve the operation in the opposing lane and may degrade the operation because no passing will be allowed.~~

~~As explained in Section 6.1.5, traffic operation on a multi lane highway (four lanes or more), varies substantially from operation on a two-lane highway because of the method of passing. As a result of these differences, the service flow volume and capacity are generally several times higher on a four-lane highway as compared with a two-lane highway. Lane Configurations B, C and D will each include four traffic lanes and will provide LOS B through the design year 2015, except on the uphill lanes of Ravalli Hill.~~

~~LOS E may be considered acceptable on the uphill lanes on Ravalli Hill because it is in mountainous terrain; improvement to LOS B will require expanding the highway to more than four lanes or extensive leveling of the grade, which will be difficult, expensive and cause more severe environmental impacts.~~

LOS of an Improved Two-Lane Highway (Lane Configuration A)

An improved two-lane highway would include improvements as follows: eight-feet wide shoulders, improved alignments and grades; a northbound passing lane on Post Creek Hill; and left-turn bays at important intersections. For the purpose of this LOS analysis, sufficient grade improvements, alignment improvements and additional passing lanes are assumed to provide zero percent no-passing zones[7] on all segments.

Results of the LOS analysis for an improved two-lane highway are summarized in Table 7.1-3 and indicate that, though some improvement in operation will occur, the highway will still generally operate at LOS F in the year 2020 except for short distances where passing lanes are provided.

A major problem with two-lane highway operations involves the amount of time spent in a platoon behind slow moving vehicles unable to pass. Inability to pass leads to driver frustration and unsafe passing maneuvers. The

[6] Ibid. Page 495.

[7] Zero percent no-passing occurs when physical conditions of the roadway are such that passing is not prohibited anywhere on the highway.

amount of time spent in platoons rises rapidly as traffic volume increases because the demand for passing maneuvers increases while ability to pass decreases. This increases delay for vehicles traveling the highway.

Table 7.1-3 LOS of CSKT Preferred Alternative, Lane Configuration A, Improved Two-Lane Highway

Segment	Level-of-Service
	Year 2020
A - Evaro to Arlee	F(B)*
C - Arlee to Ravalli Canyon	F
D - Ravalli Canyon to Ravalli	F
E - Ravalli	E
F - Ravalli Hill	F(B)*
G - St. Ignatius	F
H - St. Ignatius to MTS 212	F(B)*
I - MTS 212 to Ronan	F
K - Ronan to Pablo	F
L - Pablo	F
M - Pablo to Caffrey Road	F
N - Caffrey Road to MT 35	F(B)*

*Level-of-service overall(in direction of passing lane)
This table has been revised in the final EIS using traffic volumes for the year 2020.

LOS of an Improved Two-Lane Highway with Transportation Demand Management Measures

Table 7.1-4 shows LOS of an improved two-lane highway, as described in the previous section, in the year 2020 if very aggressive transportation demand management (TDM) measures (Appendix B) are implemented to reduce traffic volumes on US 93 including:

- A very strong car-pooling program sufficient to remove five percent of the traffic from US 93.
- A program to shift traffic away from peak traffic hours such as offset work shifts sufficient to reduce traffic volumes an additional 10%.
- A very strong transit program sufficient to remove 100 vehicles per hour from US 93.
- A program to shift at least 50% of existing truck traffic to rail, air or other modes.

- Some method, not yet identified, to discourage use of the highway by tourists and cap tourist traffic at current levels.

Table 7.1-4 LOS of CSKT Preferred Alternative, Lane Configuration A, Improved Two-Lane Highway, with TDM

Segment	Level-of-Service
	Year 2020
A - Evaro to Arlee	E(A)*
C - Arlee to Ravalli Canyon	E
D - Ravalli Canyon to Ravalli	E
E - Ravalli	D
F - Ravalli Hill	E(A)*
G - St. Ignatius	E
H - St. Ignatius to MTS 212	E(A)*
I - MTS 212 to Ronan	E
K - Ronan to Pablo	F
L - Pablo	E
M - Pablo to Caffrey Road	F
N - Caffrey Road to MT 35	F(A)*

*Level-of-service overall(in direction of passing lane)
This table has been revised in the final EIS using traffic volumes for the year 2020.

As shown on Table 7.1-4, these measures would improve the LOS on the improved two-lane highway but operation would still not approach desired LOS B or even C.

LOS of a Four-Lane Highway (Lane Configuration B, C or D)

On a multi-lane facility (four-lanes or more), vehicles traveling the highway have more than one lane in each direction so that slower moving vehicles can be overtaken and passed without entering opposing traffic lanes. Traffic in opposing directions operates independently on multi-lane highways. As a result of these differences, the service flow volume and capacity are generally several-times higher on a four-lane highway as compared with a two-lane highway.

Results of the LOS analysis for four-lane highways are summarized in Table 7.1-5 and indicate that substantial improvements will occur -- the highway is projected to operate at LOS B or better in all segments through the design year, 2020.

Also, as shown on Table 7.1-5 and assuming that traffic volumes will continue to grow at currently projected rates, the highway will generally operate at LOS B and C through the year 2030.

Table 7.1-5 LOS of MDT Preferred Alternative, a Four-Lane Highway

Segment	Level-of-Service	
	Year 2020	Year 2030
A - Evaro to Arlee	B	B
C - Arlee to Ravalli Canyon	B	B
D - Ravalli Canyon to Ravalli	B	B
E - Ravalli	A	B
F - Ravalli Hill	B	B
G - St. Ignatius	B	B
H - St. Ignatius to MTS 212	B	B
I - MTS 212 to Ronan	B	B
K - Ronan to Pablo	B	C
L - Pablo	B	C
M - Pablo to Caffrey Road	B	C
N - Caffrey Road to MT 35	B	C
This table has been revised in the final EIS using traffic volumes for the year 2020.		

Conclusions

Desirable operation on a rural highway such as US 93 between Evaro and Polson is LOS B.

Traffic operation on the existing highway is currently at LOS D and E. Traffic operation in the design year, 2020, is projected to be at LOS F with No Action.

Construction of an improved two-lane highway will produce a slight improvement. However traffic will remain at LOS D and E with current traffic volumes and is projected to be at LOS F in the year 2020.

Construction of passing lanes will improve traffic operation only for a short distance within the passing lane. Overall LOS will not improve substantially as a result of the construction of passing lanes.

Implementation of aggressive TDM measures, in addition to the construction of an improved two-lane highway, will improve traffic operation in the design year, 2020, to generally LOS E. Desirable LOS B operation will not be achieved with this strategy.

A four-lane highway will accommodate existing (year 1994) and future (year 2020) traffic volumes at LOS A and B.

7.1.4. Arlee, Ronan and Polson Alignments

Alignment 1 in Arlee, Ronan and Polson will include leaving the highway in its existing alignment through these communities. With all lane configurations, the following conditions will remain:

- The speed limits are expected to remain at 35 mph in Arlee and 25 mph in Ronan and Polson.
- With the roadway passing through the communities, there will be little or no opportunity to improve grades and alignments of approaches and intersections, nor to reduce their numbers.
- Conflicts with pedestrians, particularly school children, will remain with related safety and operational problems. It is expected that additional pedestrian crossings and traffic signals will be required in the future.
- Conflicting traffic movements (left turns, right turns and crossing traffic) which are common in these communities will continue to affect and be affected by through traffic on US 93.
- There will be little or no opportunity to eliminate, consolidate or otherwise reduce the number of approaches to the highway in these communities on the existing alignment.
- An environment will remain where through traffic on US 93 is required to slow to pass through the community and where interruptions in traffic flow are frequent. Operation and efficiency levels will be less than on rural sections (between the communities) of the highway.

A continuous two-way left-turn center median will be desirable if Lane Configuration A is constructed along the existing alignment through Arlee or Ronan (this lane already exists through Ronan and Polson). This will reduce some of the conflicts related to vehicles turning left from US 93; but with or without this additional lane, Lane Configuration A will not substantially improve LOS on US 93 through these communities -- LOS is expected to remain at D in the near future and will deteriorate to LOS E by the design year 2020~~2015~~.

Lane Configuration B, a four-lane highway, on the existing alignment through Arlee and Ronan will provide a substantial improvement in LOS on US 93 and will operate at LOS B through the design year 2020~~2015~~. Traffic through these communities will then have an additional lane in each direction in which to pass turning vehicles.

Because of the substantial number of left turns from US 93 in Arlee, Ronan and Polson, a four-lane highway with a continuous two-way left-turn center median (Lane Configuration C) will be highly desirable. This will eliminate most conflicts with turning vehicles and provide LOS B through the year 2020~~2015~~.

Because of the width required and the limited area in which to construct a new roadway without numerous relocations of businesses and homes, Lane Configuration D is probably not practical and feasible through the communities of Arlee, Ronan and Polson along the existing alignment.

Any of the lane configurations on Alignments 2, 3 or 4 through the Arlee area, Alignments 3 or 4 through the Ronan area or Alignments 2 or 3 through Polson, will create substantial beneficial changes in the flow of traffic including:

- Normal highway speeds can be maintained through the area -- these alignments will be designed to meet 60 mph design standards, and it is anticipated the posted speed limit will be 55 mph.[8]

- Deficiencies in design standards on the existing highway will be corrected and resulting benefits will occur, as explained in Section 7.1.3.

- Fewer pedestrian crossings will be required. Businesses and schools (except Alignment 3 in Arlee which passes just east of the school) will no longer be located adjacent to or near the roadway, and the roadway will not pass through business and residential areas. Conflicts with pedestrians and related safety, operational and barrier problems will be substantially reduced.

- The number of intersections and approaches to the highway will be substantially reduced. There will be many opportunities to consolidate or eliminate approaches. Partial access control will be purchased from adjacent land owners for the highway, and future approaches will not be allowed except with the approval of MTC~~the Montana Highway Commission~~. This should result in a reduced accident rate, increased capacity, improved operation, efficiency and driving comfort on the highway.

- Interruptions to the flow of traffic will be eliminated or reduced with related improvement in capacity and safety.

- The roadway that will remain in Arlee, Ronan and Polson will have substantially less traffic, particularly truck traffic, and resulting benefits will include: Less congestion, less conflicts with pedestrians and reduced barrier effects.

LOS, if Lane Configuration A (two-lane) is constructed around Arlee or Ronan (Alignments 2, 3 and 4 in Arlee and 3 and 4 in Ronan), will improve slightly over existing conditions because of improved alignment; substantially reduced influence from and conflict with crossing pedestrians and vehicles; and increased travel speeds. It is projected, however, that LOS will remain near D for the near future and deteriorate to F by the year 2020~~2015~~ for Arlee and Ronan. For Polson, LOS will remain near D through the year 2020~~2015~~.

If Lane Configuration B, C or D is constructed on alignments around Arlee, Ronan and Polson (Alignments 2, 3 and 4 in Arlee, 3 and 4 in Ronan, and 2 and 3 in Polson), LOS is expected to improve to desired levels, and it will be similar to LOS projected for rural portions of the highway as described in Section 7.1.3.

Alignment 2 in Ronan will include leaving the highway in its existing location and using it only for northbound traffic. Southbound traffic will be carried on a new roadway to be constructed on First Avenue Southwest, one block west of the existing highway. The one-way couplet, with two lanes in each direction, will have the following effects on traffic operations in Ronan:

- Since the highway (both directions) will remain in developed residential and commercial areas of the community, it is expected the speed limit will remain at 25 mph.

[8] After Congress repealed the national speed limit of 65 mph on interstates and 55 mph on other highways in 1995, Montana automatically reverted to its former law that has the "basic rule." A driver may not drive at speeds exceeding what is "reasonable and prudent" for traffic, road and weather conditions.

- With the roadway still passing through the communities, there will be little or no opportunity to improve grades and alignments of approaches and intersections, nor to reduce their numbers. Approaches and intersections on the southbound portion of the couplet are expected to be approximately the same as those that currently exist on the existing highway.

- Conflicts with pedestrians, particularly school children, will remain with related safety and operational problems. It is expected that additional pedestrian crossings and traffic signals will be required in the future, as they will be with Alignment 1. Some improvement will occur, however, as a result of spreading the highway traffic over two roadways instead of one. Pedestrians (and crossing or entering vehicles) can cross one portion of the couplet at a time, with approximately one-half the traffic that will be on a single roadway and only with traffic in a single direction.

- Conflicting traffic movements (left turns, right turns and crossing traffic) which are common in these communities will continue to affect and be affected by through traffic on US 93.

- An environment will still remain where through traffic on US 93 is required to slow to pass through the community and where interruptions in traffic flow are frequent. Operation and efficiency levels will be less than on rural sections (between the communities) of the highway.

- With the one-way couplet, it is estimated that LOS will be substantially improved and will operate at LOS B or better through the year 2020~~2015~~.

Additional lanes for left or right turns may be desirable with this alignment in some areas to reduce some of the conflicts related to vehicles slowing or stopping to turn from US 93.

7.2. LAND USE

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

7.2.1. Impacts Common to All Alternatives

7.2.1.1. Pattern of Land Use

The pattern of land use and development that converts agricultural and other types of open land to residential, commercial, industrial and other types of built development will continue with all alignment alternatives and lane configuration alternatives, including No Action.

Highway improvement is one of many factors[9] that will contribute to the rate and pattern of land use and development. Land use in areas with frontage along the highway's ROW will be influenced by the rate and patterns of residential, commercial and industrial development. Design options for highway improvement, such as left-turn bays, continuous two-way left-turn center median, limited access control, billboard and signing policies will influence, but not govern, pattern of land use and development along the highway. (Sections 6.4, 6.5, 7.4, and 7.5)

With or without highway improvement, continued population growth and economic development will increase pressure for residential, commercial and industrial development in areas outside the developed areas of communities. Without land use planning and regulation, more strip development will occur along the highway.

7.2.1.2. Pattern of Access to Residential Areas

There will be limited opportunity with any of the alignment or lane configuration alternatives to reduce local traffic on US 93 from residential areas by shifting traffic to local roads. There is not an extensive, developed system of paved arterial and collector roads that run parallel to US 93 and connect roads that intersect with US 93 in the area of the proposed action.

All alignment and lane configuration alternatives will perpetuate access for right turns and left turns to existing local roads (minor arterials, major collectors and minor collectors) with right-turn deceleration lanes and left-turn bays at major intersections with US 93. Roads leading from the existing major intersections will continue to be used as the routes to provide access to areas with all substantial existing and expected future residential areas.

With all lane configurations, there will not be substantial change in pattern of access to residential areas located away from US 93 because the most important arterials and collectors that intersect with US 93 will continue to have direct access from the highway for right and left turns. Lane Configurations A, B and C will provide direct access between major intersections for right turns and left turns at locations that are mostly private driveways to single residences or businesses, but which do have a small number of short roads that lead to areas with limited current development and limited potential for future development. Lane Configuration D either will provide frontage roads with convenient access to US 93 in both directions from most smaller intersections, or vehicles will use major intersections to reverse directions in areas that provide no direct left-turn access.

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[9]Factors include: Local land use planning and regulation; access control and other transportation planning activities; the Confederated Salish and Kootenai Tribes (CSKT), Bureau of Indian Affairs (BIA), state, county and municipal road and street maintenance and construction policies affecting local arterial and collector roads and streets; state subdivision regulation; availability of land; financial market factors; public and private utilities; and land owner, developer and general public attitudes and activities that influence growth and development.

The cumulative effects of the proposed action and other highway projects[10] will result in a regional highway system for which there is planning for land use and access control similar to the proposed action. The Confederated Salish and Kootenai Tribes and local governments (Lake and Missoula counties and the incorporated municipalities Polson, Ronan and St. Ignatius) will be confronted with issues having complex jurisdictional relationships, and these governments will have the legal authority to develop land use policy.

7.2.1.3. Partial Access Control

All lane configurations, including No Action, will continue to allow right turns from traffic lanes at approaches for access to residential, commercial and industrial areas. No Action and Lane Configurations A, B and C will allow traffic to make uncontrolled left turns across opposing traffic lanes to areas with residential, commercial and industrial development.

Lane Configuration D, with an unpaved divided median, will require left turns from traffic lanes to occur at major intersections with left-turn bays for access to residential, commercial and industrial areas. Lane Configuration D will result in more "U-turn" movement at major intersections, and traffic will "double back" to make right turns at approaches.

Lane Configurations A, B, C and D will provide left-turn bays at major intersections, and Lane Configuration C, with a continuous two-way left-turn center median, will provide the most safety for left turns away from major intersections. Lane Configurations B, C and D will reduce congestion and provide more safety for turning than Lane Configuration A.

For all lane configurations, including No Action, without land use planning and regulation, it is likely commercial strip development will continue to spread in a dispersed, rather than compact, pattern along the highway away from established, developed areas of communities.

Because Lane Configuration C will allow safe left turns in most areas along the highway, it is expected to be the lane configuration most conducive to strip development, in the absence of land use planning and regulation and access control. Lane Configuration D will prohibit left turns between major intersections, but it also will result in more "U-turn" movement at the major intersections.

With all alignment alternatives and Lane Configurations A, B and C, building left-turn bays to improve safety at intersections of US 93 with state highways and county roads also will improve access for highway traffic to areas that abut highway ROW, are outside existing developed areas and have potential for future development. If there is access control by MDT, but no accompanying land use planning and regulation, new development will be expected to concentrate in the vicinity of the intersections with left-turn bays. This will result in a limited form of strip development, with new development outside existing developed areas, but less likely to be scattered between major intersections.

None of the lane configurations will cause the underlying conditions that result in residential or business strip development. With partial access control, none of the lane configurations will provide regulation of land use and development on land abutting highway ROW. In the absence of land use planning and regulation, strip development will be expected to occur, and that will be a reason to consider Lane Configuration C, which will provide the most safety in managing the conflict between turning traffic and through traffic. While none of the lane configurations will regulate land use, access control, if applied comprehensively, will have some effect on access to and development of new residences and businesses.

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[10]Such projects include the four-lane segment of US 93 abutting the proposed action between I-90 and Evaro built in 1985-86, improvement during the late-1980s of US 93 north of Polson, and the proposed improvement of US 93 from Somers to Whitefish, which is approximately 50 miles north of the proposed action.

Strip development will create traffic conditions that are best managed with Lane Configuration C. Then the rate of strip development will be expected to increase as more approaches are allowed to have access to the highway. This is because Lane Configuration C will provide the best traffic conditions with which to consider existing access, safety, traffic counts and local land use planning and regulation in developing new approaches.

Mitigation

Land use planning and regulation, coordinated with ~~and~~ access control are the major mitigation measures to control land use growth and development and traffic in~~to~~ developed areas.

Land use planning and regulation is the legal method to control signage and residential, commercial and industrial development on land abutting highway ROW.[11] Partial access control is the legal method to control access to land abutting highway ROW. Partial access control~~It~~ will improve the safety and efficiency of access to the highway, but it will not preclude development of land where approaches currently exist, and it will not totally preclude development of future approaches for new access to the highway. (Section 5.3.4)

Partial access control will be a method to limit conflict between through traffic and traffic turning either at public streets and road intersections or private approaches entering directly onto the through traffic lanes of the highway.

Under partial access control, with Lane Configurations A, B, C and D, MDT will ~~attempt to~~ acquire access rights for all lands abutting highway ROW. MDT will implement partial access control for the full length of the highway (except in communities) to minimize conflict between through traffic and turning traffic by consolidating, improving or closing approaches wherever it is possible do so without disrupting legal access to lands abutting highway ROW.

An access control plan will develop recommendations on the number and spacing of public and private approaches that will be able to enter directly upon the highway. Details as to the number and location of specific at-grade approaches to be allowed will be determined considering existing access, safety, traffic counts and local land use planning and regulation. ~~New approaches to the highway may be considered after access rights have been acquired by MDT. Application for new approaches will be reviewed by MDT for safety, effect on highway capacity, legality and physical feasibility of construction. MDT will submit the application to MHC for consideration of approval.~~ Partial access control will not be implemented with No Action.[12]

Partial access control will not substitute for land use planning and regulation to control patterns of growth and development that will result in residential, commercial and industrial strip development. Partial access control applies to approaches to the highway from land abutting highway ROW. ~~Partial access control does not apply to either the type or amount of development that may occur on land served by approaches.~~ Partial access control is meant to be a method to manage traffic and access to the highway in cooperation with local land use planning and regulation. Partial access control will not prohibit new residential, commercial or industrial development along the highway, and none of the lane configurations will restrict the type of development or the amount of land to be developed.

Land use planning and regulation will allow partial access control to be more effective in limiting new approaches with all lane configurations and all alignments. The combination of land use planning and regulation and partial access control will be important for prohibiting new development along any of the alignments at Arlee, Ronan and Polson. New commercial and industrial development along any of the new alignments will compete with existing businesses in the communities for sales to highway traffic.

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[11] The Montana Code Annotated, 76-2, Planning and Zoning, identifies local governments, which along with CSKT - a sovereign government - have legal jurisdiction for controlling land use and development in Montana.

[12] Montana Department of Transportation. Access Management Plan. April 1992.

CSKT and local governments have authority to control effects of growth and development on land use. Comprehensive land use planning and regulation under the authority of CSKT, Lake County, Missoula County and the incorporated communities Polson, Ronan and St. Ignatius should establish local policies that provide consistency in review and reduce land-use conflicts associated with residential, commercial and industrial development. CSKT and local governments should develop cooperative planning policies and procedures to address the current and expected future patterns of growth and development.

MDT and the Montana Transportation Commission (MTC)~~MHC~~, through their legal jurisdiction to develop and adopt partial, or limited, access control, should coordinate with tribal, county and city planning efforts to affect the transportation system by controlling access to land abutting highway ROW. However, partial or full access control can not in itself prohibit development. FHWA and MDT support and will continue to coordinate transportation planning for US 93 with land use planning and regulation activities, which are initiated by CSKT and local governments, and which are related to US 93.

Land use planning and regulation will be considered and incorporated in MDT transportation planning and highway design and development activities. The coordination of land use planning and regulation with transportation planning should include access management, highway billboard and signing policies, and other appropriate transportation planning activities of MDT and FHWA. The coordination should identify locations in communities and outside communities along the highway that will provide compatible patterns of residential, commercial, industrial and public land use, while allowing development for local and through traffic to provide access to needed business services and public facilities/services. The efforts by CSKT, in cooperation with local governments, to develop a land use growth and projection study~~a land use and growth projection study~~ could be the basis for continued cooperation on land use planning and access management~~control~~. CSKT has commented that ongoing litigation in lawsuits that have the state and Lake County in opposition to CSKT may discourage cooperation on issues such as land use planning and regulation.

MDT and MTC~~MHC~~ will~~should~~ develop and adopt an access control~~management~~ plan to provide a consistent policy of partial access control for the highway. The access management plan should provide specific guidelines for numbers of access locations, distances between access locations, distances for setbacks of development abutting highway ROW and other appropriate factors.

Jurisdiction to develop land use planning and regulation is complex in the area of the proposed action. Regardless of the complicated relations, with potential conflicting purposes and actions, it is important to recognize the legal jurisdiction of MDT and FHWA does not extend to controlling land use and development on land abutting highway ROW.

7.2.2. Existing Alignment (Except Arlee, Ronan and Polson)

7.2.2.1. Conversion of Land to Highway Right-of-Way

Tables 7.2-1 through 7.2-~~4~~5 identify requirements for new ROW with lane configurations and alignments. All lane configurations will result in a wider ROW than currently exists for the highway.

7.2.2.2. Influence of Traffic on Land Use

As the Missoula and Kalispell areas continue to grow as major centers of employment, the rate and pattern of land use and development likely will be accelerated with Lane Configurations B, C or D. Development will continue to convert open agricultural and forest lands to residential, commercial, industrial and recreational uses.

Table 7.2-1 Right-of-Way Requirements for the CSKT Preferred Alternative, Lane Configuration A, Improved Two-Lane Highway, By Land Use and Status

Segment	Right-of-Way Summary (Acres)			New Right-Of-Way Required (Acres) – Land Use							New Right-Of-Way Required (Acres) – Land Status					
	Existing	Total Required	New Required	Agriculture	Commercial	Residential	Forest	Water/ Wetland*	Railroad	Public	Fee	Tribal	Allot	Federal	State	Railroad/ Local
A: Evaro to Arlee	188.4	195.8	7.4	7.3	.1	—	—	—	—	—	5.9	—	1.3	—	.2	—
B: Arlee	13.6	19.2	5.6	5.1	.1	.4	—	—	—	—	3.8	—	1.8	—	—	—
C: Arlee to Ravalli Canyon	100.6	105.0	4.4	3.8	.1	.5	—	—	—	—	3.1	—	1.3	—	—	—
D: Ravalli Canyon to Ravalli	47.1	52.3	5.3	5.3	—	—	—	—	—	—	5.3	—	—	—	—	—
E: Ravalli	15.7	16.5	.8	.6	.2	—	—	—	—	—	.8	—	—	—	—	—
F: Ravalli Hill	90.6	90.6	0.1	—	—	—	—	—	—	0.1	—	0.1	—	—	—	—
G: St. Ignatius	46.7	48.0	1.3	.9	.2	—	.2	—	—	—	.3	.4	.6	—	—	—
H: St. Ignatius to MTS 212	133.9	188.8	2.97	25.9	0.3	—	—	3.5	—	—	24.8	—	1.8	—	3.1	—
I: MTS 212 to Ronan	79.4	104.5	25.1	11.8	.2	—	—	13.1	—	—	12.8	5.0	—	5.4	1.9	—
J: Ronan	20.8	20.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
K: Ronan to Pablo	90.1	90.5	.3	.3	—	—	—	—	—	—	.3	—	—	—	—	—
L: Pablo	94.1	96.9	2.8	1.7	.4	.6	.1	—	—	—	1.8	1.0	—	—	—	—
M: Pablo to Caffrey Road	34.9	39.9	5.0	4.9	.1	—	—	—	—	—	5.0	—	—	—	—	—
N-O-P: Caffrey Road - Polson	102.0	102.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL:	1,057.9	1,170.9	87.8	67.6	1.7	1.5	.3	16.6	—	0.1	63.9	6.5	6.8	5.4	5.2	—
Arlee Alignment 1[1]	100.8	117.1	16.3	15.1	.3	.9	—	—	—	—	11.7	—	4.4	—	.2	10.3[3]
Arlee Alignment 2[1]	73.0	123.8	50.8	50.0	.1	.7	—	—	—	—	42.8	—	7.8	—	.2	—
Arlee Alignment 3[1]	79.1	122.8	43.8	34.8	.1	2.3	—	—	—	6.6[2]	21.3	6.1	9.8	—	6.6[2]	—
Arlee Alignment 4[1]	3.6	142.8	139.2	139.2	—	—	—	—	—	—	139.2	—	—	—	—	—
Ronan Alignment 1[1]	68.9	73.7	4.7	4.7	—	—	—	—	—	—	4.7	—	—	—	—	—
Ronan Alignment 2[1]	129.0	139.5	17.7	13.8	1.7	1.8	—	—	—	0.4**	15.3	2.0	—	—	—	0.4**
Ronan Alignment 3[1]	19.9	74.2	54.3	37.8	—	16.5	—	—	—	—	54.3	—	—	—	—	—
Ronan Alignment 4[1]	9.9	77.4	67.5	59.3	1.7	1.8	—	—	4.6[3]	0.1**	67.4	—	—	—	—	0.1**/4.6[4]
Polson Alignment 1[1]	102.0	102.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Polson Alignment 2[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polson Alignment 3[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Morrison-Maierle, 1993. [1] Land use for Arlee, Ronan and Polson are within the developed areas along the existing alignment. [2] Jocko River Trout Hatchery. [3] Railroad Acquisition. [4] Included in Fee. NA - Not Applicable. * Water/wetland indicates predominant land use adjacent to highway right-of-way. Refer to Section 7.10 for detailed analysis of impact to wetlands. ** Park/Ballfield/School Athletic Field.

Table 7.2-2 Right-of-Way Requirements for Lane Configuration B (Four-Lane) By Land Use and Status

Segment	Right-Of-Way (Acres)			New Right-Of-Way (Acres) -- Land Use							New Right-Of-Way (Acres) -- Land Status					
	Existing	Total Required	New Required	Agriculture	Commercial	Residential	Forest	Water/ Wetland*	Railroad	Public	Fee	Tribal	Allot	Federal	State	Railroad/ Local
A: Evaro to Arlee	188.4	232.2	43.8	21.5	.6	1.7	20.0	—	—	—	19.0	17.1	7.4	—	.3	—
B: Arlee	13.6	21.7	8.1	7.3	.1	.7	—	—	—	—	5.3	—	2.8	—	—	—
C: Arlee to Ravalli Canyon	100.6	108.1	7.5	6.4	.3	.8	—	—	—	—	4.2	—	3.3	—	—	—
D: Ravalli Canyon to Ravalli	47.1	55.5	8.4	8.4	—	—	—	—	—	—	8.4	—	—	—	—	—
E: Ravalli	15.7	16.9	1.2	.9	.1	.2	—	—	—	—	1.2	—	—	—	—	—
F: Ravalli Hill	90.6	104.1	13.5	6.1	—	—	—	2.4	—	5.0	8.5	3.7	—	1.3	—	—
G: St. Ignatius	46.7	53.6	6.7	5.1	.3	—	1.3	—	—	—	3.3	2.2	1.2	—	—	—
H: St. Ignatius to 212	133.9	209.7	48.6	39.8	0.7	—	—	8.1	—	—	38.7	1.2	2.6	—	6.1	—
I: MTS 212 to Ronan	79.4	114.3	34.9	16.5	.4	—	—	18.0	—	—	18.1	6.7	—	7.3	2.8	—
J: Ronan	20.8	20.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
K: Ronan to Pablo	90.1	91.3	1.2	1.2	—	—		—	—	—	1.1	.1	—	—	—	—
L: Pablo	94.1	99.9	5.8	3.3	.6	1.7	.2	—	—	—	4.1	1.7	—	—	—	—
M: Pablo to Caffrey Road	34.9	42.8	7.9	7.7	.2	—	—	—	—	—	7.9	—	—	—	—	—
N-O-P: Caffrey Road - Polson	102.0	118.8	16.8	14.8	1.0	—	—	—	—	1.0	12.3	—	4.5	—	—	—
TOTAL	1,057.9	1,289.5	204.4	139.0	4.3	5.1	21.5	28.5	—	6.0	132.1	32.7	21.8	8.6	9.2	—
Arlee Alignment 1[1]	100.8	126.3	25.5	23.4	.7	1.4	—	—	—	—	18.2	.3	6.7	—	.3	—
Arlee Alignment 2[1]	73.0	133.8	60.8	59.5	.3	1.0	—	—	—	—	50.5	.3	9.7	—	.3	11.6[4]
Arlee Alignment 3[1]	79.1	132.6	53.6	43.1	.3	2.8	—	—	—	7.4[2]	27.4	7.1	11.4	—	7.7	—
Arlee Alignment 4[1]	3.6	160.4	156.9	156.9	—	—	—	—	—	—	138.4	6.3	12.2	—	—	—
Ronan Alignment 1[1]	68.9	76.1	7.1	7.1	—	—	—	—	—	—	7.1	—	—	—	—	—
Ronan Alignment 2[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ronan Alignment 3[1]	19.9	82.8	62.9	44.3	—	18.6	—	—	—	—	62.9	—	—	—	—	—
Ronan Alignment 4[1]	9.9	86.0	76.1	66.7	1.9	2.1	—	—	5.1[3]	0.3**	75.8	—	—	—	—	0.3**/5.1[4]
Polson Alignment 1[1]	102.0	118.8	16.8	14.8	1.0	—	—	—	—	1.0	12.3	—	4.5	—	—	—
Polson Alignment 2[1]	28.0	135.5	107.5	72.5	—	19.0	—	—	—	16.0	79.0	24.5	4.0	—	—	—
Polson Alignment 3[1]	9.9	149.5	139.6	121.2	—	18.4	—	—	—	—	83.5	48.6	7.5	—	—	—

Morrison-Maierle, 1993. [1] Land use for Arlee, Ronan and Polson are within the developed areas along the existing alignment. [2] Jocko River Trout Hatchery. [3] Railroad Acquisition. [4] Included in Fee. NA - Not Applicable. * Water/wetland indicates predominant land use adjacent to highway right-of-way. Refer to Section 7.10 for detailed analysis of impact to wetlands. ** Park/Ballfield/School Athletic Field.

Table 7.2-3 Right-of-Way Requirements for Lane Configuration C (Four-Lane with Continuous Two-way Left-turn Center Median) By Land Use and Status

Segment	Right-Of-Way (Acres)			New Right-Of-Way Required (Acres) – Land Use							New Right-Of-Way Required (Acres) – Land Status					
	Existing	Total Required	New Required	Agriculture	Commercial	Residential	Forest	Water/ Wetland*	Railroad	Public	Fee	Tribal	Allot	Federal	State	Railroad/ Local
A: Evaro to Arlee	188.4	250.3	61.9	30.4	.8	2.4	28.3	—	—	—	27.2	23.8	10.5	—	.4	—
B: Arlee	13.6	24.0	10.4	9.2	.2	1.0	—	—	—	0.01	6.7	—	3.7	—	—	—
C: Arlee to Ravalli Canyon	100.6	113.3	12.7	11.4	.4	.9	—	—	—	—	8.0	—	4.7	—	—	—
D: Ravalli Canyon to Ravalli	47.1	57.4	10.3	10.3	—	—	—	—	—	—	10.3	—	—	—	—	—
E: Ravalli	15.7	17.2	1.5	1.1	.1	.3	—	—	—	—	1.5	—	—	—	—	—
F: Ravalli Hill	90.6	110.4	19.8	18.2	—	—	—	1.6	—	—	12.3	5.5	—	2.0	—	—
G: St. Ignatius	46.7	57.9	11.0	8.7	.5	—	1.8	—	—	—	5.7	3.4	1.9	—	—	—
H: St. Ignatius to MTS 212	133.9	228.9	68.6	54.9	1.0	—	—	12.7	—	—	53.6	2.3	3.5	—	9.2	—
I: MTS 212 to Ronan	79.4	124.7	45.3	21.2	.7	—	—	23.4	—	—	23.6	8.3	—	9.2	4.2	—
J: Ronan	20.8	23.0	2.2	1.3	.7	.2	—	—	—	—	1.7	—	.5	—	—	—
K: Ronan to Pablo	90.1	94.4	4.3	3.7	—	—	—	.6	—	—	3.8	.2	.3	—	—	—
L: Pablo	94.1	104.4	10.3	5.7	.8	3.3	.5	—	—	—	7.5	2.8	—	—	—	—
M: Pablo to Caffrey Road	34.9	46.5	11.6	11.2	.4	—	—	—	—	—	11.6	—	—	—	—	—
N-O-P: Caffrey Road - Polson	102.0	125.3	23.3	20.5	1.4	—	—	—	—	1.4	18.2	—	5.1	—	—	—
TOTAL	1,057.9	1,377.5	293.2	207.8	7.0	8.1	30.6	38.3	—	1.4	191.7	46.3	30.2	11.2	13.8	—
Arlee Alignment 1[1]	100.8	136.7	35.9	32.9	1.1	1.9	—	—	—	—	25.8	.3	9.4	—	.4	—
Arlee Alignment 2[1]	73.0	145.6	72.6	70.7	.5	1.4	—	—	—	—	60.2	.3	11.7	—	.4	12.9[4]
Arlee Alignment 3[1]	79.1	144.3	65.3	53.3	.5	3.2	—	—	—	8.3[2]	35.4	8.0	13.3	—	8.6	—
Arlee Alignment 4[1]	3.6	178.1	174.5	174.5	—	—	—	—	—	—	153.9	7.0	13.6	—	—	—
Ronan Alignment 1[1]	68.9	73.7	12.5	11.3	.7	.2	—	.3	—	—	12.0	—	.5	—	—	—
Ronan Alignment 2[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ronan Alignment 3[1]	19.9	92.1	72.2	51.5	—	20.7	—	—	—	—	72.2	—	—	—	—	—
Ronan Alignment 4[1]	9.9	94.7	84.8	74.3	2.1	2.3	—	—	5.7[3]	0.4**	84.4	—	—	—	—	0.4**/5.7[4]
Polson Alignment 1[1]	102.0	125.3	23.3	20.5	1.4	—	—	—	—	1.4	18.2	—	5.1	—	—	—
Polson Alignment 2[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polson Alignment 3[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Morrison-Maierle, 1993. [1] Land use for Arlee, Ronan and Polson are within the developed areas along the existing alignment. [2] Jocko River Trout Hatchery. [3] Railroad Acquisition. [4] Included in Fee. NA - Not Applicable. NA - Not Applicable. * Water/wetland indicates predominant land use adjacent to highway right-of-way. Refer to Section 7.10 for detailed analysis of impact to wetlands. ** Park/Ballfield/School Athletic Field. () Arlee community park impact less than 0.1 acre.

Table 7.2-4 Right-of-Way Requirements for Lane Configuration D (Four-Lane with Divided Center Median) By Land Use and Status

Segment	Right-Of-Way (Acres)			New Right-Of-Way Required (Acres) – Land Use							New Right-Of-Way Required (Acres) – Land Status					
	Existing	Total Required	New Required	Agriculture	Commercial	Residential	Forest	Water/ Wetland*	Railroad	Public	Fee	Tribal	Allot	Federal	State	Railroad/ Local
A: Evaro to Arlee	188.4	286.4	98.0	48.8	2.0	3.8	43.4	—	—	—	45.8	34.9	16.2	—	1.1	—
B: Arlee	13.6	24.0	10.4	9.2	.2	1.0	—	—	—	—	6.7	—	3.7	—	—	—
C: Arlee to Ravalli Canyon	100.6	125.9	25.3	23.1	.9	1.3	—	—	—	—	19.5	—	5.8	—	—	—
D: Ravalli Canyon to Ravalli	47.1	61.2	14.1	14.1	—	—	—	—	—	—	13.6	—	.5	—	—	—
E: Ravalli	15.7	17.5	1.8	1.4	—	.4	—	—	—	—	1.8	—	—	—	—	—
F: Ravalli Hill	90.6	118.7	28.1	24.0	—	—	4.1	—	—	—	16.8	8.3	—	3.0	—	—
G: St. Ignatius	46.7	64.2	17.1	14.0	.7	—	2.4	—	—	—	9.2	4.9	3.0	—	—	—
H: St. Ignatius to MTS 212	133.9	260.9	188.1	69.1	1.3	—	—	17.7	—	—	68.3	3.5	3.9	—	12.4	—
I: MTS 212 to Ronan	79.4	139.8	60.4	28.2	1.1	—	—	31.1	—	—	31.7	10.8	—	12.1	5.8	—
J: Ronan	20.8	23.0	2.2	1.3	.7	.2	—	—	—	—	1.7	—	.5	—	—	—
K: Ronan to Pablo	90.1	101.3	11.2	9.8	—	—	—	1.4	—	—	10.0	.4	.8	—	—	—
L: Pablo	94.1	115.4	21.3	10.5	2.1	7.7	1.0	—	—	—	15.5	5.5	.3	—	—	—
M: Pablo to Caffrey Road	34.9	53.1	18.2	17.1	.9	.2	—	—	—	—	18.2	—	—	—	—	—
N-O-P: Caffrey Road - Polson	102.0	142.1	40.1	35.3	2.4	—	—	—	—	2.4	31.3	—	8.8	—	—	—
TOTAL	1,057.9	1,533.1	436.3	305.9	12.3	14.6	50.9	50.2	—	2.4	290.1	68.3	43.5	15.1	19.3	—
Arlee Alignment 1[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arlee Alignment 2[1]	73.0	166.4	93.4	90.5	.9	2.0	—	—	—	—	76.7	.6	15.0	—	1.1	14.1[4]
Arlee Alignment 3[1]	79.1	164.8	85.7	72.0	.9	3.8	—	—	—	9.0[2]	50.0	9.0	16.5	—	10.2	—
Arlee Alignment 4[1]	3.6	195.7	192.1	192.1	—	—	—	—	—	—	169.4	7.8	14.9	—	—	—
Ronan Alignment 1[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ronan Alignment 2[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ronan Alignment 3[1]	19.9	103.6	83.7	61.0	—	22.7	—	—	—	—	83.7	—	—	—	—	—
Ronan Alignment 4[1]	9.9	103.6	93.7	82.1	2.3	2.5	—	—	6.3[3]	0.5**	93.2	—	—	—	—	0.5/**6.3[4]
Polson Alignment 1[1]	102.0	142.1	40.1	35.3	2.4	—	—	—	—	2.4	31.3	—	8.8	—	—	—
Polson Alignment 2[1]	28.0	168.9	140.9	96.4	1.5	23.0	—	—	—	20.0	103.6	32.2	5.1	—	—	—
Polson Alignment 3[1]	9.9	188.8	178.9	157.4	—	21.5	—	—	—	—	107.4	62.2	9.3	—	—	—

Morrison-Maierle. 1993. [1] Land use for Arlee, Ronan and Polson are within the developed areas along the existing alignment. [2] Jocko River Trout Hatchery. [3] Railroad Acquisition. [4] Included in Fee. NA - Not Applicable. * Water/wetland indicates predominant land use adjacent to highway right-of-way. Refer to Section 7.10 for detailed analysis of impact to wetlands. ** Park/Ballfield/School Athletic Field

Table 7.2-5 Right-of-Way Requirements for the MDT Preferred Alternative, Lane Configurations A, B, C and D, By Land Use and Status

Segment	Right-Of-Way (Acres)			New Right-Of-Way Required (Acres) – Land Use							New Right-Of-Way Required (Acres) – Land Status					
	Existing	Total Required	New Required	Agriculture	Commercial	Residential	Forest	Water/ Wetland*	Railroad	Public	Fee	Tribal	Allot	Federal	State	Railroad/ Local
A: Evaro to Arlee	188.4	255.1	66.7	23.2	0.8	1.9	21.5	—	—	—	20.6	18.4	7.8	—	0.3	—
B: Arlee	13.6	27.4	13.8	9.2	0.2	1.0	—	—	—	—	6.7	—	3.7	—	—	—
C: Arlee to Ravalli Canyon	100.6	141.1	40.5	7.2	0.3	0.9	—	—	—	—	4.9	—	3.5	—	—	—
D: Ravalli Canyon to Ravalli	47.1	58.5	11.4	8.4	—	—	—	—	—	—	8.4	—	—	—	—	—
E: Ravalli	15.7	24	8.3	1.1	0.1	0.3	—	—	—	—	1.5	—	—	—	—	—
F: Ravalli Hill	90.6	112.8	22.2	6.4	—	—	—	2.3	—	4.9	8.6	3.8	—	1.4	—	—
G: St. Ignatius	46.7	60.2	13.5	5.1	0.3	—	1.3	—	—	—	3.3	2.2	1.2	—	—	—
H: St. Ignatius to MTS 212	133.9	188.2	54.3	41.9	0.9	—	—	8.8	—	—	40.8	1.4	2.7	—	6.4	—
I: MTS 212 to Ronan	79.4	106	26.6	17.7	0.5	—	—	19.4	—	—	19.5	7.1	—	7.8	3.2	—
J: Ronan	20.8	34.6	13.8	1.3	0.7	0.2	—	—	—	—	1.7	—	0.5	—	—	—
K: Ronan to Pablo	90.1	111.5	21.4	1.8	—	—	—	0.2	—	—	1.8	0.2	0.1	—	—	—
L: Pablo	94.1	126.6	32.5	5.1	0.8	2.8	0.5	—	—	—	6.7	2.5	—	—	—	—
M: Pablo to Caffrey Road	34.9	48.4	13.5	9.5	0.3	—	—	—	—	—	9.8	—	—	—	—	—
N-O-P: Caffrey Road - Polson	102.0	123.2	21.2	7.7	0.6	—	—	—	—	—	6.7	—	2.1	—	—	—
TOTAL	1,057.9	1,275.6	217.7	145.6	5.5	7.1	23.3	30.7	—	5.5	141.0	35.6	21.6	9.2	9.9	—
Arlee Alignment 1[1]	13.6	—	8.1	7.3	0.1	0.7	—	—	—	—	5.3	—	2.8	—	—	—
Arlee Alignment 2[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arlee Alignment 3[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arlee Alignment 4[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ronan Alignment 1[1]	20.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ronan Alignment 2[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ronan Alignment 3[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ronan Alignment 4[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polson Alignment 1[1]	102.0	—	8.9	7.7	0.6	—	—	—	—	0.6	6.7	—	2.1	—	—	—
Polson Alignment 2[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polson Alignment 3[1]	9.9	149.5	139.6	121.2	—	18.4	—	—	—	—	83.5	48.6	7.5	—	—	—

Morrison-Maierle. 1993. [1] Land use for Arlee, Ronan and Polson are within the developed areas along the existing alignment. [2] Jocko River Trout Hatchery. [3] Railroad Acquisition. [4] Included in Fee. NA - Not Applicable. * Water/wetland indicates predominant land use adjacent to highway right-of-way. Refer to Section 7.10 for detailed analysis of impact to wetlands. ** Park/Ballfield/School Athletic Field. This table has been added to the final EIS.

Mitigation

ROW will be acquired only as required to construct the roadway and its excavation and embankment slopes. Where severe restrictions exist, where substantial environmental impacts may occur, and where safety standards are not compromised, the width of total ROW may be reduced in some areas.Constructing steeper slopes or retaining walls in critical areas may be desirable to reduce the required width of ROW. This may require guardrail in areas where it otherwise might not be needed.

Existing stock passes will be perpetuated or reconstructed at their present locations with any of the lane configurations, where it is determined they are needed and justified for allowing livestock to cross the highway, and where they can be reasonably reconstructed. Where perpetuation of stock passes is not practical, other arrangements or compensation will be made with affected landowners.

7.2.3. Arlee Alignments

7.2.3.1. Conversion of Land to Highway Right-of-Way

Tables 7.2-1 through 7.2-45 describe impacts for ROW by land use and land status.

All alignment alternatives and lane configuration alternatives will increase the amount of highway ROW. Alignments 2, 3 and 4 will require new ROW be acquired in locations away from Alignment 1.

Any new highway alignments that provide new or improved access in undeveloped areas will create the potential to increase the conversion of agricultural and open lands to residential, commercial and industrial uses.

7.2.3.2. Influence of Traffic on Land Use

Alignment 1 will increase local and through traffic in the developed commercial area of Arlee. The traffic will be compatible with commercial development, but it will be incompatible with residential areas and public areas such as parks, recreation and public school property. Highway-oriented and nonhighway-oriented businesses will continue to develop near and be interspersed with residential and public areas along and adjacent to the highway.

Alignments 2, 3 and 4 will divert through traffic away from Alignment 1 to a new roadway through rural areas on the west or east edges of the community. The new alignments will cross rural, undeveloped areas. There will be demand for new commercial and industrial development oriented to through traffic and use of the highway for transportation of goods and services.

Alignments 2 and 3 will improve access for more residential development along the current edges of Arlee, and Alignment 4 will create new highway access in a rural area two miles east of Arlee's developed area. Without land use planning and regulation and access control, residential development will extend existing streets and possibly result in new streets that cross agricultural and open land. Approaches from the highway likely will extend to existing residential streets in Arlee and further intersperse commercial and industrial development with residential and public land uses. New commercial development will include new businesses and existing businesses that move from Alignment 1 to the new route.

Mitigation

Mitigation is similar to Impacts Common to All Alternatives and Existing Alignment (Except Arlee, Ronan and Polson).

7.2.4. Ronan Alignments

7.2.4.1. Conversion of Land to Highway Right-of-Way

Tables 7.2-1 through 7.2-4 describe impacts for ROW by land use and land status. All alignment alternatives and lane configuration alternatives will increase the amount of highway ROW. Alignments 2, 3 and 4 will require new ROW acquired in locations away from Alignment 1.

Any new highway alignments that provide new or improved access in undeveloped areas will create the potential to increase the conversion of agricultural and open lands to residential, commercial and industrial uses.

7.2.4.2. Influence of Traffic on Land Use

Alignments 1 and 2 will increase local and through traffic in the developed commercial area of Ronan. The traffic will be compatible with commercial development, but it will be incompatible with residential areas and public areas such as parks, recreation and public school property. Highway-oriented and nonhighway-oriented businesses will continue to develop near and be interspersed with residential and public areas along and adjacent to the highway.

Alignments 3 and 4 will divert through traffic away from Alignment 1 to a new roadway through rural areas on the west edge of the community. The new alignments will cross rural, undeveloped areas. There will be demand for new commercial and industrial development oriented to through traffic and use of the highway for transportation of goods and services.

Alignments 3 and 4 will improve access for more residential development along the west edge of Ronan. Without land use planning and regulation and access control, residential development will extend existing streets and possibly result in new streets that cross agricultural and open land. Approaches from the highway likely will extend to existing residential streets in Ronan and further intersperse commercial and industrial development with residential and public land uses. New commercial development will include new businesses and existing businesses that move from Alignment 1 to the new route.

Mitigation

Mitigation is similar to Impacts Common to All Alternatives and Existing Alignment (Except Arlee, Ronan and Polson).

7.2.5. Polson Alignments

7.2.5.1. Conversion of Land to Highway Right-of-Way

Tables 7.2-1 through 7.2-4 describe impacts for ROW by land use and land status.

Any new highway alignments that provide new or improved access in undeveloped areas will create the potential to increase the conversion of agricultural and open lands to residential, commercial and industrial uses.

Conversion of allotted land held in trust by the federal government for either CSKT or Native American individuals will be between five and 27% of converted land for alignments.

7.2.5.2. Influence of Traffic on Land Use

Alignment 1 will increase local and through traffic in the developed commercial area of Polson. These include the commercial strip along US 93 and the downtown business district. The traffic will be compatible with commercial development, but it will be incompatible with residential areas and public areas such as the lakefront senior citizen housing, golf course and parks. Increased traffic on Alignment 1 along Flathead Lake will disrupt any future development that intends to integrate the aesthetic resources of Flathead Lake into the social and commercial activities of the community. Highway-oriented and nonhighway-oriented businesses will continue to develop near and be interspersed with residential and public areas along and adjacent to the highway.

Alignments 2 and 3 will divert through traffic away from Alignment 1 to a new roadway through rural areas on the south and west edges of the community. The new alignments will cross rural, undeveloped areas. There will be demand for new commercial and industrial development oriented to through traffic and use of the highway for transportation of goods and services.

Several sites along US 93 have been identified as having potential for future commercial development that will be compatible with Alignment 1, 2 and 3:

- Caffrey Road north to Polson Hill
- The area near Clearview Heights, south of Caffrey Road
- Montana Highway (MT) 35 east of existing commercial development
- Infill development in scattered sites between MT 35 and Lake Street
- Locations north of Polson where Alignments 2 and 3 will intersect US 93

Without land use planning and regulation and access control on Alignments 2 and 3, new development will have the potential to extend approaches from the highway to existing residential streets in Polson and further intersperse commercial and industrial development with residential and public land uses. New commercial development will include new businesses and existing businesses that move from Alignment 1 to the new route.

Mitigation

Mitigation is similar to Impacts Common to All Alternatives and Existing Alignment (Except Arlee, Ronan and Polson).

7.3. FARMLANDS

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

In accordance with the Farmland Protection Policy Act (FPPA) of 1981, the effects of the proposed action on FPPA farmland have been examined. Farmland conversion impact ratings (Form AD 1006 included on following pages) have been completed with the assistance of the Lake and Missoula county offices of the U.S. ~~Soil~~Natural Resources Conservation Service (~~SCS~~NRCS). The total farmland evaluation score (Part VII of the AD 1006 included on the following pages) is below 160 with any of the alignments or lane configurations, except with Alignment 4 at Arlee and Alignment 3 at Ronan with Lane Configuration C. As indicated in 7 Code of Federal Regulations (CFR) 658.4(C),(2), alignments receiving a total score of less than 160 points should be given a minimal level of consideration for protection and no additional alignments need to be evaluated. (Figures 7.3-1, 7.3-2 and 7.3-3)

Table 7.3-1 summarizes FPPA farmland that will be converted to highway ROW with each of the alternatives under consideration.

In Arlee, the new roadway on Alignments 1, 2 or 3 will not require the conversion of any FPPA farmland to highway ROW but construction of Alignment 4 will.

In Ronan, the new roadway on Alignments 1 or 2 will require the least conversion of FPPA farmland (one acre or less depending on the lane configuration). Construction on Alignments 3 or 4 will require the conversion of substantially more -- up to 10.8 acres of prime or unique farmland and up to 6.5 acres of farmland of statewide or local importance.

In Polson, the new roadway on Alignment 1 will require the least conversion of FPPA farmland (1.6 acres or less depending on the lane configuration). Alignments 2 or 3 will require the conversion of substantially more -- up to 26.5 acres of prime or unique farmland and up to 12.5 acres of farmland of local importance.

Also, as shown on Table 7.3-1, Lane Configuration A will require the least conversion of FPPA farmland to highway ROW followed, in order of increasing magnitude, by Lane Configurations B, C and D.

As indicated in Section 7.1.3, Lane Configurations B, C and D (each includes four traffic lanes) will substantially improve LOS and efficiency and desirability of driving the highway. These improvements may encourage increased construction of homes and businesses in the area which may result in additional conversion of FPPA farmland to other uses. (Sections 7.1, 7.2, 7.4 and 7.5)

Cumulative impacts to FPPA farmland may occur as a result of improvement to US 93 in combination with increased industrial activities and facilities, increased recreational and tourist activities and facilities, construction of additional residential areas and related schools, utilities and support facilities.

<u>Mitigation</u>

Mitigation measures to reduce the amount of FPPA farmland converted to other uses will include:

- Acquire only the additional width of ROW needed to construct highway improvements, provide desirable safety recovery areas and maintain the highway slopes.

- Implementation of partial access control by MDT and ~~MHC~~MTC. This type of access control will limit the number of approaches that can be constructed to access the highway and will help to reduce "strip development" and other development adjacent to the highway.

- Implement land use planning and~~-zoning~~ regulation~~s~~, by Missoula and Lake counties and CSKT, to help steer development away from FPPA farmland to land with less agricultural value.

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request: April 9, 1990
Name Of Project: Evaro-Dirty Corner F5-1(8)	Federal Agency Involved: Federal Highway Administration
Proposed Land Use: Highway Right-of-Way	County And State: Missoula County, Montana.
PART II *(To be completed by SCS)*	Date Request Received By SCS: 04/11/90

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply – do not complete additional parts of this form).*	Yes ☒	No ☐	Acres Irrigated: 23,930	Average Farm Size: 535
Major Crop(s): BEEF, ALFALFA, PASTURE, SPRING WHEAT	Farmable Land In Govt. Jurisdiction — Acres: 140,850	% 11.4	Amount Of Farmland As Defined in FPPA — Acres: 59,880	% 4
Name Of Land Evaluation System Used: NONE	Name Of Local Site Assessment System: NONE		Date Land Evaluation Returned By SCS: 04/17/90	

	Maximum Points	Site A	Site B	Site C	Site D
PART III *(To be completed by Federal Agency)* — Alternative Site Rating					
A. Total Acres To Be Converted Directly		11.0			
B. Total Acres To Be Converted Indirectly		---			
C. Total Acres In Site		11.0			
PART IV *(To be completed by SCS)* Land Evaluation Information					
A. Total Acres Prime And Unique Farmland		10.2			
B. Total Acres Statewide And Local Important Farmland		0.8			
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted		0.02%			
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value		N/A			
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*		100			
PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b))*					
1. Area In Nonurban Use	15	15			
2. Perimeter In Nonurban Use	10	10			
3. Percent Of Site Being Farmed	20	6			
4. Protection Provided By State And Local Government	20	0			
5. Distance From Urban Builtup Area (NOT USED)	N/A	N/A			
6. Distance To Urban Support Services (NOT USED)	N/A	N/A			
7. Size Of Present Farm Unit Compared To Average	10	5			
8. Creation Of Nonfarmable Farmland	25	0			
9. Availability Of Farm Support Services	5	5			
10. On-Farm Investments	20	0			
11. Effects Of Conversion On Farm Support Services	25	0			
12. Compatibility With Existing Agricultural Use	10	2			
TOTAL SITE ASSESSMENT POINTS	160	43			
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	100			
Total Site Assessment *(From Part VI above or a local site assessment)*	160	43			
TOTAL POINTS *(Total of above 2 lines)*	260	143			

Site Selected: EXISTING CORRIDOR	Date Of Selection: JUNE 9, 1990	Was A Local Site Assessment Used? Yes ☐ No ☒

Reason For Selection: SINCE THE TOTAL SCORE IS LESS THAN 160 NO FURTHER SITES NEED TO BE CONSIDERED AS STATED IN 7 CFR 658.4(C), PART (2) - PAGE 27725 OF VOL. 49 FR #130: "SITES RECEIVING A TOTAL SCORE OF LESS THAN 160 BE GIVEN A MINIMAL LEVEL OF CONSIDERATION FOR PROTECTION AND NO ADDITIONAL SITES BE EVALUATED."

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 9-21-92
Name Of Project Dirty Corner - Polson	Federal Agency Involved USDOT - FHWA
Proposed Land Use Highway Right-of-Way	County And State Lake County, Montana
PART II *(To be completed by SCS)*	Date Request Received By SCS

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply — do not complete additional parts of this form).*	Yes ☒ No ☐	Acres Irrigated 125,000	Average Farm Size 460
Major Crop(s) Hay, potatoes, winter wheat, pasture	Farmable Land In Govt. Jurisdiction Acres: No data %		Amount Of Farmland As Defined in FPPA Acres: 47,000 %
Name Of Land Evaluation System Used NONE	Name Of Local Site Assessment System NONE		Date Land Evaluation Returned By SCS 10-30-92

PART III *(To be completed by Federal Agency)*	Maximum Points	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly		220	435		
B. Total Acres To Be Converted Indirectly		5	5		
C. Total Acres In Site		1427	1675		
PART IV *(To be completed by SCS)* Land Evaluation Information					
A. Total Acres Prime And Unique Farmland		2.5	20.8		
B. Total Acres Statewide And Local Important Farmland		0.8	5.9		
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted		<1%	<1%		
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value		6.5%	6.5%		
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*		NONE AVAILABLE			
PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use	15	12	15		
2. Perimeter In Nonurban Use	10	8	10		
3. Percent Of Site Being Farmed	20	7	8		
4. Protection Provided By State And Local Government	20	0	0		
5. Distance From Urban Builtup Area	NA	NA	NA		
6. Distance To Urban Support Services	NA	NA	NA		
7. Size Of Present Farm Unit Compared To Average	10	5	5		
8. Creation Of Nonfarmable Farmland	25	5	10		
9. Availability Of Farm Support Services	5	5	5		
10. On-Farm Investments	20	2	2		
11. Effects Of Conversion On Farm Support Services	25	0	5		
12. Compatibility With Existing Agricultural Use	10	5	5		
TOTAL SITE ASSESSMENT POINTS	160	49	65		
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	100	100		
Total Site Assessment *(From Part VI above or a local site assessment)*	160	49	65		
TOTAL POINTS *(Total of above 2 lines)*	260	149	165		

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☒

Reason For Selection:

Site A = Lane configuration "C", existing alignment

Site B = Lane configuration "C", existing alignment except Alt. 4 at Arlee and Alt. 3 at Ronan.

AD 1006 LAKE COUNTY
COUNTY LINE TO POLSON

FIGURE 7.3-2

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request
Name Of Project Polson	Federal Agency Involved USDOT - FHWA
Proposed Land Use Highway Right-of-Way	County And State Lake County, Montana
PART II *(To be completed by SCS)*	Date Request Received By SCS

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply — do not complete additional parts of this form).*	Yes XX	No ☐	Acres Irrigated 125,000	Average Farm Size 460
Major Crop(s) Alfalfa, hay, potatoes, winter wheat, pasture	Farmable Land In Govt. Jurisdiction Acres: No data %		Amount Of Farmland As Defined in FPPA Acres: 47,000 %	
Name Of Land Evaluation System Used None	Name Of Local Site Assessment System None		Date Land Evaluation Returned By SCS	

PART III *(To be completed by Federal Agency)*	Maximum Points	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly		23.3	140.9	178.9	
B. Total Acres To Be Converted Indirectly					
C. Total Acres In Site		125.3	168.9	188.8	
PART IV *(To be completed by SCS)* Land Evaluation Information					
A. Total Acres Prime And Unique Farmland		0	26.5	23.2	
B. Total Acres Statewide And Local Important Farmland		1.6	3.0	12.5	
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted		1%	1%	1%	
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value		NA	NA	NA	
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*		100	100	100	
PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use	15	7	12	15	
2. Perimeter In Nonurban Use	10	8	10	10	
3. Percent Of Site Being Farmed	20	3	10	8	
4. Protection Provided By State And Local Government	20	0	0	0	
5. Distance From Urban Builtup Area	NA	NA	NA	NA	
6. Distance To Urban Support Services	NA	NA	NA	NA	
7. Size Of Present Farm Unit Compared To Average	10	5	5	6	
8. Creation Of Nonfarmable Farmland	25	0	1	0	
9. Availability Of Farm Support Services	5	5	5	5	
10. On-Farm Investments	20	0	2	2	
11. Effects Of Conversion On Farm Support Services	25	0	3	2	
12. Compatibility With Existing Agricultural Use	10	5	5	5	
TOTAL SITE ASSESSMENT POINTS	160	33	53	53	
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	100	100	100	
Total Site Assessment *(From Part VI above or a local site assessment)*	160	33	53	53	
TOTAL POINTS *(Total of above 2 lines)*	260	133	153	153	

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No XX

Reason For Selection:

Site A = Lane configuration "C," existing alignment.
Site B = Lane configuration "D," Alternative 2 (Maximum Area Converted).
Site C = Lane configuration "D," Alternative 3 (Maximum Area Converted).

AD 1006 LAKE COUNTY
POLSON AREA

FIGURE 7.3-3

\US93EIS\FIGBORD.DWG 3/30/94

Table 7.3-1 FPPA Farmland Converted to Right-of-Way

Segment	Description	Lane Configurations									
		CSKT Preferred Alternative: Lane Configuration A		B		C		D		MDT Preferred Alternative: Lane Configurations A, B, C and D	
		(P)	(I)	(P)	(I)	(P)	(I)	(P)	(I)	(P)	(I)
A	Evaro - Arlee	0	0	9.4	0.7	10.6	0.8	11.8	0.9	9.5	0.7
B1, B2, B3	Arlee, Alignments 1 (Existing Alignment), 2 and 3,	0	0	0	0	0	0	NA	NA	0	0
B4	Arlee, Alignment 4, Jocko Valley Alignment	6.7	0	7.6	0	8.5	0	9.3	0	7.6	0
J1	Ronan, Alignment 1, Existing Alignment	0	0	0.2	0	0.3	0	NA	NA	0.3	0
J2	Ronan, Alignment 2, One-Way Couplet	0	0	0.3	NA	NA	NA	NA	NA	0.3	0
J3	Ronan, Alignment 3, Near-West Alignment	7.8	4.7	8.8	5.4	9.8	5.9	10.8	6.5	8.8	5.4
J4	Ronan, Alignment 4, Far-West Alignment	7.0	4.7	7.9	5.4	8.6	5.9	9.6	6.5	7.9	5.4
K	Ronan to Pablo	0	0	0	0	0.2	0.8	0.6	1.3	0.1	0.2
M	Pablo to Caffrey Road	0	0	0.8	0	1.6	0	2.4	0	1.2	0
N-O-P1	Polson, Alignment 1	0	0	0	1.0	0	1.6	NA	NA	0	0.6
N-O-P2	Polson, Alignment 2	0	0	24.5	2.5	25.5	2.8	26.5	3.0	24.5	2.5
N-O-P3	Polson, Alignment 3	0	0	21.4	11.6	22.2	12.0	23.2	12.5	21.4	11.6
MINIMUM TOTAL*		0.0	0.0	10.4	1.7	12.7	3.2	14.8	2.2	10.8	0.9
MAXIMUM TOTAL**		14.5	4.7	51.1	8.6	56.2	10.3	61.4	11.7	51.7	8.8
TOTAL ON EXISTING ALIGNMENT (EXCEPT ARLEE, RONAN AND POLSON)		0	0	10.2	0.7	12.4	1.6	14.8	2.2	10.8	0.9

Morrison-Maierle, 1993.
NA - Not Applicable (P) Acres of prime or unique farmland to be converted to highway right-of-way.
(I) Acres of farmland of statewide or local importance to be converted to highway right-of-way.
* Total of Existing Alignment (Alignment 1) throughout the project area.
** Total includes Existing Alignment throughout, except numbers for Arlee Alignment 4, Ronan Alignment 3 and Polson Alignment 2 were used.
Segments and alignments not listed will not affect FPPA farmland.
New information has been added to this table in the final EIS.

7.4. SOCIAL

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

Population projections indicate western Montana will continue to have a higher rate of population growth than the overall rate of growth for Montana. The expected population growth will continue to be a factor that generates growth of traffic on US 93 from Evaro through Polson. The continued population growth also is expected to continue the trends of increased demand for public facilities/services from CSKT and local governments, including Lake and Missoula counties and the incorporated communities Polson, Ronan and St. Ignatius. Governments will continue to respond to increasing demand for public services associated with population growth and changing patterns of land use and economic development. (Section 6.4)

7.4.1. Impacts Common to All Alternatives

7.4.1.1. Overview of Barrier Effect for Community Cohesion and Access to Neighborhoods and Facilities/Services

Traffic and physical features of the highway will be a barrier that affects social interaction and perception of the aesthetic environment in communities and rural areas outside communities.

The highway and traffic on the highway will affect opportunity for people to circulate among social and business activities that occur in communities and outside communities in open, rural areas.[13]

The severity of the barrier effect for each alternative will depend on the volume and speed of traffic and the highway's operation and capacity, combined with location and width. Traffic volume that exceeds the capacity of the transportation system will result in traffic congestion that affects community cohesion and access to neighborhoods and facilities/services.

The physical presence of the highway, combined with traffic on the highway, will disrupt aesthetic qualities because of effects on air quality, noise, visual and other environmental conditions. Traffic congestion restricts access for vehicular and pedestrian traffic to enter, leave and cross the highway without extended time delay and reduced safety.

Traffic congestion will affect community cohesion by reducing the ability of people to meet casually and associate freely. Reduced association with neighbors disrupts living patterns and reduces efficiency of facilities/services. Traffic congestion reduces opportunity for outside activities by children and adults. The reduced opportunity affects use of facilities/services. Parks and playgrounds becoming inaccessible, access to schools becoming difficult and unsafe, and stores losing customers because of difficulty in access are common concerns caused by traffic congestion.[14]

Sections 7.4.4, 7.4.5 and 7.4.6 discuss the barrier effects for alignment alternatives at Arlee, Ronan and Polson.

7.4.1.2. Discrimination: Isolation of Neighborhoods and Facilities/Services

The highway and traffic on the highway will divide neighborhoods from facilities/services inside and outside communities. None of the alignment alternatives or lane configuration alternatives, including No Action, will isolate, or therefore discriminate against, any racial, ethnic, or other minority groups. No social group will derive

[13]Highway Bypass Impact Analysis. State of Wisconsin, Department of Transportation. 1982.
[14]Transportation Research Record 858, Elements of Short-Run Marginal Costs of Highway Use, Ralph C. Erickson.

selective benefits or disadvantages from any of the alternatives. No school district, church, cemetery, park, or other public place will be isolated from access to the highway and facilities/services.

7.4.1.3. Environmental Justice Executive Order 12898 and Title VI of the Civil Rights Act of 1964

Information in this section has been added to document that the preferred alternatives of the proposed action are in compliance with Environmental Justice Executive Order 12898 and Title VI of the Civil Rights Act of 1964.

Growth of the population has been identified as an aspect of change that affects social conditions and cultural resources of the area. Highway improvement has not been isolated as a factor that, by itself, will cause increased growth of the population on the Flathead Indian Reservation. Highway improvement has been considered as one of a number of factors that will combine to make the reservation more attractive as a place to live for individuals and families commuting to employment in Missoula.

Growth of the commuter-related population will be part of ongoing, overall population growth that will continue to make it difficult for Native Americans to maintain their traditional tribal values. The Flathead and Kootenai culture committees also have expressed concern that the pressure of increasing population and traffic affects cultural aspects of natural resources, such as wildlife, air and water quality, and noise levels. Mitigation and enhancement measures have been identified to minimize adverse effects, and for some resource values such as wetlands and associated wildlife, improve conditions in the environment along US 93. Mitigation measures have been identified to support cultural preservation.

Overall population growth also will continue to increase demand for land and housing. This will convert more open land to residential and commercial development and increase values for land and housing. MDT has identified coordinating access management for US 93 with tribal and local land use planning and regulation as a mitigation measure to manage growth and development.

There will be benefits with improved transportation operation and safety. Congestion will be reduced, and access will be improved for individuals who use public and private facilities/services along US 93.

In 1990, Native Americans were 24% of the total population. Native Americans are large segments of the populations of Arlee, St. Ignatius, Pablo, Ronan and Polson. Thirty-nine percent of reservation's population, 16 years and older, had incomes below poverty level, compared with 16% for Montana (Tables 6.4-2 and 6.4-5).[15]

The population of the Flathead Indian Reservation has a dispersed pattern of residency. In 1990, approximately 37% of the 10,399 residential dwellings on the Flathead Indian Reservation were located in the communities of Arlee, St. Ignatius, Charlo, Ronan, Pablo, Polson and Hot Springs. The remaining 63% of residential units were in rural areas outside communities. Ninety-one percent of the reservation's housing was located in Lake and Missoula counties, which are the primary areas served by US 93 and the proposed action on the Flathead Indian Reservation. Ninety-three percent of the population of Native Americans live in the Lake and Missoula county parts of the reservation.[16] (Table 6.2-7)

Approximately 9,150 (88%) of the housing units were located in the Lake County portion of the reservation. Seventy-five percent of housing units were occupied, and 25% were unoccupied. Fifteen percent of housing units were unoccupied and used for seasonal, recreational or occasional use. The seasonally vacant units generally are not available for year-round occupancy.[17]

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[15] U.S. Department of Commerce, Bureau of the Census. U.S. Census of Population. 1990.

[16] Ibid.

[17] Confederated Salish and Kootenai Tribes. Flathead Reservation Comprehensive Resources Plan. Volume I, Existing Conditions. Pages 19-2 - 19-3.

Among Native Americans, 60% were in homes owner-occupied and 40% were renter-occupied. For non-Indians, 73% were in homes owner-occupied and 27% were renter-occupied.[18] (Table 6.2-7)

The MDT Preferred Alternative will require removal of 10 buildings and a telephone sub-station on the existing alignment. It will require removal of three buildings on Polson Alignment 3. (Table 7.18-2)

On the existing alignment, five buildings are single-family residential, three are commercial, one is vacant and one is used for undetermined, miscellaneous purposes. The telephone-substation is a facility owned and operated by a public utility. On Polson Alignment 3, all of the buildings are single-family residential.

To protect personal privacy of local residents, specific and detailed demographic and socioeconomic characteristics are not identified for owners, occupants and operators who will be relocated with removal of buildings. All residential dwelling units removed by the proposed action are single-family homes. The residences likely will include owner- and renter-occupied units, primarily moderate and low cost housing.

Information from the 1990 Census indicates some Native American households will be among the five residences to be removed on the existing alignment and three residences to be removed on Polson Alignment 3. This housing also likely will include persons with incomes below poverty level. In the areas that have removal of buildings, the percentages of households with Native Americans and with income below poverty level are similar to the overall patterns of population for the Flathead Indian Reservation. (Tables 6.4-2 and 6.4-5)

The five residences on the existing alignment and three residences on Polson Alignment 3 are a small part of the area's housing stock. According to the U.S. Census, Native Americans occupied 22%, or approximately 2,290, of the 10,399 housing units on the Flathead Indian Reservation in 1990.[19]

The MDT Preferred Alternative will not have a disproportionately high and adverse effect on minority or low-income populations. A small number of residences will be removed, and they are located in areas with race and income characteristics similar to the total population of the Flathead Indian Reservation.

Section 7.18.2 presents information about characteristics of residential and commercial buildings that will be removed with the proposed action.

7.4.1.4. Population Growth

Population growth will continue under all alternatives, including No Action. Most population growth will continue to be due to natural population increases (more local births than deaths) and in-migration, which is expected to include persons who are retired or seasonal residents, persons who live and work in the area and persons who commute to work outside the area. Highway improvement will have an indirect effect with additional population growth due to improved travel conditions for commuters who use the highway to travel to work in the region's major communities, Missoula and Kalispell.

All alternatives, including No Action, will provide a highway transportation system that is used by the growing population. Improvement of US 93, with reduced travel time and improved driving conditions and convenience, will combine with factors such as the rural lifestyle, natural environment and small town atmosphere to further increase the desirability of the area as a place to live.

With or without highway improvement, continued population growth will make it more difficult for CSKT to maintain their homeland on the Flathead Indian Reservation. Their traditional language, customs and religious

[18]U.S. Department of Commerce, Bureau of the Census. U.S. Census of Population. 1990.
[19]Ibid.

beliefs have required special attention to maintain and utilize in everyday life. Any increase in the non-tribal population will increase competition for land CSKT prefers to acquire for tribal ownership. (Section 7.14)

With or without highway improvement, continued population growth also will continue to adversely affect those among the area's long-time residents who view their social well-being and quality of life to be decreased by growth and development. The ongoing process of growth and development will have highway improvement better manage traffic to improve social conditions, while the increasing population changes the rural lifestyle, natural environment and small town atmosphere to a more urban environment.

Highway improvement is a factor to be considered in the planning process for its contribution to population growth, land use and economic development. Other factors, which are beyond the control of highway development, also influence growth and development~~have more influence on growth and development than the highway~~. These factors include overall market demand, price and availability of land for development, local and regional rates and patterns of population growth and economic development, and provision of public services such as water, sewer, schools and transportation facilities away from the highway. The importance of factors that affect growth and development will vary, depending on local and regional conditions.[20]

Research information compiled by FHWA identifies the potential for development within a reasonable period of time as an important consideration for estimating indirect and cumulative effects for highway projects. According to FHWA, in areas that experience little growth over time, an individual highway project likely will have negligible indirect and cumulative effects because of the absence of other activities occurring in the vicinity. In areas of moderate to rapid development, highway improvement can be an important element of change leading to long-term impacts.

7.4.1.5. Population Growth and Workers Who Commute Outside the Area

7.4.1.5.1. Flathead Indian Reservation

An estimate was made to consider an increase in commuters from the Flathead Indian Reservation to places of employment in Missoula. The estimate assumed an increase in commuters would occur over the 10- to 20-year period during which US 93 will be improved over the entire distance from Evaro through Polson. It applies to the alternatives that meet the purpose and need for the proposed action.[21] The estimate also assumed the rate of growth in commuting from the reservation would increase to be approximately equal to the rate of commuting from Ravalli County to Missoula. That means it is assumed there will be a substantially higher rate of growth in commuting in the future than there is currently from the Flathead Indian Reservation to Missoula. (Table 7.4-1 and Section 6.4.4.2)

For the entire region of western Montana, improvement of US 93 will not, by itself, add to ongoing population growth. Improvement of US 93 will reduce travel time and improve driving conditions for commuters to Missoula.

Improved transportation, with reduced travel time and improved driving conditions, combines with a broad mix of factors to be a part of growth. The highway transportation system is one of many factors that will combine to influence decisions about where people choose to live in and around Missoula:

- Growth of the population and economy in Missoula

- Concern about living in an urban environment

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[20] U.S. Department of Transportation, Federal Highway Administration. Position Paper on Secondary and Cumulative Impact Assessment and related planning information. 1992.

[21] A four-lane highway will and an improved two-lane highway will not provide operation and level-of-service to meet the purpose and need.

Table 7.4-1 Commuters and Commuter-Related Population:* Flathead Indian Reservation

Categories of Population and Commuters for the Flathead Indian Reservation	Population Estimates and Year			
	1990	2020		
		High	Moderate	Low
Estimate of overall population projection for the Flathead Indian Reservation*	21,260	N.A.	28,600*	N.A.
Commuter-Related Population**				
Estimate of Commuter-Related Population** without Highway Improvement	1,340	1,810	1,620	1,470
Estimate of Commuter-Related Population** with Highway Improvement	--	2,310	1,920	1,610
Commuters				
Estimate of Commuters from Flathead Indian Reservation to Missoula without Highway Improvement	510	700	620	560
Estimate of Commuters from Flathead Indian Reservation to Missoula with Highway Improvement	--	900	740	620

Montana Department of Commerce, Census and Economic Information Center. Population Projection Information.
Morrison-Maierle.
N.A. is Not Applicable.
*The estimate of overall population growth does not have a range high-moderate-low.
**Commuter-related population represents commuters and their families, based on average household size.
This table has been added to the final EIS.

- Choice among rural areas in the five valleys around Missoula
- Willingness to drive longer distances,with increased time
- Availability and cost of housing in Missoula and rural areas around Missoula
- Local and regional land use policy

◦ Lower travel times and better driving conditions

◦ Other factors, such as personal values, taxes, schools and medical services.

In general, the estimate represents a worst-case set of conditions to show the potential for growth of the commuter-related population. The estimate should not be interpreted to mean all of the growth of the commuter-related population in the estimate is due strictly to improvement of US 93. The estimate should be considered as a combined effect of all the factors involved in growth.

The estimate of commuter-related population[22] growth includes high, moderate and low parts. The estimate indicates there will be between 60 and 200 additional commuters at the end of the 10- to 20-year period of highway improvement. The additional commuter-related population (the sum of commuters and their families) will be between 140 and 500 at the end of the 10- to 20-year period of highway improvement. This range of growth for the commuter-related population would be two to seven percent of total population growth between 1990 and 2020.

Factors such as regional rates of population growth and economic development, regional land use and travel conditions, and improvement of the regional transportation system, will combine to work with improvement of US 93 from Evaro through Polson to determine the amount and distribution of commuter-related growth. ~~The indirect and cumulative impacts that result from the relationship between highway improvement and population growth has not been quantified, and a specific level of population growth due to highway improvement has not been measured, beyond the analysis that is presented in this section.~~

With or without highway improvement, the recent pattern of growth and development is expected to continue in the area from Evaro through Polson. Improvement of US 93 as a regional transportation facility is not planned specifically to promote growth and development. An improved highway will be a factor that combines with the factors discussed above to provide transportation services that support any increase in the rate of population growth. As discussed in Section 6.4, any increase in commuters will consist of two groups: (1) established residents, who reside in Lake County and the part of northern Missoula County between Evaro and Lake County, and who obtain work outside the area; (2) new residents who move to the area and commute to work outside the area.

Overall commute times will remain much longer than is typical for workers in the most populous areas between Evaro and Polson; the long travel time will be a factor that limits, but does not eliminate, growth of the population due to new residents who commute to Missoula. In 1990, information from the U.S. Census indicated the average travel time to work was 16 minutes for Lake County, with the average travel times in the Polson, Ronan and St. Ignatius-Arlee areas being 15, 12 and 20 minutes, respectively.[23] Travel times to Missoula from these areas are greater than the average travel times. ~~Current estimated travel times to Missoula range from 27 minutes from the Arlee area to 78 minutes for the Polson area. Travel time to Missoula from the Evaro area in Missoula County, the southern end of the proposed action, was 13 minutes in 1990.~~ Four-lane highway improvement is expected to reduce current travel times ~~by between one and two minutes~~ from various locations in the area to Missoula in the design year. No Action or Lane Configuration A will increase travel times. (~~Table 7.1-1~~Section 7.1.1)

As discussed in Section 6.4, perception of the area's desirability as a place to live, combined with the rates of population growth in the Missoula and Kalispell areas, will be major factors that affect growth in commuters. Between 1980 and 1990, when Missoula County's population grew by four percent, the number of commuters from Lake County to Missoula did not change; the St. Ignatius-Arlee areas in southern Lake County had a decrease of 50, and the Polson area, with Flathead Lake in northern Lake County, had an increase of 50. Although information about commuters is unavailable from the U.S. Census for the part of Missoula County between Evaro and Lake County, Section 6.4 notes the population of that area increased by eight percent between 1980 and 1990. All of

[22]Commuter-related population represents commuters and their families, based on average household size.
[23]U.S. Department of Commerce, Bureau of the Census. U.S. Census of Population. 1990.

the increase was persons who were non-Indian, indicating newcomers, some of whom commute to Missoula, were moving to the Evaro area.[24]

Recent patterns of growth in commuters from Lake County indicate the northern (Polson area) and southern (Arlee-St. Ignatius areas) parts of Lake County will be the focus of commuter-based population growth. The Polson area will be influenced by population growth and economic development in both Missoula and Kalispell, while the Arlee-St. Ignatius areas will be influenced by Missoula. (Section 6.4)

Because of the expected increase in the rate of growth in Missoula County, it is expected population growth related to commuters will increase in Lake County, the Evaro area of northern Missoula County, and other counties around Missoula, such as Ravalli, with or without highway improvement.

The cumulative effects of the proposed action and other highway projects will result in a highway system that improves the desirability of travel for commuters in the area from Evaro through Polson and throughout Lake County north of Polson. Such projects include the four-lane segment of US 93 abutting the proposed action between I-90 and Evaro built in 1985-86, improvement during the late-1980s of US 93 north of Polson and the proposed improvement of US 93 from Somers to Whitefish, which is approximately 50 miles north of the proposed action. The cumulative effects of improvement of US 93 from Evaro through Polson and Lolo to Hamilton south of Missoula will moderate the effect of highway improvement causing new residents to move to the area from Evaro through Polson and commute to work in Missoula. Improvement of the highway south of Missoula also will combine with the factors that influence population growth, as discussed above, to make the area south of Missoula more desirable for travel.

With no substantial differences in travel times among Lane Configurations B, C and D, which are four-lane highways, there also will be no measurable difference in the effects of the lane configurations on travel time of commuters who travel US 93 to work outside the area.

While highway improvement will increase commuters' willingness to drive in terms of time and distance to work, thereby increasing the desirability of the area for residential development and population growth, other factors, in addition to the long distance and travel time discussed above, will be constraints that limit the potential for growth and development:

Terrain on the route of US 93

Several segments of US 93 present difficult driving conditions that will reduce drivers' willingness to commute to work daily between Missoula and locations in the area. Evaro Hill, which is south of the proposed action, and Ravalli Hill have steep grades. Although highway improvement will lessen the difficulty of crossing the grades, these areas will be factors that limit the growth of commuter traffic. Winter driving conditions on Evaro and Ravalli hills will further increase the difficulty of commuting to work.

Availability of land for development

There is limited land available for development. Any additional residential development in rural areas outside communities will affect the rural lifestyle and natural environment.

The area between 15 and 20 miles from Missoula is forested land and has limited capacity for growth and development. The area around Arlee, which is between 20 and 30 miles from Missoula has private, tribal and trust/allotment lands without steep slopes. This land, which is predominantly agricultural, has scattered development across the basin of the Jocko Valley, which is between one and three miles in width. In the area between 30 and

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[24] U.S. Department of Commerce, Bureau of the Census. Census of the Population. 1980-1990.

40 miles from Missoula, steep slopes limit the availability of land for development between Ravalli Canyon and Ravalli Hill. Between Ravalli Hill and Polson, 40-70 miles from Missoula, the Mission Valley has private, tribal, trust/allotment, federal and state lands. This area combines growing development with agricultural lands and wetland areas. In order to enlarge the tribal land base of the Flathead Indian Reservation, CSKT purchases land that is for sale and available for development.

7.4.1.6. Shifts in Population: Workers Who Commute Inside the Area

Highway improvement will have indirect and cumulative effects that change the pattern of growth for the segment of the population commuting to work on US 93 from Evaro through Polson. As with workers who commute outside the area, reduced travel time and improved convenience will encourage workers to commute longer distances in the area. Locations that are perceived to be desirable and affordable will be most likely to have increased population from workers who commute in the area.

7.4.1.7. Students Who Commute to Colleges in Missoula and Kalispell

Students who commute to the University of Montana in Missoula and Flathead Community College in Kalispell also will benefit from improvement of US 93. While estimates about the number of students who commute to the schools, either daily or several days of the week, are not available, it is expected most students are long-time local residents for whom an improved highway could make a college education more obtainable. As with commuters who travel to work on US 93, any potential effects of indirect population growth due to an increase in the number of college students from outside the area will depend on other factors involving the region and the schools.

Such growth of the student population has not been measured beyond the general discussion and analysis presented in this section.

7.4.1.8. Population Impacts of Highway Alignments at Arlee, Ronan and Polson

Highway alignments at Arlee, Ronan and Polson will have little long-term impact on population growth in Lake County. The alignments have the potential to shift boundaries of local trade areas for communities, which may affect the ability of local economies in Lake County to support employment. The economic changes will shift sales for highway-oriented businesses, depending on pattern of development for highway-oriented businesses.

Changes in population because of shifts in sales, earnings and employment of highway-oriented businesses will affect communities and adjacent rural areas. Estimates of changes in population for the St. Ignatius, Ronan and Polson census subdivisions, which encompass the rural areas adjacent to the communities of Arlee, Ronan and Polson, indicate there will be variations of one percent or less, with all alignments, through the design year ~~2015~~2020.[25]

Mitigation

The mitigation measures for land use (and access control) will provide the most appropriate opportunity and strategy to control population growth. (Section 7.2)

7.4.2. No Action

No Action will require the least physical presence for a highway. Its inadequate capacity for current and future volume of traffic will adversely affect social conditions.

[25]Jim Boyer. Alternative Highway Alignments Technical Report. 1993.

As the volume of traffic increases, US 93 will become more of a barrier. The roadway will not be widened. There will be increased concentrations of traffic. Longer platoons of vehicles will further restrict the flow of traffic.

Increased traffic will disrupt and restrict access for vehicular and pedestrian traffic in residential, commercial, industrial and public areas. More uncontrolled traffic will worsen safety and create a barrier that splits residential areas from facilities/services during intermittent times of the day and intermittent periods of the year.

7.4.3. Existing Alignment (Except Arlee, Ronan and Polson)

7.4.3.1. Barrier Effect for Community Cohesion and Access to Neighborhoods and Facilities/Services

Lane Configuration A (two-lane highway), which will have impacts similar to No Action, will be a less-wide physical barrier for vehicular and pedestrian access to and from the highway. The barrier effect for Lane Configuration A will occur as traffic is concentrated in multi-vehicle platoons that increase traffic congestion and reduce space between moving vehicles.

Lane Configurations B, C and D (four-lane highway) will result in a wider roadway. They will provide more spacing in traffic flow. They will provide better opportunity for access during periods of peak traffic. The barrier effect for Lane Configurations B, C and D will occur as traffic is dispersed across a wider area of highway, increasing the distance required to cross the highway.

Lane Configurations B, C and D will place traffic closer to developed residential, commercial, industrial and public areas that either have frontage along the highway or are near the highway. They will occupy a wider area than the current highway and result in a more prominent physical presence. They will decrease existing buffer zones between developed or undeveloped property and highway ROW.

Lane Configurations B, C and D will provide a more efficient highway for school buses, mail carriers, police and fire vehicles, ambulances and any other public-service vehicles.

7.4.4. Arlee Alignments

7.4.4.1. Alignment 1: Existing Alignment

Lane Configuration A will have impacts similar to No Action. It will become more of a barrier as traffic increases in the community. Traffic will be increasingly concentrated in the space of the existing roadway as spacing decreases between vehicles. Traffic congestion will increase and access will decrease to facilities/services in residential, commercial, industrial and public areas.

Lane Configurations B and C will be a barrier in the community because of a wider roadway that has a more prominent physical presence. Although there will be more spacing between vehicles, traffic will be closer to developed residential, commercial, industrial and public areas that either have frontage along the highway or are near the highway. The existing buffer zones will decrease between residential, commercial, industrial or public property and highway ROW.

All lane configurations with Alignment 1 will maintain the present patterns of vehicular and pedestrian travel. As traffic volume increases, convenience will be reduced, while travel time and operational expenses will increase for local and through traffic.

All lane configurations will improve the highway over existing conditions for school buses, mail carriers, police and fire vehicles, ambulances and any other vehicles providing public and private services. Through traffic will continue to travel through Arlee on the existing alignment, increasing congestion and obstructing driving conditions for various vehicles that provide public and private services.

Section 7.4.1.1 provides an overview of barrier effects that will occur in communities.

7.4.4.2. Alignments 2, 3 and 4

All lane configurations with Arlee Alignments 2, 3 and 4 will result in a new roadway through the rural areas on the west or east edges of the community. They will divert through traffic from the developed residential, commercial and industrial areas to an open agricultural area. The area west of Arlee currently is served by county roads and is bounded on the west by railroad ROW. The area east of Arlee, which is currently served by MTS 559 and tribal and county roads, is bounded by school property, the powwow grounds and the rodeo grounds.

All lane configurations will change the area having an undeveloped rural lifestyle and natural environment into an area with a developed highway.

All lane configurations will improve the efficiency of through traffic by maintaining uninterrupted flow. Convenience will be improved, while travel time and operational expenses will decrease for local and through traffic.

In Arlee, the smaller volume of traffic that will pass through town will improve access to and from highway approaches for vehicular and pedestrian traffic among residential, commercial, industrial and public areas. The highway will be less of a barrier in the community.

All lane configurations will create a barrier and split the rural areas west or east of Arlee from residential, commercial, industrial and public areas in Arlee. Pedestrian traffic will be disrupted in the rural area. With Alignment 2, children who walk to school from the rural area and children from Arlee who walk to the rural area to fish and swim in Finley Creek will cross the highway. In the open area northwest of Arlee's developed area, the route of Alignment 2 will cross a location that is planned for development as a sewage lagoon. With Alignment 3, pedestrian traffic between Arlee and the area with the powwow and rodeo grounds will cross the highway.

Without access control on Alignments 2 and 3, approaches from residential streets in the areas of Arlee west or east of the current highway could be extended to the new highway. Vehicles turning from the highway onto the extended streets will increase traffic in the residential area. There could be new commercial and industrial development at the new highway approaches, further increasing vehicular and pedestrian traffic through the residential area on the west or east sides of Arlee. Without access control on Alignment 2, there will be increased vehicular and pedestrian activity near the railroad ROW.

Alignments 2, 3 and 4 will divert through traffic away from the existing alignment and provide the most improvement for school buses, mail carriers, police and fire vehicles, ambulances and any other vehicles that provide public or private services in Arlee.

Mitigation

The barrier effects of all Arlee alignment and lane configuration alternatives may be mitigated by normal highway design and traffic control features, such as sidewalks, pedestrian crosswalks, bicycle lanes, signing, speed control and landscaping. Landscaping can be used to reduce noise, air pollution and the perception that the highway imposes a physical intrusion ~~of the highway~~ on human activities.

For Alignment 1, public comment of residents in the Arlee area and the Arlee community team support the use of a traffic signal to interrupt through traffic and improve the opportunity for access to the highway by local traffic.

The interrupted flow of through traffic will further increase traffic congestion that restricts access at all locations along the highway, except the intersection with the traffic signal. (Chapter 10)

Participants in public and agency scoping meetings are in general agreement that a pedestrian overpass should not be used. It will require pedestrians to travel up and down long ramps, it will not be convenient for many pedestrians, and it will be expensive.

Access control ~~along the entire route of the new highway west or east of Arlee~~and corridor preservation along the alternate alignments at Arlee will restrict new commercial and industrial development near existing residential areas. Access control also will restrict traffic from traveling through the existing residential area between the current highway and the new highway.

7.4.5. Ronan Alignments

7.4.5.1. Alignment 1: Existing Alignment

Lane Configuration A will have impacts similar to No Action. It will become more of a barrier as traffic increases in the community. Traffic will be increasingly concentrated in the space of the existing roadway as spacing decreases between vehicles. Traffic congestion will increase, and access will decrease to facilities/services in residential, commercial, industrial and public areas.

Lane Configurations B and C will be a barrier in the community because of a wider roadway that has a more prominent physical presence. Although there will be more spacing between vehicles, traffic will be closer to developed residential, commercial, industrial and public areas that either have frontage along the highway or are near the highway. The existing buffer zones will decrease between residential, commercial, industrial or public property and highway ROW.

All lane configurations with Alignment 1 will maintain the present patterns of vehicular and pedestrian travel. As traffic volume increases, convenience will be reduced, while travel time and operational expenses will increase for local and through traffic.

All lane configurations will improve the highway over existing conditions for school buses, mail carriers, police and fire vehicles, ambulances and any other vehicles providing public and private services. Through traffic will continue to travel through Ronan with the existing alignment, increasing congestion and obstructing driving conditions for various vehicles that provide public and private services.

7.4.5.2. Alignment 2: One-Way Couplet

Ronan Alignment 2 will maintain the roadway on the existing alignment and provide a new roadway for southbound US 93 traffic on First Avenue Southwest, one block west of the existing alignment. This one-way couplet will place traffic closer to developed residential, commercial, industrial and public areas that either have frontage along the highway or are near the highway. It will occupy a wider area than the current street on the new southbound route and result in a more prominent physical presence. It will decrease existing buffer zones between residential, commercial, industrial or public property and highway ROW.

Alignment 2 will change the present patterns of vehicular and pedestrian travel by separating northbound and southbound lanes of traffic through Ronan. There will continue to be interrupted flow of traffic, but to a lesser extent than No Action. As traffic volume increases, convenience will be reduced, while travel time and operational expenses will increase for local and through traffic.

Alignment 2 will create a barrier in two areas and split residential areas from commercial, industrial and public areas. It will place new lanes of traffic on the east side of the schools, and it will require relocation of several buildings that house the CSKT Human Services Department near Round Butte Road (MTS 211). On First Avenue Southwest, it will place new lanes of traffic on the east side of a church. A senior citizens and developmentally disabled residential center, with approximately 20 apartments, will be split from the commercial district on the existing alignment.

Persons who use the services of the CSKT Human Services Department and residents of the senior citizens and developmentally disabled residential center on First Avenue Southwest will be placed at a disadvantage because the one-way couplet will be a barrier to unimpeded access to facilities/services.

With a separation of northbound and southbound traffic, Alignment 2 will provide more spacing in traffic flow and provide better opportunity for access on the existing alignment during periods of peak traffic. The volume of traffic will increase on First Avenue Southwest and worsen access in that area.

To provide access between the north and south routes of the one-way couplet will require improvement of cross streets between the existing alignment and First Avenue Southwest. The cross streets have mixed residential, commercial and open areas, including the city park. There will be increased vehicular and pedestrian traffic on the cross streets.

All lane configurations will improve the highway over existing conditions for school buses, mail carriers, police and fire vehicles, ambulances and any other vehicles providing public and private services. Through traffic will continue to travel through Ronan on the existing alignment, increasing congestion and obstructing driving conditions for various vehicles that provide public and private services.

7.4.5.3. Alignments 3 and 4

All lane configurations with Ronan Alignments 3 and 4 will result in a new roadway through the rural area on the west edge of the community of Ronan. They will divert through traffic from the developed residential, commercial and industrial areas in Ronan to an open agricultural area. The area west of Ronan currently is served by Round Butte Road (MTS 211) and county roads. Alignment 3 will be bounded on the west by Ronan's wastewater treatment plant and a ballfield. Alignment 4, which will be on the route of Thirteenth Avenue Southwest, will be bounded on the east by Ronan's wastewater treatment plant and a ballfield.

All lane configurations will change the area having an undeveloped rural lifestyle and natural environment into an area with a developed highway.

All lane configurations will improve the efficiency of through traffic by maintaining uninterrupted flow. Convenience will be improved, while travel time and operational expenses will decrease for local and through traffic.

In Ronan, the smaller volume of traffic that will pass through town will improve access to and from highway approaches for vehicular and pedestrian traffic among residential, commercial, industrial and public areas. The highway will be less of a barrier in the community.

All lane configurations will create a barrier and split the rural areas west of Ronan from residential, commercial, industrial and public areas in Ronan. Pedestrian traffic will be disrupted in the rural area. Children who walk to school from the rural area along MTS 211 will cross the highway.

Without access control on Alignments 3 and 4, approaches from residential streets in the area of Ronan west of the current highway could be extended to the new highway. Vehicles turning from the highway onto the extended streets will increase traffic in the residential area. There could be new commercial and industrial development at the new highway approaches, further increasing vehicular and pedestrian traffic through the residential area on the west side of Ronan. Without access control, there will be increased vehicular and pedestrian activity near the railroad ROW.

Alignments 3 and 4 will divert through traffic away from the existing alignment and provide the most improvement for school buses, mail carriers, police and fire vehicles, ambulances and any other vehicles that provide public or private services in Ronan.

The lessening of traffic congestion also will reduce traffic interference with emergency vehicles and allow for safer operation of school buses.

Mitigation

All Ronan Alignments

The barrier effects of all Ronan alignment and lane configuration alternatives may be mitigated by normal highway design and traffic control features, such as sidewalks, pedestrian crosswalks, bicycle lanes, signing, speed control and landscaping. Landscaping can be used to reduce noise, air pollution and the physical intrusion of the highway on human activities.

For Alignments 1 and 2, public comment of residents in the Ronan area and the Ronan community team support the use of traffic signals to interrupt through traffic and improve the opportunity for access to the highway by local traffic. The interrupted flow of through traffic will further increase traffic congestion that restricts access at all locations along the highway, except the intersections with the traffic signal. (Chapter 10)

Participants in public and agency scoping meetings are in general agreement that a pedestrian overpass should not be used. It will require pedestrians to travel up and down long ramps, it will not be convenient for many pedestrians, and it will be expensive.

Access control along the entire route of the new highway west of Ronan will restrict new commercial and industrial development near existing residential areas. Access control also will restrict traffic from traveling through the existing residential area between the current highway and the new highway.

7.4.6. Polson Alignments

7.4.6.1. Alignment 1: Existing Alignment

Widening of US 93, coupled with growth in traffic, will further segregate and hinder access to and from north side residences, businesses, municipal offices, resorts, and recreational areas. Alignment 1 will increase the distance and time which senior citizen pedestrians will be exposed to traffic when crossing US 93. The corridor is not wide enough to allow for construction of a continuous sidewalk on the north side of Alignment 1, and pedestrians will walk on the highway shoulders.

Lane Configurations B and C also will widen the area of exposure to traffic for children and other pedestrians walking and bicycling to the Boettcher Park swimming area and other north side recreation areas.

Waterfront and park areas on the north side of US 93 are used for dispersed recreation. Highway widening will bring traffic closer to the lake shore and reduce staging areas for land and water-based activities. Widening will also reduce the buffer area separating the highway traffic from park and golf course users.

By lessening traffic congestion, Alignment 1 will improve general driving conditions along the US 93 corridor. The safety of seniors, children, and others will be advanced by installation of additional traffic signals and crosswalks. Although Alignment 1 will expand the area of exposure for seniors driving cars onto US 93 from the Lakeview Retirement Village complex, reduced congestion will make it easier to drive in and out of the complex. Road widening and installation of turning bays will create a safer riding environment for bicyclists riding on US 93.

7.4.6.2. Alignments 2 and 3

Alignment 2 or 3 will have little impact on the geographic distribution of Polson area population growth. Areas south and west of Polson and the Rocky Point area will experience new settlement irrespective of whether Alignment 2 or 3 is developed. The alignments will improve transportation access to areas south and west of Polson, but new roadways will not substantially change the rate or characteristics of future settlement in these areas.[26]

Alignment 2 or 3 will bring auto and truck noise, air pollution, and physical presence of highway traffic into farming and low density residential areas. Households living near the highway will experience much less pastoral living environments and will need to make lifestyle adjustments to accommodate living near a heavily traveled highway. Twenty houses have driveways entering on to Alignment 2. Seven houses will have driveways entering on to Alignment 3. One house on Caffrey Road will be within 100 feet of the Alignments 2 or 3. As traffic volume increases over time, the impacts of the highway will also increase.

New commercial development occurring along portions of Alignment 2 or 3 also will change the agrarian and residential character of nearby areas.

Alignment 2 or 3 will attract most drive-through traffic and will reduce flows along the existing US 93 corridor. Driving, walking and bicycling conditions along and across the existing highway will be improved. The existing alignment will still carry high traffic volume. Vehicle and pedestrian movements will be further improved by additional traffic signals.

The diversion of traffic will cause the north side of Polson to be less isolated from the rest of the city. Reduction in traffic congestion will also improve access and reduce noise and air pollution impacts to lake shore parks, shoreline recreation areas, resorts, and other businesses along the corridor. The lessening of traffic congestion and placement of new traffic signals also will reduce traffic interference with emergency vehicles and allow for safer operation of school buses.

<u>Mitigation</u>

<u>All Polson Alignments</u>

The barrier effects may be reduced by design and traffic control features, such as sidewalks, pedestrian cross walks, bicycle lanes, signing, traffic signals and speed control. Landscaping can be used to reduce noise, air pollution, and the physical intrusion of the highway on human activities.

For Alignment 1, public comment of residents in the Polson area and the Polson community team support the use of traffic signals to interrupt through traffic and improve the opportunity for access to the highway by local traffic. The interrupted flow of through traffic will further increase traffic congestion that restricts access at all locations along the highway, except the intersections with the traffic signal. (Chapter 10)

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[26]Jerry Sorenson, Lake County Planning Director. 1993.

Access control along the entire route of the new highway south and west of Polson will restrict new commercial and industrial development near existing residential areas. Access control also will restrict traffic from traveling through the existing residential area between the current highway and the new highway.

7.5. ECONOMICS

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

The proposed action does not involve any public investment for economic development other than improving the highway transportation system. It will combine with other factors, but will not dominate future, changing economic conditions. The proposed action to improve US 93 from Evaro through Polson will support continuing economic development, consistent with what is expected to occur with a transportation system that provides adequate capacity. The proposed action will support the productive capacity of the existing economy with an adequate transportation system. No estimate of the direct economic impact of the proposed action on the economy has been measured beyond the discussion and analysis that is presented in this section.

National studies have found public investment in highway improvement will combine with, but not dominate, other non-transportation factors to affect regional growth. There are direct user benefits such as reductions of travel time, transportation cost and accidents. Intercity connections provided by highway improvement also are an important factor in regional economic development. Highway access is an important consideration in expansion and location decisions about business facilities such as corporate headquarters, regional offices, research and development facilities, manufacturing plants and distribution centers. Studies of the national interstate highway system indicate businesses providing tourism services are most seriously affected by decisions about highway development, while businesses in the manufacturing and wholesale sectors of the economy are more influenced by non-transportation factors.[27,28]

The potential for economic development is dependent on factors that are not controlled by the highway: Availability of natural resources; proximity to export markets and suppliers; availability of capital for finance; size and training of the labor force; and public policies affecting the general business climate.

Manufacturing of wood products depends on the continued availability of timber from the region's forests. Tourism and recreation depend on Glacier National Park, Flathead Lake and resources available in national forests. Retail trade and services, which have been the sectors of the economy with the most growth in employment and personal earnings, depend on tourism and the growing population. It is expected the services sectors of the economy will continue the recent trends of higher rates of growth than manufacturing and timber in the economy of Lake County and the Flathead Indian Reservation.

Estimates of impacts for local sales, earnings and employment due to changes in travel patterns of drive-through travelers were not quantitatively measured for either the No Action or the existing alignment (Except Arlee, Ronan and Polson) alternatives. There will not be any change in highway alignment with No Action or the Existing Alignment (Except Arlee, Ronan and Polson). Although increasing traffic congestion will be expected to redistribute economic growth associated with drive-through travelers, the redistribution is expected to occur primarily within the area from Evaro through Polson.

Sections 7.5.4, 7.5.5 and 7.5.6 present quantitative estimates of changes in local sales, earnings and employment for the communities of Arlee, Ronan, and Polson. In these communities, highway alignments are being considered that could change the boundaries of each community's local trade area for business activity associated with drive-

[27]Transportation Research Board, Transportation Research Record 812. Interstate Highway System and Development in Nonmetropolitan areas.

[28]Eno Transportation Foundation, Inc., Westport Connecticut. Measuring Economic Development Benefits for Highway Decision-making: The Wisconsin Case. Weisbrod and Beckwith. Transportation Quarterly, Volume 46, No. 1, January 1992.

through travelers. Appendix E presents the analysis of changes in expenditures by drive-through travelers for Arlee, Ronan and Polson.

Businesses most susceptible to a decrease in drive-through trade will be highway-oriented establishments such as eating and drinking establishments, gasoline and convenience stores, motels and camping facilities, specialty retail stores and businesses providing recreation, entertainment, personal, and repair services.

7.5.1. Impacts Common to All Alternatives

7.5.1.1. Regional Economic Development and Tourism

All alignment alternatives and lane configuration alternatives, including No Action, will have US 93 continue to operate and provide support for economic development and tourism. Improvement of the highway will not be a factor that can be separated from other factors that are responsible for changing patterns of economic development in the area and throughout Montana.

All alternatives, including No Action, will have little influence on the number of nonresident visitors to northwestern Montana. Highway improvement will reduce travel time, improve convenience and increase access to parks and recreation activity. (Section 7.15)

All alternatives, including No Action, will require public expenditure for operations and maintenance. All alternatives, except No Action, will result in public expenditure for operation of a wider highway that requires maintenance of more pavement than the current facility; Lane Configurations B, C and D will operate more efficiently and with less deterioration of pavement because traffic is dispersed over a wider area of pavement. No Action will require increased maintenance due to concentration of increasing volume of traffic on the existing width of pavement.

Road widening will change the design of business driveways, and spaces will be removed from parking lots. Businesses located close to the highway and businesses with small parking lots will be most affected by these changes. Displaced businesses may have difficulty finding equivalent space along US 93.

All alternatives, including No Action, will not substantially change patterns of local and regional expenditure by residents of the area. Lost sales attributable to highway alignments or to business displacement and changes in driveways or removal of parking spaces will be regained by other local and regional businesses. Local residents will continue current patterns of local and regional expenditure between the area and Missoula and Kalispell, the region's major trade centers.

7.5.1.2. Reductions of Taxable Valuation, Property Taxes and Agricultural Production Value with Conversion of Land to Highway Right-of-Way.

Taxable Valuation and Property Taxes

The analysis of the impact of highway improvement on local property tax revenues is limited to estimating the effects of converting privately-owned land to highway ROW. The impact is expected to be greatest for the alignments which widen existing highway corridors. Conversion of private lands to highway ROW will have minor effects on local tax bases. (Section 7.2)

No Action will not convert land to highway ROW. For the existing alignment, including the highway through Arlee, Ronan and Polson, Lane Configuration D will have the greatest effect on the local tax base, reducing taxable value by $9,500 and annual revenue from property taxes by $2,800. Lane Configuration C will reduce taxable value by $5,700, followed by Lane Configuration B ($3,800) and Lane Configuration A ($1,600). Lane Configuration

C will reduce annual revenue from property taxes by $1,700, followed by Lane Configuration B ($1,100) and Lane Configuration A ($500). Compared with Lane Configuration D, Lane Configurations A, B and C will result in reductions of taxable value and annual property taxes that are generally lower by 20, 40 and 60%, respectively.[29] At Arlee, Ronan and Polson, the alignments will require more conversion of land to highway ROW, and they will have a greater reduction in taxable value and property taxes than the existing alignment through the communities.

At Arlee, Lane Configuration B on Alignment 3 will reduce taxable value by $950 and annual property taxes by $300, and it will reduce taxable value by $650 and annual property taxes by $200 on Alignment 2. At Ronan, Lane Configuration B on Alignment 4 will reduce taxable value by $4,200 and annual property taxes by $1,100, and it will reduce taxable value and annual property taxes by $3,900 and $1,000, respectively, on Alignment 3. At Polson, Lane Configuration B on Alignment 2 will reduce taxable value by $4,100 and annual property taxes by $1,300, and it will reduce taxable value by $900 and annual property taxes by $300 on Alignment 3. At Arlee, Ronan and Polson, the maximum reduction of taxable value and annual property taxes with alignments will be higher than the existing alignment by 60, 1,400 and 440%, respectively.[30]

With Lane Configuration B, the reduction in taxable value will be less than 0.1% of total taxable valuation for both Lake and Missoula counties.[31]

Agricultural Production Value

The analysis of the impact of highway improvement on local agricultural production value is limited to estimating the effects of converting agricultural land to highway ROW. The impact is expected to be greatest for the alignments which widen existing highway corridors. (Section 7.2)

No Action will not convert agricultural land to highway ROW. There will be continued conflicts between agricultural operations and traffic on US 93. The existing alignment outside Arlee, Ronan and Polson will displace agricultural land that consists primarily of agricultural cropland and rangeland, with some land used for seed potato farming between Pablo and Polson. Lane Configurations A, B, C and D will displace 68, 139, 208 and 306 acres, respectively. The annual production values are estimated to be $24,800, $42,400, $58,600, and $88,200 for Lane Configurations A, B, C and D, respectively.[32]

At Arlee, Alignment 1 will displace between 15 and 33 acres of agricultural land, most of which is used for crop production. The annual production value of the land is estimated to be between $2,800 and $6,100. Alignment 2 will displace between 50 and 90 acres of agricultural land, most of which is used for crop production. The annual production value of the land is estimated to be between $9,300 and $17,700. Alignment 3 will displace between 35 and 72 acres of agricultural land, most of which is used for crop production. The annual production value of the land is estimated to be between $6,400 and $13,200. Alignment 4 will displace between 139 and 192 acres of agricultural land used for crop production and grazing. The annual production value of the land is estimated to be between $17,400 and $24,000.[33]

At Ronan, Alignment 1 will displace between five and 11 acres of agricultural land, most of which is irrigated farm land. The annual production value of the land is estimated to range from $900 to $2,300. Alignment 2 will remove 14 acres of irrigated cropland from production. The annual production of this land is estimated to be $2,800. Alignment 3 will displace between 38 and 61 acres of agricultural land, most of which is used for crop production. The annual production value of the land is estimated to be between $7,600 and $12,600. Alignment 4 will displace

[29]Jim Boyer. U.S. Highway 93 Economic Analysis Technical Report. 1993.
[30]Ibid.
[31]Ibid.
[32]Ibid.
[33]Ibid.

between 59 and 82 acres of agricultural land, most of which is used for crop production. The annual production value of the land is estimated to be between $12,500 and $16,500.[34]

At Polson, Alignment 1 will have minimal impacts on area agricultural operations and productivity. Alignments 2 or 3 will displace an estimated 38 acres of land used for seed potato farming. The value of displaced seed potato production will approach $95,000 a year. The alignments also will displace wheat, barley, and hay production valued at $1,600 per year for Alignment 2 and $4,300 for Alignment 3. Alignment 3 will reduce the value of county cattle production by about $2,500 per year.[35]

Mitigation

The mitigation measures for land use and access control will provide the most appropriate opportunity and strategy to control economic development. (Section 7.2)

Ongoing transportation planning should review the means of transport for passengers and freight. The economic feasibility of developing passenger mass transit and converting freight from trucks to rail will depend on transportation factors associated with national and international conditions. (Appendix B)

~~A review of the needs for a system to manage travel information should be conducted in conjunction with the design and construction of improvements for US 93. The review should evaluate whether visitors centers will be effective in attracting through travelers for day visit and overnight activity. The review should consider options for promoting existing attractions, such as the National Bison Range, Ninepipe National Wildlife Refuge and the CSKT cultural center north of Pablo.~~

~~Management of travel information, including highway signing and mapping, commercial advertising and visitors centers, will promote the availability and location of commercial services.~~

7.5.2. No Action

The volume of traffic will continue to increase, and the travel route through communities will not change. Highway-oriented and nonhighway-oriented businesses will be visible to all traffic.

No Action will require the least physical presence for a highway, but its inadequate capacity for current and future volume of traffic will adversely affect economic conditions. Traffic congestion will increase as a barrier that impedes vehicular and pedestrian access to businesses. Businesses on the highway will be increasingly less comfortable and safe as a result of increased conflicts with traffic.

As traffic demand increases, the highway will become more congested. There will be disruption of the distribution system for local trade and commerce. More expensive and less reliable transportation services will adversely impact industries and businesses that depend on them.

Increased traffic congestion will disrupt the tourism and travel industry. Increasing traffic and congestion will make the area less hospitable for local tourists. As travel becomes more difficult, there will be increased travel time and reduced convenience and safety. The result will be a reduction in the attraction of congested locations for visitors. Travelers will purchase goods and services from businesses more accessible elsewhere along US 93.

Economic estimates of expenditures for drive-through travelers at Arlee, Ronan and Polson assume the communities will not be able to recapture any business sales, earnings and employment lost due to traffic congestion with No

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[34]Ibid.
[35]Ibid.

Action. Business operators in Arlee, Ronan, and Polson cite summer traffic congestion restricting customer access. As traffic increases, congestion will further limit access and restrict turning movements within existing business districts.

No Action will encourage more commercial strip development on US 93 outside the existing commercial areas. New businesses will develop new access to the highway away from congested areas. While traffic growth will increase local business sales to highway travelers, increasing congestion will limit the ability of established businesses to fully benefit from the growth. By limiting long-term growth in business sales to drive-through travelers, No Action also will constrain growth in local and regional trade. The indirect economic effects of the lost drive-through trade will be to reduce sales, employment and earnings by businesses serving local and regional residents.

7.5.3. Existing Alignment (Except Arlee, Ronan and Polson)

The proposed action will improve access for local residents to businesses. Lake County's location between Missoula and Kalispell also will improve access for local residents to those larger communities. With past high levels of population growth expected to continue, sales in the area to local and regional residents will continue to grow, but Lake and Missoula County businesses located between Evaro and Polson will continue to lose local and regional trade to Missoula and Kalispell.

All lane configurations will maintain the present patterns of traffic; businesses will remain visible to all local and through traffic. Highway improvement with the four-lane configurations will provide higher traffic capacity and improved access for commercial and industrial activity.

Lane Configuration A (two-lane highway) will have impacts similar to No Action due to the effects of increasing traffic congestion for transportation costs, local and regional trade and the tourism and recreation industry.

Lane Configuration A will be a less-wide physical barrier that restricts access for vehicular and pedestrian traffic to and from businesses along the highway. The barrier effect for businesses with Lane Configuration A will occur as traffic is concentrated in multi-vehicle platoons that increase traffic congestion and reduce space between moving vehicles.

Lane Configurations B, C and D (four-lane highway) will result in a wider roadway, but they will provide more spacing in traffic flow. They will provide better opportunity for access to businesses during periods of peak traffic.

Lane Configurations B, C and D will provide a more efficient transportation system by decreasing traffic congestion. Traffic will be less of a barrier, and there will be improved accessibility for vehicular and pedestrian traffic traveling to businesses. Highway improvement will provide higher traffic capacity and improved access for commercial and industrial activity.

The barrier effect for businesses with Lane Configurations B, C and D will occur as traffic is dispersed across a wider area of highway, increasing the distance required to cross the highway. Lane Configurations B, C and D will have four lanes and result in a wider roadway that places traffic closer to businesses.

Lane Configurations A and B will have designated left-turn bays that provide improved access for vehicles turning into some developed commercial and industrial areas. Lane Configuration C will have a continuous two-way left-turn center median that improves access for vehicles turning into businesses. Lane Configuration D will have either designated left-turn bays that cross the divided, unpaved center median or a system of access control with frontage roads.

Continued growth of the local population will offset the effects of local residents shopping outside the area. The increased highway efficiency for all alternatives, except No Action and Lane Configuration A, will serve the growing local population by providing more convenience for shopping with local businesses.

Improvement of traffic conditions will provide more convenience for current and new residents of the area to travel to places of employment in western Montana's regional trade centers, Missoula and Kalispell. Any increase in employment for local residents, either at locations in the area of the proposed action or in the Missoula and Kalispell areas, will increase potential for local retail sales.

Additional economic development, supported by the highway, will increase revenue obtained with taxes, such as property and income.

The cumulative effects of the proposed action and other highway projects will result in a more efficient highway transportation system that improves the desirability and efficiency of travel for commercial and industrial activity. Such projects include the four-lane segment of US 93 abutting the proposed action between I-90 and Evaro built in 1985-86, improvement during the late-1980s of US 93 north of Polson, and the proposed improvement of US 93 from Somers to Whitefish, which is approximately 50 miles north of the proposed action.

The cumulative effects of highway projects throughout the region will be to reduce travel time and increase convenience for residents of the area to travel to western Montana's regional trade centers, Missoula and Kalispell. The major retail trade centers will continue to attract residents from the area. Purchases outside the area will affect the structure of local trade due to outside competition for volume, selection and price of goods and services.

Mitigation

The mitigation measures for land use (and access control) will provide the most appropriate opportunity and strategy to control patterns of economic development outside established commercial and industrial areas. (Section 7.2)

Access to businesses may be improved by normal highway design and traffic control features, such as sidewalks, pedestrian crosswalks, bicycle lanes, signing and speed control.

~~Communities should increase coordination of marketing and promotional strategies for the local trade area to encourage local residents to shop in their communities.~~

7.5.4. Arlee Alignments

7.5.4.1. Business Sales, Earnings and Employment To Drive-Through Travelers and Local Tourists for All Arlee Alignments

Based on the results of a 1993 survey of businesses at Arlee, current annual sales to drive-through travelers are estimated to be two million dollars for 1992. Sales projections assume an annual rate of growth of three percent.[36]

Alignment 1, with Lane Configurations B and C (four-lane highways), will result in a total of $68 million in sales for the 24-year period 1992 through ~~the design year~~ 2015. Total sales with No Action will be $62.7 million, eight percent less than Alignment 1. Annual sales for No Action are higher than Alignment 1 during the period when construction will occur for Alignment 1. After construction, annual sales for Alignment 1 are higher than No Action, with a margin of 25% in 2015. Lane Configuration A (two-lane highway), after construction, will result in sales similar to No Action.[37] (Appendix E)

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[36]Jim Boyer. Impacts of Changes in Expenditure Patterns By Drive Through Travelers. April 1993.

[37]Jim Boyer. Impacts of Changes in Expenditure Patterns By Drive Through Travelers. April 1993.

With the alignments that will divert through traffic away from existing businesses, by 2015 Alignments 2 and 3 each will result in total sales of $41.9 million, while Alignment 4 will result in total sales of $22.7 million. Total sales for Alignments 2 and 3 will be 62% of Alignment 1 by 2015, and annual sales for Alignments 2 and 3 will be less than Alignment 1 until 2015, reflecting the effects of new businesses on Alignments 2 and 3. Total sales for Alignment 4 will be 33% of Alignment 1 by 2015, and annual sales will continue to be less than Alignment 1 in 2015.[38]

As with sales, earnings and employment will be highest with Alignment 1, followed by No Action and Alignments 2 and 3.

Much of Arlee's tourism trade is associated with special events, for example tribal powwows and rodeos. All alignment alternatives will continue to support events which attract tourists to Arlee.

7.5.4.2. Alignment 1: Existing Alignment

Lane Configurations A and B, with designated left-turn bays, and Lane Configuration C, which will have a continuous two-way left-turn center median, will improve access for vehicles turning into businesses. Lane Configurations B and C will have four lanes and result in a wider roadway that places traffic closer to businesses. None of the lane configurations will have onstreet parking.

All lane configurations will maintain the present patterns of traffic; businesses will remain visible to all local and through traffic. Lane Configuration A will reduce traffic congestion less than Lane Configurations B and C.

Lane Configuration A will not displace any commercial buildings. Lane Configurations B, C and D may displace five, six and 10 commercial buildings, respectively. (Section 7.18)

Lane Configuration A (two-lane highway) will have impacts similar to No Action due to the effects of increasing traffic congestion for transportation costs, local and regional trade and the tourism and recreation industry.

Lane Configurations B and C will support long-term growth in local employment and earnings. Improvement of traffic flow and reduction of congestion will cause changes in patterns of patronage and shifts in employment and earnings among local businesses.

7.5.4.3. Alignments 2, 3 and 4

No commercial businesses are currently located along Alignments 2, 3 or 4. In the initial years of new roadway operation, US 93 travelers desiring to make purchases will either remain on the existing US 93 through Arlee, or make purchases from businesses located elsewhere along US 93.

All lane configurations will result in a new roadway through the rural areas on the west or east edges of the community. They will divert through traffic from the developed commercial area and reduce the amount of traffic for which businesses are visible.

The southern and northern end points of Alignments 2 and 3 will be within one mile and one-half mile of Arlee, respectively. The southern and northern end points of Alignment 4 will be farther than two miles from Arlee.

There will be a smaller volume of traffic in Arlee's business district. The reduction of through traffic will reduce congestion and improve access for local traffic in the business district.

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[38]Ibid.

Without access control on Alignments 2 and 3, approaches from residential streets in the areas of Arlee west or east of the current highway could be extended to the new highway. There could be new commercial and industrial development at the new highway approaches, within 1,000 feet of the existing business district.

Alignments 2, 3 and 4 will not displace any existing commercial or industrial buildings. (Section 7.18)

The Arlee economy will lose sales as a result of the rerouting of travelers away from existing businesses. Unless prohibited by land use controls, new highway-oriented businesses will slowly develop along Alignments 2, 3 and 4. New business development is assumed to recapture all lost trade within 15 years.

Mitigation

All Arlee Alignments

The mitigation measures for land use (and access control) will provide the most appropriate opportunity and strategy to control patterns of economic development outside established commercial and industrial areas. (Section 7.2)

Arlee Alignment 1

Access to businesses may be improved by normal highway design and traffic control features, such as sidewalks, pedestrian crosswalks, bicycle lanes, signing and speed control.

Arlee Alignments 2, 3 and 4

Provide access to businesses with normal highway design and traffic control features, such as sidewalks, pedestrian crosswalks, bicycle lanes, signing and speed control.

If Alignment 2, 3, or 4 is selected, designate the existing alignment through Arlee as a US 93 business route. Implement a highway signing program to inform motorists of the availability of local commercial services.

Construct the end points of the highway alignment with approaches that serve as a "gateway" by providing visibility of the community for through traffic. Highway alignments that are constructed with approaches within one-half mile of the original business district provide desired visibility of businesses in the community for local and through traffic. Highway alignments that are located farther than one mile from the business district provide less than desired visibility of businesses.[39]

~~Management of travel information and development of an institutional commercial highway signing (billboard) program will provide awareness and visibility for commercial services. (Section 7.5.1.1)~~

7.5.5. Ronan Alignments

7.5.5.1. Business Sales, Earnings and Employment To Drive-Through Travelers and Local Tourists for All Ronan Alignments

Based on the results of a 1993 survey of businesses at Ronan, current annual sales to drive-through travelers are estimated to be seven million dollars for 1992. Sales projections assume an annual rate of growth of three percent.[40]

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[39]Highway Research Board Bulletin. Predicting the Economic Impact of Alternate Interstate Route Locations. Stroup, R.; Vargha, L.; and Main, R. 1962.

[40]Jim Boyer. Impacts of Changes in Expenditure Patterns By Drive Through Travelers. April 1993.

Alignment 1, with Lane Configurations B and C (four-lane highways), will result in a total of $228.5 million in sales for the 24-year period 1992 through ~~the design year~~ 2015. Total sales with No Action will be $211.1 million, eight percent less than Alignment 1. Annual sales for No Action are higher than Alignment 1 during the period when construction will occur for Alignment 1. After construction, annual sales for Alignment 1 are higher than No Action, with a margin of 18% in 2015. Lane Configuration A (two-lane highway), after construction, will result in sales similar to No Action.[41] (Appendix E)

With the alignments that will divert through traffic away from existing businesses, Alignment 2 will result in total sales of $213.7 million, while Alignments 3 and 4 each will result in total sales of $174.1 million by 2015. Total sales for Alignment 2 will be 94% of Alignment 1 by 2015, and annual sales will equal Alignment 1 in 2010. Total sales for Alignments 3 and 4 will be 76% of Alignment 1 by 2015, and annual sales for Alignments 3 and 4 will equal Alignment 1 by 2015, reflecting the effects of new businesses on Alignments 3 and 4.[42]

As with sales, earnings and employment will be highest with Alignment 1, followed by Alignment 2, No Action and Alignments 3 and 4.

New businesses are expected to develop slowly along Alignments 2, 3 and 4. Eventually, new businesses will reclaim most of lost sales, and new business development is assumed to recapture all lost trade within 10 years for Alignment 2 and within 15 years for Alignments 3 and 4.

Much of Ronan's tourism trade is associated with fishing, hunting and wildlife viewing in the area's wildlife refuges and forests. All alignment alternatives will continue to support recreation activities which attract tourists to Ronan.

7.5.5.2. Alignment 1: Existing Alignment

Lane Configurations A and B will have designated left-turn bays, and Lane Configuration C will have a continuous two-way left-turn center median to improve access for vehicles turning into businesses. Lane Configurations B and C will have four lanes and result in a wider roadway that places traffic closer to businesses. None of the lane configurations will have onstreet parking.

All lane configurations will maintain the present patterns of traffic; businesses will remain visible to all local and through traffic. Lane Configuration A will reduce traffic congestion less than Lane Configurations B and C.

Four or five commercial buildings will be displaced. (Section 7.18)

Lane Configurations B and C will support long-term growth in employment and earnings. Alignment 1 is expected to facilitate long-term growth in employment and proprietor and employee earnings. Improvement of traffic flow and reduction of congestion will cause changes in patterns of patronage with shifts in employment and earnings among local businesses.

7.5.5.3. Alignment 2: One-Way Couplet

Ronan Alignment 2 will maintain the roadway on the existing alignment for northbound traffic and provide an improved roadway for southbound traffic on First Avenue Southwest, approximately one block west of the existing alignment.

Alignment 2 will divert the southbound lanes of through traffic from the developed commercial area on the existing alignment and reduce the amount of traffic for which existing businesses are visible. There will be a smaller volume

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[41]Jim Boyer. Impacts of Changes in Expenditure Patterns By Drive Through Travelers. April 1993.
[42]Ibid.

of traffic on the existing alignment of US 93, and access will improve for existing businesses. The reduction of through traffic will reduce congestion and improve access for local traffic to the business district. The businesses on the existing alignment will remain visible only to traffic on the northbound route of the couplet.

Both the northbound and southbound routes of the couplet will improves access for vehicles turning into businesses. Neither the northbound or southbound route of the couplet will have onstreet parking.

The southern end point of Alignment 2 will be within one-half mile of Ronan, and the northern end point will be near the northern edge of Ronan's commercial area.

There will be a smaller volume of traffic on the existing alignment. The reduction of through traffic will reduce congestion and improve access for local traffic in the business district. There could be new commercial and industrial development in the existing residential and commercial areas of First Avenue Southwest, as well as the residential streets that connect the existing alignment and First Avenue Southwest.

Alignment 2 will displace five or six businesses.

Alignment 2 will slow growth in area employment. The lost employment will be recovered when sales to drive-through tourists are recaptured by new local businesses. Improvement of traffic flow, reduction of congestion and new businesses will change patterns of patronage and shift employment and earnings among businesses.

7.5.5.4. Alignments 3 and 4

No commercial businesses are currently located along Alignments 3 or 4. In the initial years of new roadway operation, US 93 travelers desiring to make purchases will either remain on the existing US 93 through Ronan, or make purchases from businesses located elsewhere along US 93.

All lane configurations will result in a new roadway through the rural areas on the west edge of the community. They will divert through traffic from the developed commercial area and reduce the amount of traffic for which businesses are visible. There will be a smaller volume of traffic on the existing alignment of US 93, and access will improve for existing businesses. The reduction of through traffic will reduce congestion and improve access for local traffic to the business district.

The southern end points of Alignments 3 and 4 will be within one-half mile and one mile of Ronan, respectively. Their northern end points will be approximately one mile from Ronan.

There will be a smaller volume of traffic in Ronan's business district. The reduction of through traffic will reduce congestion and improve access for local traffic in the business district.

Without access control on Alignments 3 and 4, approaches from residential streets in the area west of Ronan could be extended to the new highway. There could be new commercial and industrial development at the new highway approaches, within one mile of the existing business district.

Alignments 3 and 4 will not displace any commercial or industrial buildings. (Section 7.18)

The Ronan economy will lose sales as a result of the rerouting of travelers away from existing businesses. Unless prohibited by land use controls, new highway-oriented businesses will slowly develop along Alignments 3 and 4.

Alignments 3 and 4 will slow growth in Ronan area employment and earnings. Changes in traffic flow, reduction of congestion and new businesses will change patterns of patronage among local businesses and shift employment and earnings among businesses.

Mitigation

All Ronan Alignments

The mitigation measures for land use (and access control) will provide the most appropriate opportunity and strategy to control patterns of economic development outside established commercial and industrial areas. (Section 7.2)

Ronan Alignments 1 and 2

Access to businesses may be improved by normal highway design and traffic control features, such as sidewalks, pedestrian crosswalks, bicycle lanes, signing and speed control.

Ronan Alignments 3 and 4

Provide access to businesses with normal highway design and traffic control features, such as sidewalks, pedestrian crosswalks, bicycle lanes, signing and speed control.

If Alignment 3 or 4 is selected, designate the existing alignment through Ronan as a US 93 business route. Implement a highway signing program to inform motorists of the availability of local commercial services.

Construct the end points of the highway alignment with approaches that serve as a "gateway" by providing visibility of the community for through traffic. Highway alignments that are constructed with approaches within one-half mile of the original business district provide desired visibility of businesses in the community for local and through traffic. Highway alignments that are located farther than one mile from the business district provide less than desired visibility of businesses.[43]

~~Management of travel information and development of an institutional commercial highway signing (billboard) program will provide awareness and visibility for commercial services. (Section 7.5.1.1)~~

7.5.6. Polson Alignments

7.5.6.1. Business Sales, Earnings and Employment To Drive-Through Travelers and Local Tourists for All Polson Alignments

Based on the results of a 1993 survey of businesses at Polson, current annual sales to drive-through travelers are estimated to be five million dollars for 1992. Sales projections assume an annual rate of growth of three percent.[44]

Alignment 1, with Lane Configurations B, C and D (four-lane highways), will result in a total of $157.2 million in sales for the 24-year period 1992 through ~~the design year~~ 2015. Total sales with No Action will be $130.2 million, 18% less than Alignment 1. Annual sales for No Action are higher than Alignment 1 during the period when construction will occur for Alignment 1. After construction, annual sales for Alignment 1 are higher than No Action, with a margin of 36% in 2015. Lane Configuration A (two-lane highway), after construction, will result in sales similar to No Action.[45] (Appendix E)

With the alignments that will divert through traffic away from existing businesses, Alignment 2 will result in total sales of $141.9 million, while Alignment 3 will result in total sales of $132.2 million by 2015. Total sales for

[43]Highway Research Board Bulletin. Predicting the Economic Impact of Alternate Interstate Route Locations. Stroup, R.; Vargha, L.; and Main, R. 1962.
[44]Jim Boyer. Impacts of Changes in Expenditure Patterns By Drive Through Travelers. April 1993.
[45]Ibid.

Alignment 2 will be 90% of Alignment 1 by 2015, and annual sales will equal Alignment 1 in 2010. Total sales for Alignment 3 will be 84% of Alignment 1 by 2015, and annual sales for Alignments 3 will equal Alignment 1 by 2015, reflecting the effects of new businesses on Alignments 3 and 4.[46]

As with sales, earnings and employment will be highest with Alignment 1, followed by Alignment 2, Alignment 3 and No Action.

New businesses are expected to develop slowly along Alignments 2 and 3. Eventually, new businesses will reclaim most of lost sales, and new business development is assumed to recapture all lost trade within 10 years on Alignment 2 and 15 years on Alignment 3.

7.5.6.2. Alignment 1: Existing Alignment

Lane Configurations A and B will have designated left-turn bays, and Lane Configuration C will have a continuous two-way left-turn center median to improve access for vehicles turning into businesses. Lane Configurations B and C will have four lanes and result in a wider roadway that places traffic closer to businesses. None of the lane configurations will have onstreet parking.

All lane configurations will maintain the present patterns of traffic; businesses will remain visible to all local and through traffic. Lane Configuration A will reduce traffic congestion less than Lane Configurations B and C.

Alignment 1 will displace three buildings that are occupied by four retail businesses. (Section 7.18)

By routing traffic along Flathead Lake, Alignment 1 will continue to provide short-term visitation to Polson as a resort at the southern end of Flathead Lake.

Alignment 1 could discourage new businesses and attractions which could induce longer-term visitations. Lane Configurations B and C will occupy additional lake frontage and highway frontage, and will diminish the land area available for destination resort and convention center development.

Alignment 1 is expected to support growth in employment and proprietor and employee earnings. Improvement of traffic flow and reduction of congestion will change patterns of patronage and shift employment and earnings among local businesses.

7.5.6.3. Alignments 2 and 3

No commercial businesses are currently located along Alignments 2 or 3. In the initial years of new roadway operation, US 93 travelers desiring to make purchases will either remain on the existing US 93 through Polson, or make purchases from businesses located elsewhere along US 93.

Alignments 2 and 3 will not displace any commercial or industrial buildings. (Section 7.18)

The Polson economy will lose sales as a result of the rerouting of travelers who will otherwise make purchases on their way through the city. Unless prohibited by land use controls, new highway-oriented businesses will eventually develop along Alignments 2 and 3. For Alignment 2, new business development is assumed to recapture all of lost trade within 10 years. Because Alignment 3 is more removed from the city, new business development is likely to occur more slowly. For Alignment 3, it is assumed that it will take 15 years to recapture the lost trade.

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[46]Ibid.

The rerouting of drive-through traffic will have both positive and negative effects on growth of local tourism. Alignments 2 and 3 will provide highway travelers less visual exposure to Flathead Lake. This visual association is cited as a valuable advertisement for existing resort and recreation type businesses. Tourists familiar with Polson will continue to use the existing highway to access resorts and other visitor attractions.

Reductions in noise, air pollution and the physical and psychological barriers created by intense traffic flows will improve the aesthetics of the Polson lake front area for tourists. Improved conditions may encourage visitors to stay longer and spend more in Polson. The improved aesthetics also may make business locations along the old highway more attractive for destination resort and convention center developments. Highway construction west of Polson will make river front areas more accessible to tourists and may make these areas viable for resort type investments. New resort development will expand the overall tourist industry for the Polson economy.

Alignments 2 and 3 will split agricultural parcels. The splitting of agricultural parcels will increase the time and reduce the convenience of farming and ranching activities.

Alignment 2 routes traffic along the west side of the Polson city limits and will provide highway travelers with serviceable access to downtown Polson businesses. Alignment 3, which will be farther west, will provide less convenient access to the downtown area.

Alignments 2 and 3 will slow growth in area employment. The lost employment will be recovered when sales to drive-through tourists are recaptured by new local businesses. This will occur more rapidly if Alignment 2 is developed. Change in traffic flow and reduction of congestion will change patterns of patronage and shift employment and earnings among businesses.

Mitigation

All Polson Alignments

The mitigation measures for land use (and access control) will provide the most appropriate opportunity and strategy to control patterns of economic development outside established commercial and industrial areas. (Section 7.2)

Polson Alignment 1

Access to businesses may be improved by normal highway design and traffic control features, such as sidewalks, pedestrian crosswalks, bicycle lanes, signing and speed control.

Polson Alignments 2 and 3

Provide access to businesses with normal highway design and traffic control features, such as sidewalks, pedestrian crosswalks, bicycle lanes, signing and speed control.

If Alignment 2 or 3 is selected, designate the existing alignment through Polson as a US 93 business route. Implement a highway signing program to inform motorists of the availability of local commercial services.

Construct the end points of the highway alignment with approaches that serve as a "gateway" by providing visibility of the community for through traffic. Highway alignments that are constructed with approaches within one-half mile of the original business district provide desired visibility of businesses in the community for local and through traffic. Highway alignments that are located farther than one mile from the business district provide less than desired visibility of businesses.[47]

~~Encourage public and private investment in local attractions, such as shoreline beach development.~~

~~Management of travel information and development of an institutional commercial highway signing (billboard) program will provide awareness and visibility for commercial services. (Section 7.5.1.1)~~

[47]Highway Research Board Bulletin. Predicting the Economic Impact of Alternate Interstate Route Locations. Stroup, R.; Vargha, L.; and Main, R. 1962.

7.6. PEDESTRIANS AND BICYCLISTS

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

7.6.1. Impacts Common to All Alternatives

Vehicle traffic and pedestrian/bicycle traffic volumes have been increasing steadily during recent years and are expected to continue to grow. US 93 will continue to be shared by these different modes of travel -- conflicts will occur and must be managed to ensure the safety of the traveling public and, as much as practical, preserve and enhance convenience, efficiency and comfort. Accommodation and encouragement of non-motorized travel is an important goal which will help reduce energy consumption; reduce the demand for motorized vehicle travel and the need for future expansion of highways and streets; and reduce other environmental impacts such as noise and air pollution.

Participants in the public scoping process have indicated that developing bicycle facilities along the highway may allow it to become "a nationally recognized bike destination" and create a "low impact draw for tourism." The location of the proposed action in relation to Glacier National Park, Flathead Lake and other recreation opportunities contributes to the desirability of bicycle facilities in this area.

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) recognizes the transportation value of bicycling and walking, and offers mechanisms to increase consideration of bicyclists' and pedestrians' needs within the National Intermodal Transportation System (NITS). ISTEA offers opportunities to enhance state and local bicycle and pedestrian programs. Federal-aid funding is available from a number of ISTEA programs for these efforts. Generally, ISTEA encourages states to determine how their share of federal monies will be spent. In accordance with requirements of ISTEA, MDT has established a Bicycle and Pedestrian Coordinator position for promoting and facilitating the increased use of non-motorized modes of transportation.

7.6.2. No Action

With No Action, there will be no improvement for pedestrian and bicycle travel along the highway or in the communities. Vehicle traffic volume is expected to continue to increase on the highway, with no substantial improvement in facilities, which will result in increased difficulty for pedestrians and bicyclists to safely cross the highway and travel along it. Safety, comfort and convenience for non-motorized travel will be adversely impacted. Opportunities for substantial improvement in bicycle and pedestrian facilities will not be realized.

7.6.3. Existing Alignment (Except Arlee, Ronan and Polson)

Bicyclists

All of the lane configurations under consideration will include eight-foot paved shoulders (Figure 5.1-4). In the paved shoulders, a two- or three-foot "rumble strip"[48] will be placed one foot from the edge of the driving lane leaving four to five feet of paved roadway surface. It will be effectively separated from highway traffic by the rumble strip, and it will be suitable for bicycle travel (Figure 7.6-1).

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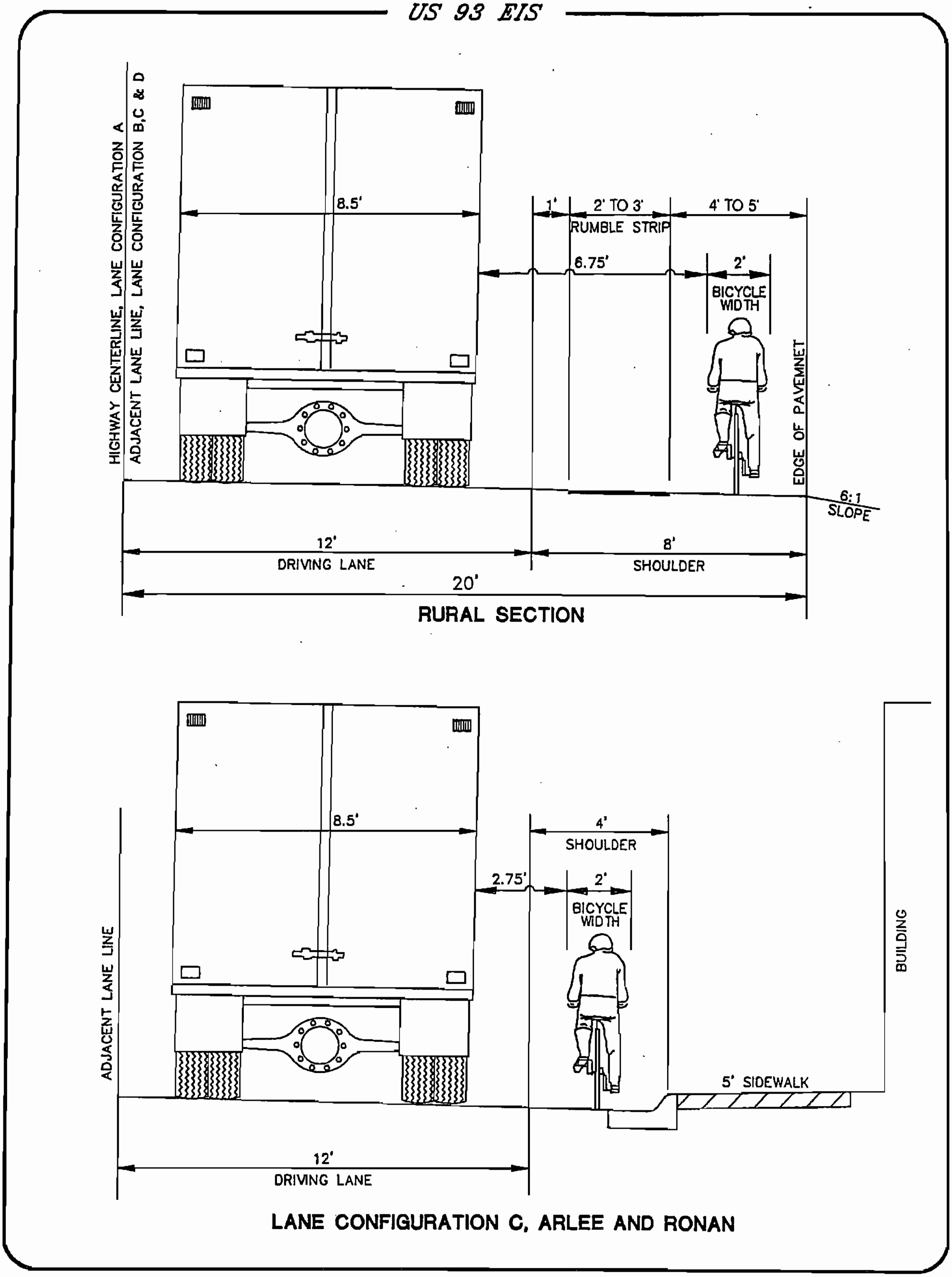
[48]Rumble strips consist of deep grooves, cut perpendicular to the highway into the asphalt or concrete paved shoulders. They are designed to create a loud noise and vibration when a vehicle, travelling at highway speeds, passes over them. This system has been effective in reducing accidents because it alerts a sleepy or inattentive driver that the vehicle is leaving the roadway.



BICYCLES ON SHOULDERS

FIGURE 7.6 - 1

A four- to five-foot separation between bicycles and trucks traveling at highway speeds is generally considered desirable. As indicated on Figure 7.6-1, the eight-foot shoulder will provide 6.75 feet of separation. This configuration should adequately and safely accommodate all utilitarian bicycle trips and some recreational bicycle trips along rural sections of the highway. It is in accordance with the AASHTO Bicycle Guide.[49] Where bridge widening or reconstruction is required, the eight-foot shoulder will be continued over the bridge. A petition was received during the public scoping process, signed by 129 individuals with addresses mostly in Lake County, which stated:

> "We, the undersigned residents of the Flathead Indian Reservation and the surrounding area, believe a separate path should be developed along the existing US 93 route for alternative, no-motorized transportation. We feel such a path, physically separated from vehicles moving at high speeds, is the safest alternative for accommodating pedestrian, bicyclist and equestrian uses along the highway (an unpaved area would run alongside the path to accommodate horses). In addition to improving highway safety, this alternative promotes clean, energy-efficient transportation, a goal mandated by the federal government for transportation facility development. This path would also create a valuable fitness facility for local and regional residents and could promote related economic development for reservation communities."

The AASHTO Bicycle Guide indicates that using a path for bicycles and horses creates an unsatisfactory and possibly dangerous mix. Horses startle easily and may kick out suddenly if they perceive bicyclists as a danger. A bicycle path and a horse path are also incompatible in their surface design requirements -- bicycles function best on hard surfaces while horses function best on soft surfaces. With any of the lane configurations equestrians will be allowed to travel in the area between the roadway pavement and the edge of ROW (an area 50 feet wide or more in many areas) if the horses are properly controlled and restrained.

Providing for bicyclists on the shoulder is generally more accommodating in rural circumstances and may be better than providing a separate parallel bike path in rural areas between communities for the following reasons:

- Unless they are provided on both sides of the highway, they will require one direction of bicycle traffic to ride against motor vehicle traffic.

- When the path ends, bicyclists going against traffic will tend to continue to travel on the wrong side of the road.

- The separate path will require additional ROW and will cover more land with pavement, which will increase environmental impacts.

- US 93 from Evaro through Polson is important and, as such, receives a high priority for maintenance. The highway, including the shoulders, receives prompt repairs, frequent sweeping and early snow removal. A separate bicycle path will be difficult and more expensive to maintain and, compared with the highway, will necessarily receive a much lower priority when allocating limited maintenance funds and resources.

- Many bicyclists will use the roadway instead of the bicycle path because they have found the roadway to be safer, more convenient or better maintained. Bicyclists using the roadway are then often subjected to harassment by motorists who feel that in all cases bicyclists should be on the path instead.

[49]American Association of State Highway and Transportation Officials, Guide for the Development of Bicycle Facilities, August 1991.

- Bicyclists using the bicycle path will be required to stop or yield at all cross streets and driveways, while bicyclists using the roadway will have priority over cross or entering traffic because they have the same right of way as motorists on the highway.

- Stopped cross street motor vehicle traffic or vehicles exiting side streets or driveways may block the bicycle path crossing.

Pedestrians

The eight-foot shoulders will provide substantial improvement in safety and comfort for pedestrians wishing to travel along US 93 in rural areas between communities. As indicated in Section 6.6, only limited numbers of pedestrians travel along or across US 93 in rural areas. In general, other than the wider, paved shoulders, no pedestrian facilities are required or planned in rural areas of the highway.

School officials indicate that the best facilities for school buses that must stop along the highway will include turnout lanes on the right side of the highway. No facilities away from the highway are needed. School officials indicate that if a four-lane highway is constructed, school children will not be allowed to enter or leave school buses on a side of the highway opposite to the side on which they live.[50]

At the "Mule Palace" area near Milepost 9.9, events are provided that attract a large number of spectators and create unsafe pedestrian crossings of US 93. These crossings occur because there is inadequate parking at the facility on the same side of the highway. Vehicles park along the highway and on land on the opposite side of the highway, and occupants then walk across the highway, often at night. These conditions are expected to continue with any of the lane configurations.

No additional pedestrian facilities are proposed at Evaro, Ravalli, St. Ignatius or Post Creek.

Mitigation

Discussions and negotiations will be conducted by MDT with owners of the "Mule Palace" area near Milepost 9.9 to develop and implement a mechanism for accommodating all parking in areas off the highway ROW and on the same side of the highway as the facility. Parking on highway shoulders in this area (or on any other rural highway), for other than emergency purposes, is prohibited and compliance should be enforced. Providing a pedestrian crosswalk is not considered desirable in this area because it is a rural highway with a 55 mph speed limit.[51] Drivers on the highway are used to traveling at highway speeds and will not expect or anticipate the crosswalk. The crosswalk will be used infrequently and some local drivers will begin to not notice it. With the required reconstruction of the bridge over the railroad, approximately 500 feet south of the Mule Palace, it may be desirable to incorporate a pedestrian path under the highway. It may be difficult, without fencing or other barriers, to get people to walk this far when they can more quickly go straight across the highway.

Shoulders will be widened where appropriate to provide an area for school buses to pull out of the through traffic lanes and allow students to safely enter and leave the buses.

[50] Lake and Sanders County Superintendents Meeting, 11 September 1995, conducted by Joyce Decker Wegner, County Superintendent of Schools.

[51] After Congress repealed the national speed limit of 65 mph on interstates and 55 mph on other highways in 1995, Montana automatically reverted to its former law that has the "basic rule." A driver may not drive at speeds exceeding what is "reasonable and prudent" for traffic, road and weather conditions.

7.6.4. Arlee and Ronan Alternate Alignments

The following shoulder widths and other features are anticipated if the highway is constructed through Arlee or Ronan (Alignment 1):

- Lane Configuration A will include six- to eight-foot shoulders, concrete curb and gutter and concrete sidewalk placed against the back of the curb. No parking will be allowed on the shoulders.

- Lane Configurations B and C will include, because of limited space available for roadway construction in Arlee or Ronan without major relocation of existing businesses, only three- to four-foot shoulders. Concrete curb and gutter and concrete sidewalk placed against the back of the curb will also be constructed.

- Lane Configuration D is not practical, feasible or desirable in Arlee or Ronan because of the limited construction space available without major relocations and because of the many vehicle access points and crossings.

Bicyclists

If Lane Configuration A is constructed, as indicated above, the wider shoulders will be continued through the communities, which will adequately allow for bicycles.

If Lane Configurations B or C are constructed, the area available for bicycle travel will be restricted. The facility may accommodate utilitarian travel through town, but probably will not be suitable for recreational trips.

If Alignment 2, the one-way couplet, is constructed in Ronan, it is anticipated that curb and gutter, sidewalk and six- to eight-foot paved shoulders will be constructed for each direction of travel, which should provide adequate accommodations for bicyclists traveling through the community.

If Arlee Alignments 2, 3 or 4, or Ronan Alignments 3 or 4 are constructed, it is anticipated the highway will be similar to the rural segments of the highway and the eight-foot paved shoulder will be constructed and will adequately accommodate most bicycle traffic traveling through the area as described in Section 7.6.3.

<u>Mitigation</u>

Consideration should be given, if Lane Configuration B or C is constructed, to designating and signing for a bicycle route on existing parallel streets in the communities to allow an alternate route for those not comfortable with the narrower shoulders. Generally, however, bicycle traffic cannot be diverted to a less direct alternate route unless the favorable factors outweigh the inconvenience to the bicyclist.

Where designated bicycle routes or bicycle paths connect with the highway (such as the bicycle routes mentioned above or the paved bicycle path on the north edge of Arlee), proper design of intersections will be important.

Consideration should be given to providing designated bicycle routes to and from any new alignment to: 1) provide access to the highway for bicycle travel to and from the community, and 2) provide an alternate route through the community that may be, because of lower traffic volume and speed, more quiet and aesthetically pleasing.

Pedestrians

If Alignment 1 is constructed through Arlee and Ronan, most of the existing adverse conditions for pedestrians will continue and will become more severe as traffic volume increases.

Lane Configuration B or C through Arlee and Ronan will have the following effects on pedestrians crossing US 93:

- The wider roadway will require more time to cross which will increase the time pedestrians are exposed to highway traffic.

- The four-lane roadway will disperse the motor vehicle traffic, creating wider gaps in the traffic stream and therefore more time for pedestrians to cross.

These two effects tend to offset each other, but the net effect of a wider roadway with more traffic lanes is expected to be a minor increase in the degree of difficulty for pedestrians to cross the roadway.

Alignments around Arlee (2, 3, and 4) and Ronan (3 and 4) should substantially reduce the number of pedestrian crossings. The number of children that must cross US 93 to walk to school will be substantially reduced. Crossings in these alignments will, however, be across higher speed highways (55 mph versus 35 and 25 mph in Arlee and Ronan).[52]

Residents in Arlee indicated that some school children living west of town will still be required to walk across Alignment 2 and that many children walk across the area of Alignment 2 to fish and swim in Finley Creek in the summer.

Though school officials have expressed concern for children crossing the highway as it passes through Arlee and Ronan, they have not indicated Alignments 2, 3 or 4 will be desirable or will help reduce accidents. In some cases, representatives of the schools and other residents have indicated more concern for these alignments because they will be designed for higher speed traffic and, though the number of school children crossing the highway will be reduced, they feel the higher speeds will present a more hazardous situation for pedestrian crossings.

Alignment 3 is located between Arlee and the tribal pow-wow and rodeo grounds. Residents and representatives of CSKT indicate that during functions at these facilities, there are many pedestrians that travel between these areas and will be required to cross US 93 if Alignment 3 is constructed.

Alignment 2 in Ronan (the one-way couplet) will create two sections of US 93 through the town which will create additional pedestrian crossings. Each crossing, however, should be much easier because pedestrians will be required to cross only two lanes going one direction.

Mitigation

As indicated in Chapter 10, the Arlee community team has recommended that if Alignment 1 is constructed, the flashing warning light at "B" Street (Butch Larsen/Taelman) be replaced with a full traffic signal to include pedestrian activated phases and advance warning signs with flashing lights. The team indicated that education of school children will be important to encourage them to always cross there.

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[52]After Congress repealed the national speed limit of 65 mph on interstates and 55 mph on other highways in 1995, Montana automatically reverted to its former law that has the "basic rule." A driver may not drive at speeds exceeding what is "reasonable and prudent" for traffic, road and weather conditions.

The Ronan community team (Chapter 10) has recommended, if Alignment 1 is constructed, that in addition to the signal at Round Butte Road, traffic signals, with pedestrian activated phases, be installed at Buchanan Street (three blocks south of Round Butte Road) and at Eisenhower Street (six blocks south of Round Butte Road). The team feels additional signals are needed at these intersections because of the large number of school children that cross. They indicate that it is difficult, because of the location of schools and the layout of the town, to get children to cross at the existing signal. Team members are aware that, as with all intersections for the proposed action, before signals are installed, a complete study and warrant analysis must be conducted to ensure the installation will improve safety overall and not create a more serious safety problem somewhere else. For example, installation of a signal could increase rear-end type accidents on US 93. Also, if the signal is placed in an area where it is not expected by and highly visible to drivers on the highway, some drivers might not notice it. This could place pedestrians crossing the highway, expecting to be protected by the pedestrian phase, at even greater risk than before.

If Alignment 2, 3 or 4 in Arlee or Alignment 3 or 4 in Ronan are constructed, it will be important to place pedestrian crossings at appropriate, high-use intersections.

Pedestrian overpasses are not considered desirable because they will require long access ramps (approximately 300 feet long) which will be difficult to place in the Arlee and Ronan areas without substantial additional environmental impacts, and it will be difficult to encourage or require pedestrians to use the overpass because it will be much more convenient for them to cross directly over the highway.

Pedestrian underpasses also are not considered desirable because they will create a safety and security problem. This is because the area under the highway will not be visible to law enforcement personnel and others. They also will be difficult to drain.

7.6.5. Pablo, Specific Concerns

Bicyclists

With any of the lane configurations, it is anticipated the eight-foot shoulders will be continued through the Pablo area and will adequately accommodate bicyclists, as described in Section 7.6.3.

Mitigation

Where existing or future designated bicycle routes or bicycle paths connect with the highway, proper design of intersections will be important.

Pedestrians

With any of the lane configurations, the potential for conflicts and accidents involving pedestrians will continue and will increase as traffic volume increases.

Mitigation

Mitigation measures have been suggested by the Pablo community team to better accommodate pedestrians crossing US 93 in Pablo near the tribal complex, the high school and the college: (Chapter 10)

- With any of the lane configuration alternatives, construct a 30-foot raised curb median. This provides an area in the median where pedestrians can, after crossing one direction of travel, rest and recover and prepare to cross traffic in the opposite direction. Pedestrians will then have to cross only one direction of traffic at a time.

- Install curb and gutter on the shoulders of the roadway. This generally tends to help drivers on the highway realize they are driving through a community and that they should exercise more caution.

- Reduce the number of vehicle driveways connecting to the roadway. This will require the construction of short sections of frontage road.

- Rather than construct frontage roads in front of the college and the high school (with required removal of trees and other impacts), use existing roadways and driveways parallel with and adjacent to the highway.

- A traffic signal likely will be warranted at Division Street in the near future. This signal should include a pedestrian actuated phase and a designated crosswalk.

- The community team indicated that a signal will be desirable at Clairmont Avenue to assist with pedestrian crossings. Warrant studies have not yet been completed.

- Pedestrian underpasses were not considered desirable because of ground water problems, security problems and difficulty getting pedestrians to use them.

- Pedestrian overpasses are not considered desirable for the same reasons they are not in Arlee and Ronan (Section 7.6.4).

- A bicycle/pedestrian path should be constructed along the east side of the highway in the area of the schools.

Consideration should be given, as suggested at public scoping meetings, to designating other highways through the area, such as the Old Freight Route, as bicycle routes. This will provide an alternate route on a highway with considerably less traffic and with possible improvement to safety, aesthetics, bicycling satisfaction and comfort.

7.6.6. Polson Alternate Alignments

The following shoulder width and other features are anticipated if the highway is constructed through Polson (Alignment 1):

- No Action will provide no improvement to existing conditions for pedestrians and bicyclists in Polson.

- Lane Configurations B and C will include, because of limited space available for roadway construction in Polson without major relocation of existing businesses or encroachment into Flathead Lake, an eight-foot shoulder on one side of the roadway only in the area where the lakeshore is immediately adjacent to the existing roadway. In the areas with on-street parking through Polson (primarily in the central business district), the existing sidewalks will remain as is and not be widened because of limited space available for road improvement. The on-street parking in these areas will become roadway travel lanes.

- Lane Configuration D is not practical, feasible or desirable in Segment O (MT 35 to the Flathead River) of Polson because of the limited access it will provide to existing businesses, the limited construction space available without major relocations, and the many vehicle access points and crossings.

Bicyclists

For Alignment 1, if Lane Configuration B or C is constructed, a continuous bicycle travel lane will be provided. The facility will accommodate both utilitarian travel through town, and it will be suitable for recreational trips as well.

If Alignment 2 or 3 is constructed, no accommodations for bicycle travel will be included. It is anticipated that bicyclists will continue to use the existing alignment through town for bicycle travel.

Mitigation

Consideration should be given, if Lane Configuration B or C is constructed within the existing alignment, to designating and signing a bicycle route on the northern side of the roadway, where the continuous bikeway will be located.

If Alignment 2 or 3 is constructed, consideration should be given to designating and signing for a bicycle route on existing parallel streets (including Fourth Street) to allow an alternate route for those not comfortable with the existing condition of narrow or lack of shoulders.

Pedestrians

If Alignment 1 is constructed through Polson, a continuous sidewalk will be provided; however, the number of access drives will remain the same presenting a similar situation for potential conflicts with cross street traffic as presently exists. Also, width of the highway will increase, creating a longer distance for pedestrians to cross the new roadway, with a resulting potential for increase in vehicle/pedestrian accidents. Alignment 1 will include the installation of additional traffic signals, thus providing additional crossing opportunities for pedestrians.

If Alignment 2 or 3 is constructed, no facility for pedestrians will be provided.

Mitigation

Residents present at Polson public meetings recommended that a pedestrian activated crossing replace the existing flashing amber light crossing near Super 1 Foods. Pedestrian activated crossings could be installed at all new signals proposed for Polson.

7.7. AIR QUALITY

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

More detailed information on the environmental consequences and mitigation measures relating to air quality is included in Appendix F.

7.7.1. Methodology

Section 176 of the Clean Air Act requires transportation plans, programs and projects in designated nonattainment areas (such as Ronan and Polson) to conform to the applicable implementation plan's purpose of eliminating or reducing the severity and number of violations of national ambient air quality standards and achieving attainment of such standards. The regulations require a regional analysis of the cumulative effects of major transportation projects in each designated nonattainment area.

The required regional analysis and conformity determination for the Polson and Ronan PM_{10} nonattainment areas, completed by MDT and approved by the Federal Highway Administration, is included in Appendix F of this final EIS.

7.7.2. Impacts: PM_{10} Regional Emissions Analysis

The conformity analysis indicates that an alternate route around Polson, because the included bypass will route traffic away from Polson and out of the nonattainment area, will result in a reduction in transportation-related emissions in the nonattainment area.

The conformity analysis indicates that in Ronan, the existing alignment with committed design features, will result in a reduction in transportation-related emissions in the nonattainment area.

7.7.3. Findings

The regional analysis shows that, in both Polson and Ronan, improvement of US 93 (referred to in the regional analysis as the "Action Scenario") will result in a reduction in PM_{10} emissions compared to the Baseline Scenario and therefore fulfills the requirements for conformity determinations for included projects.

7.7.4. Coordination

Coordination has occurred with the CSKT and EPA.

7.7.5. Mitigation

The following design features have been committed to in writing by MDT. Appendix F presents more details about mitigation measures. These will be implemented with construction of US 93 in Ronan and Polson.

1) Gravel and dirt shoulders will be surfaced.

2) Curbs and gutters will be added.

3) Gravel and dirt approaches will be consolidated wherever possible and surfaced within the US 93 right-of-way.

4) The highway will have new surfacing throughout.

MDT will work with CSKT to implement the following items wherever practical and feasible:

- Specifications on silt content for sanding material will use "200 mesh silt" with less than 10% silt content for sand. "Hardness" of sand typically isn't included in the specifications for sand. MDT and CSKT will consider developing a procedure to test sanding material stored at highway maintenance facilities.

- Dedication of equipment to the Flathead Indian Reservation to keep clean highway shoulders.

- Equipment may include increased use of automated "grasshopper brooms" outside communities.

- Procedures to apply water to the highway prior to sweeping, then to finish cleaning the highway with an Elgin sweeper.

- A schedule that assures a three-year turnover for sand.

- Monitoring quality of sand in storage with a reporting system and a regular schedule for testing.

- MDT coordination of use of additional sweepers with local governments of communities located on the reservation.

MDT will consider measures to mitigate impacts on air quality during construction:

- Use of chemical suppressants, rather than reliance on spraying water, to suppress dust.

- Construction will use a series of shorter segments in phases, rather than one long segment of highway.

- All road surfaces will have pavement when the winter season suspends construction.

- MDT and CSKT will consider special provisions for construction contracts to address specific environmental concerns.

7.8. NOISE

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

7.8.1. Impacts Common to All Alternatives

Environmental noise can directly affect human health by causing hearing loss, and it is suspected of causing or aggravating other diseases. It indirectly affects human welfare by interfering with sleep, thought, and conversation. Environmental noise also reduces property values and affects wildlife.

Applicable noise regulations and guidelines provide a basis for evaluating noise impacts. For federally funded highway projects, traffic noise impacts are considered to occur when predicted hourly equivalent sound levels (Leq(h)) approach or exceed noise abatement criteria as established by FHWA, or substantially exceed existing noise levels.[53] Although "substantially exceed" is not defined, FHWA considers an increase of 10 A-weighted decibels (dBA) or greater to be a substantial increase and thus an impact. The FHWA noise abatement criterion for residences, parks, schools, churches, and similar areas is 67 dBA. FHWA considers a noise impact to occur if predicted Leq(h) noise levels approach within one dBA of noise abatement criteria.

Leq(h) traffic noise levels for alignments and lane configurations under consideration were predicted using FHWA's STAMINA 2.0 computer model.[54] STAMINA 2.0 is consistent with methods in the FHWA Highway Traffic Noise Prediction Model.[55] Predicted noise emissions from free-flowing traffic at constant speeds depend on the number of automobiles and trucks per hour, vehicular speed, and reference noise emission levels of an individual vehicle. STAMINA 2.0 also considers effects of intervening barriers, topography, trees, and atmospheric absorption. Noises from sources other than traffic are not included.

Predicted noise levels were based on ~~1991~~1994 and ~~2015~~2020 DHV on US 93 (Sections 6.1.4 and 7.1.1). Traffic volumes in each direction of US 93 were assumed to be 50% of the DHV. Speeds were assumed to be ~~55~~60 mph for Lane Configurations B, C and D. Because No Action and Lane Configuration A are projected to operate at LOS F in most areas during the design year, it is difficult to estimate average highway speeds. The highest average speed at LOS F is estimated to be 45 mph and is the number that was ~~been~~ used in the analysis. Speeds were assumed to be 35 mph and 25 mph (30 mph was used in the STAMINA 2.0 Model because that is the lowest value it will accept) in Arlee and Ronan, respectively.

Predicted design hourly volume Leq(h) traffic noise levels were calculated for the existing alignment and are shown on Table 7.8-1. Noise levels were predicted at distances of 100, 150, and 300 feet from the centerline of US 93. The distance of 100 feet from the centerline was analyzed as the nearest distance to the roadway because ROW of US 93 will range from 80 feet with Lane Configuration A to 110 feet with Lane Configuration D.

With Alignments 2, 3 and 4 in Arlee, Alignments 3 and 4 in Ronan and Alignments 2 and 3 in Polson, traffic on the existing alignment through town will be reduced. To predict the decreased noise levels along the existing alignment, traffic volumes to be diverted to the alternate alignments were assumed to be 80% in Arlee, 60% in Ronan and ~~40~~30% in Polson. The remaining traffic mix on the existing alignment through these communities was assumed to be ~~99~~98% passenger cars, ~~and only~~ one percent medium trucks and one percent heavy trucks.

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[53]U.S. Department of Transportation, Federal Highway Administration, Procedures for Abatement of Highway Traffic Noise and Construction Noise, Federal-Aid Highway Program Manual, Volume 7, Chapter 7, Section 3, August 9, 1982.

[54]Bowlby, William, John Higgens, and Jerry Reagan, U.S. Department of Transportation, Federal Highway Administration, Noise Barrier Cost Reduction Procedure STAMINA 2.0/OPTIMA: User's Manual, Report Number FHWA-DP-58-1, April 1982.

[55]Barry, T.M. and J.A. Reagan, U.S. Department of Transporation, Federal Highway Administration, FHWA Highway Traffic Noise Prediction Model, Report Number FHWA-RD-77-108, December 1978.

Table 7.8-1 Predicted Design Hourly Volume Leq(h) Traffic Noise Levels (dBA) For The Existing Alignment

Roadway Section	Distance to Centerline (Feet)	~~1991~~1994 Existing Conditions[1]	~~2015~~2020 Lane Configuration D **MDT Preferred Alternative, Lane Configurations B, C and D**	~~2015~~2020 No Action or Lane Configuration A* **CSKT Preferred Alternative, Lane Configuration A**
A	100	69	74	70
	150	67	70	67
	300	62	65	63
B	100	65	68	68
	150	62	65	65
	300	57	61	61
C	100	69	73	70
	150	66	70	67
	300	61	65	62
D	100	69	73	70
	150	66	70	67
	300	61	65	62
E	100	69	73	70
	150	66	70	67
	300	61	65	62
F	100	69	73	70
	150	66	70	67
	300	61	65	62
G	100	68	73	70
	150	66	70	67
	300	61	65	62

This table has been changed in the final EIS to include the revision of the traffic analysis from 1991 to 1994.

(Continued)

Table 7.8-1 Predicted Design Hourly Volume Leq(h) Traffic Noise Levels (dBA) For The Existing Alignment (Continued)

Roadway Section	Distance to Centerline (Feet)	~~1991~~1994 Existing Conditions[1]	~~2015~~2020 Lane Configuration D **MDT Preferred Alternative, Lane Configurations B, C and D**	~~2015~~2020 No Action or Lane Configuration A **CSKT Preferred Alternative, Lane Configuration A**
H	100	68	72	69
	150	65	69	66
	300	61	64	62
I	100	68	73	69
	150	66	69	66
	300	61	64	62
J	100	63	67	67
	150	61	64	64
	300	56	59	59
K	100	70	74	71
	150	67	71	68
	300	62	66	63
L	100	70	74	71
	150	67	71	68
	300	63	66	63
M	100	70	74	71
	150	67	71	68
	300	63	66	63
N	100	70	75	71
	150	67	71	68
	300	63	66	64

Shapiro and Associates, Inc., 1993. [1] ~~1991~~1994 Existing Conditions predicted from ~~1991~~1994 traffic volumes and speeds. **The MDT Preferred Alternative includes Lane Configuration A in Polson between Mileposts 59.0 and 62.8**

This table has been changed in the final EIS to include the revision of the traffic analysis from 1991 to 1994.

Noise levels on Table 7.8-1 are not shown for Lane Configurations B and C. Noise levels resulting from Lane Configurations B and C will be only slightly less than Lane Configuration D because of different locations of the traffic lanes relative to adjacent receptors. Noise levels at 100, 150 and 300 feet from the centerline of each lane configuration are presented for Roadway Section I, MT 212 to Ronan, in Table 7.8-2, to illustrate the variations. Lane Configuration D will be the loudest of all the lane configurations and represents the worst-case analysis for comparison of impacts among the alignment alternatives.

The U.S. Department of Housing and Urban Development (HUD) has indicated roadway noise from the traffic generated by the highway could affect the location of future HUD-assisted housing projects. HUD noise standards are:

- Acceptable - DNL not exceeding 65 decibels
- Normally Unacceptable - DNL 65 to 75 decibels
- Unacceptable - DNL above 75 decibels

7.8.1.1. Noise Levels Associated with Population Growth

Indirect effects from a larger population, with residential and business development, will increase ambient noise levels. (Sections 7.2, 7.4 and 7.5)

<u>Mitigation</u>

Indirect effects of residential and other development on noise~~groundwater~~ can be mitigated by proper planning and siting of future residential, industrial and commercial development. Planning and control of these future developments is within the jurisdiction of CSKT and local governments. Refer to mitigation measures for Section 7.8.3.

Table 7.8-2 Predicted Noise Levels of Lane Configuration Alternatives

Lane Configuration Alternative	Predicted ~~2015~~2020 Leq(h) Noise Levels (dBA)		
	100 Feet to Centerline	150 Feet to Centerline	300 Feet to Centerline
Lane Configuration A	69	66	62
Lane Configuration B	72	69	64
Lane Configuration C	72	69	64
Lane Configuration D	73	69	64

Shapiro and Associates, Inc., 1993.
Noise levels for Highway Segment I, MT 212 to Ronan

This table has been changed in the final EIS to include the revision of the traffic analysis from 1991 to 1994.

7.8.2. No Action

With No Action, predicted ~~2015~~2020 Leq(h) noise levels along US 93 outside Arlee, Ronan and Polson will be ~~68~~69 to ~~69~~71 dBA at 100 feet (Table 7.8-1). These predicted ~~2015~~2020 noise levels will exceed the FHWA noise abatement criterion of 67 dBA, which is considered to be a noise impact. Compared with ~~1991~~1994 existing conditions, predicted ~~2015~~2020 Leq(h) traffic noise levels will increase by ~~one~~zero to two dBA, which is not considered an impact with FHWA criteria. The increase in noise levels will result from an increase in traffic volume. Because construction activities are not proposed with No Action, construction noise impacts will not occur.

7.8.3. Existing Alignment (Except Arlee, Ronan and Polson)

Construction Impacts:

Construction activities will generate noise. Construction noise sources will include earth-moving equipment, generators and compressors, trucks, and impact equipment. Construction noise will be short-term and limited to the length of the construction period. Construction noise impacts will depend on the type, amount, and location of construction activities and the presence of adjacent sensitive receptors.

During construction, noise levels will increase at sensitive receptors near construction sites. More receptors will be exposed to construction noise in the communities of Arlee, Ravalli, St. Ignatius, Ronan, and Pablo, while fewer receptors will be exposed in the rural sections of US 93. Maximum noise levels from construction activities at 50 feet will range from 69 to 106 dBA and at 200 feet will range from 57 to 94 dBA.[56] Because various equipment will be turned off, idling, or operating at full power at any time, average Leq noise levels during the day will be less than maximum noise levels.

Operational Impacts:

Widening US 93 (Lane Configuration B, C or D) will move traffic closer to receptors, which will increase noise levels above existing conditions. Noise levels shown in Table 7.8-1 assume widening will occur equally along both sides of US 93. In sections where widening will occur only on one side, noise levels will be slightly higher at receptors that will be located on the side of the widening, but slightly lower at receptors that will be located on the side without widening.

Compared with ~~1991~~1994 existing conditions, predicted ~~2015~~2020 Leq(h) noise levels with Lane Configuration B, C and D will increase from three to five dBA at any location along each roadway section (Table 7.8-1). Increases in noise levels of three to five dBA are not considered an impact with FHWA criteria.

As indicated in Section 6.8.1, a doubling of traffic noise constitutes a noise level increase of three dBA.

Predicted ~~2015~~2020 Leq(h) noise levels along US 93 will range from ~~71~~72 to ~~72~~75 dBA at 100 feet and from ~~68~~69 to ~~69~~71 dBA at 150 feet (Table 7.8-1). These predicted ~~2015~~2020 noise levels will exceed the FHWA noise abatement criterion of 67 dBA, which is considered to be a noise impact.

Compared with No Action, predicted ~~2015~~2020 Leq(h) noise levels will increase by one to three dBA (Table 7.8-1). The increase will result from widening the roadway and higher speeds than with No Action ~~increasing speeds from 45 to 55 mph.~~

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[56]U.S. Environmental Protection Agency, Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, NTIS Number PB 206 717, December 31, 1971.

Acceleration and deceleration noise occurs on the existing two-lane roadway. It will occur with Lane Configuration A because of the poor LOS and resulting interaction of through traffic with turning vehicles, slower moving trucks and recreation vehicles. Such interaction will be reduced with any of the four-lane configurations. Acceleration and deceleration noise cannot be modeled with STAMINA 2.0, which assumes that traffic is flowing freely at a constant speed, and is not reflected in Table 7.8-1.

Mitigation

Construction noise could be reduced by~~ enclosures or barriers,~~ mufflers on engines, substituting quieter equipment or construction methods and~~,~~ minimizing time of operation.~~, and locating equipment farther away from sensitive receptors.~~ To reduce construction noise at nearby receptors, mitigation measures will be incorporated into construction plans and contractor specifications.

Noise barriers could reduce noise levels during operation of the highway. Because noise barriers must be continuous and uninterrupted to be effective, numerous driveways and approaches along US 93 in areas where noise impacts will occur will break any noise barriers and therefore diminish their effectiveness. The low number of residences that will benefit from noise barriers along US 93 will result in a high cost for the amount of noise attenuation benefit received. In addition, noise barriers could adversely affect visual quality at commercial buildings and residences that face the roadway. For these reasons, noise barriers will not be reasonable along US 93.

~~US 93 could be widened only on the side located farthest from sensitive receptors. This will reduce 2015~~2020 ~~Leq(h) noise levels in Tables 7.8-1, 7.8-2 and 7.8-3 by one to three dBA.~~

Noise impacts also could be reduced by land use controls on undeveloped land along US 93. CSKT and local county and municipal governments could implement land use planning and regulation~~plans and zoning~~ that will restrict future land uses along US 93 to those compatible with traffic noise. MDT and ~~MHC~~MTC also could develop and implement an access management plan, which will complement land use planning and regulation~~zoning~~ effects on development by controlling access to and from the highway.

Public buildings could be insulated to reduce interior noise levels. Specific construction techniques could include acoustical doors and windows, insulation in walls, floors and ceilings, and ventilation systems designed without the need to open windows. Noise insulation, however, will have no effect on exterior noise levels.

7.8.4. Arlee Alignments

Alignment 1 will follow the existing US 93 through Arlee. Predicted Leq(h) noise levels will be ~~67~~68 dBA at 100 feet, which will ~~approach or~~ exceed the FHWA noise abatement criterion of 67 dBA. Noise levels will increase by three dBA over ~~1991~~1994 existing conditions, but will be equal to ~~2015~~2020 No Action (Table 7.8-3). Because traffic noise decreases with lower speeds, Alignment 1, with a posted speed limit of 35 mph, will result in lower noise levels at comparable distances than Alignments 2, 3, and 4, which will have higher speeds. ~~posted speed limits of 55 mph~~. Alignment 1, however, will be located adjacent to a larger number of sensitive receptors than Alignments 2, 3, and 4, and therefore will expose more people to traffic noise. More people also will be exposed to construction noise.

Alignment 2 will be located outside of Arlee. Predicted ~~2015~~2020 Leq(h) noise levels will be ~~71~~73 dBA at 100 feet and ~~68~~70 dBA at 150 feet, which will exceed the FHWA noise abatement criterion of 67 dBA. Because Alignment 2 will be located in a more rural area, ~~2015~~2020 noise levels will increase as much as ~~24~~26 dBA over the measured Leq noise level of 47 dBA in rural locations (Table 7.8-3). Although substantial noise increases will occur, few

Table 7.8-3 Predicted Design Hourly Volume Leq(h) Traffic Noise Levels (dBA) For Alignment Alternatives

Distance to Centerline (Feet)	~~1991~~1994 Existing Conditions[1]	~~2015~~2020 Alignment 1	~~2015~~2020 Alignment 2	~~2015~~2020 Alignment 3	~~2015~~2020 Alignment 4	~~2015~~2020 No Action	~~2015~~2020 Existing Alignment[2]
Arlee Alignments							
100	65	68	73	73	73	68	56
150	62	65	70	70	70	65	53
300	57	61	65	65	65	61	49
Ronan Alignments							
100	63	67	64	73	73	67	59
150	61	64	61	70	70	64	56
300	56	59	57	64	64	59	51
Polson Alignments							
100	66	69	73	73	---	69	63
150	63	67	70	70	---	66	61
300	59	62	65	65	---	62	56

Shapiro and Associates, Inc., ~~1993~~1996. [1]Existing Conditions predicted from ~~1991~~1994 traffic volumes and speeds. [2]Noise levels on the existing alignment if Alignment 2, 3 or 4 in Arlee, Alignment 3 or 4 in Ronan or Alignment 2 or 3 in Polson are constructed.

This table has been changed in the final EIS to include the revision of the traffic analysis from 1991 to 1994.

sensitive receptors will be located adjacent to the new roadway, and therefore fewer receptors will be affected by construction and traffic noise than with Alignment 1.

Noise levels at locations along existing US 93 will decrease because traffic will be diverted to the new alignment. Predicted ~~2015~~2020 Leq(h) noise levels along existing US 93 will be ~~54~~56 dBA at 100 feet. This decrease in noise levels of ~~10~~9 dBA compared with the ~~1991~~1994 existing conditions will be a substantial decrease and a positive environmental impact at these locations.

Alignment 3 will have noise impacts similar to those described for Alignment 2.

Alignment 4 will have noise impacts similar to those described for Alignments 2 and 3.

7.8.5. Ronan Alignments

Alignment 1 will follow the existing US 93 through the community of Ronan. Predicted Leq(h) noise levels will be ~~65~~67 dBA at 100 feet, which will ~~be below~~equal the FHWA noise abatement criterion of 67 dBA. Noise levels will increase by three to four dBA over ~~1991~~1994 existing conditions, but will be similar to ~~2015~~2020 No Action (Table 7.8-3). ~~Predicted noise levels will be below FHWA noise guidelines and therefore noise impacts will not occur with Alignment 1.~~ Because traffic noise decreases with lower speeds, Alignment 1, with a posted speed limit of 25 mph, will result in lower noise levels at comparable distances than Alignments 3 and 4, which will have higher speeds. ~~a posted speed limit of 55 mph.~~ Alignment 1, however, will be located adjacent to a greater number of sensitive receptors than Alignments 3 and 4, and therefore will expose more people to traffic noise.

Alignment 2 will be a one-way couplet system through Ronan, where northbound traffic will remain on the existing US 93 and southbound traffic will be diverted one block west to a parallel street. Predicted ~~2015~~2020 Leq(h) noise levels will be ~~62~~64 dBA at 100 feet from either the north or south bound street, which will be below the FHWA noise abatement criterion of 67 dBA. Noise levels along existing US 93 will decrease by three dBA compared with ~~2015~~2020 No Action because half of the traffic will be diverted to the southbound street (Table 7.8-3). Noise levels will increase along the southbound street because of large increases in traffic. Predicted noise levels will be below FHWA noise guidelines, and therefore noise impacts will not occur with Alignment 2.

Similar to Alignment 1, Alignment 2 will be adjacent to a greater number of sensitive receptors than Alignments 3 and 4, and therefore will expose more people to construction and traffic noise.

Alignment 3 will be a new roadway located along the edge of Ronan. Predicted ~~2015~~2020 Leq(h) noise levels will be ~~71~~73 dBA at 100 feet and ~~68~~70 dBA at 150 feet, which will exceed the FHWA noise abatement criterion of 67 dBA (Table 7.8-3). Because Alignment 3 will be located in a more rural area, ~~2015~~2020 noise levels will increase as much as ~~24~~26 dBA over the measured Leq noise level of 47 dBA in rural locations. Although substantial noise increases will occur, few sensitive receptors will be located adjacent to the new roadway, and therefore fewer receptors will be affected. Because the speeds will be higher, ~~posted speed limit will be 55 mph,~~ noise levels will be greater than with Alignments 1 and 2.

Noise levels at receptors along existing US 93 in Ronan will decrease because traffic will be diverted to the new alignment. Predicted ~~2015~~2020 Leq(h) noise levels along the existing highway will be ~~56~~59 dBA at 100 feet. The decrease in noise levels of ~~six~~four to five dBA compared with the ~~1991~~1994 existing conditions will be a positive environmental impact at these locations.

Alignment 4 will be a new roadway located farther outside of Ronan than Alignment 3. Noise levels with Alignment 4 will be similar to those described for Alignment 3, although fewer sensitive receptors will be exposed to traffic noise from Alignment 4 (Table 7.8-3).

7.8.6. Polson Alignments

Alignment 1 will follow the existing US 93 through the community of Polson. Predicted Leq(h) noise levels will be 69 dBA at 100 feet, which will be above the FHWA noise abatement criterion of 67 dBA. Noise levels will increase by ~~two~~three dBA over ~~1991~~1994 existing conditions, but will be similar to ~~2015~~2020 No Action (Table 7.8-3). Since predicted noise levels will be above FHWA noise guidelines, noise impacts will occur with Alignment 1. Alignment 1 will be located adjacent to a greater number of sensitive receptors than Alignments 2 and 3, and therefore will expose more people to traffic noise.

Alignment 2 will be a new roadway located south and west of Polson. Predicted ~~2015~~2020 Leq(h) noise levels will be ~~69~~73 dBA at 100 feet, which will exceed the FHWA noise abatement criterion of 67 dBA (Table 7.8-3). Because Alignment 2 will be located in a more rural area, ~~2015~~2020 noise levels will increase as much as ~~22~~26 dBA over the measured Leq noise level of 47 dBA in rural locations. Although substantial noise increases will occur, few sensitive receptors will be located adjacent to the new roadway, and therefore fewer receptors will be affected.

Noise levels at receptors along existing US 93 in Polson will decrease slightly because traffic will be diverted to the new alignment. Predicted ~~2015~~2020 Leq(h) noise levels along the existing highway will be ~~68~~63 dBA at 100 feet. The decrease in noise levels compared with the ~~1991~~1994 existing conditions will be a positive environmental impact at these locations.

Alignment 3 will have noise levels similar to those described for Alignment 2 (Table 7.8-3).

7.9. WATER QUALITY

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

7.9.1. No Action

There will be no construction-related impacts on water quality with No Action. Increases in highway traffic might cause greater non-point pollution resulting from runoff of oil, grease and tire rubber. Traffic accidents resulting in spills of hazardous materials and fuels can also diminish water quality.

7.9.2. Existing Alignment (Except Arlee, Ronan and Polson)

Water Quality

During construction there is a potential for diminished water quality. Refueling, lubrication, and maintenance of construction equipment; and storage and handling of chemicals, fuels, and lubricating oils can introduce contaminants into surface waters. Following construction, increases in highway traffic might cause greater non-point pollution resulting from runoff of oil, grease and tire rubber. Traffic accidents resulting in spills of hazardous materials and fuels can also diminish water quality. With highway improvement and resulting improvement in safety for all vehicles, the potential for spills will be reduced.

Widening the highway will intercept very shallow--less than 15 feet deep-- aquifers in alluvial and glacial deposits at numerous sites. No measurable depletion or contamination of these aquifers is expected. Direct interference with existing shallow domestic wells near the highway is not expected, because these wells tap deeper aquifers.

Widening of the existing alignment near the Schley homesites (Mileposts 11.0 to 11.5) could facilitate movement of contaminated shallow groundwater into surface streams. At this site, a shallow aquifer is contaminated (probably by leakage from septic fields), and this water may be surfacing in the existing highway ditch.

Turbidity

Increased turbidity may result from runoff from construction areas which have been temporarily stripped of vegetation or topsoil. These impacts will be more serious during periods of heavy precipitation. They will also be more serious where soils have a high water or wind erosion potential.

Following construction, the increased paved surface area of the highway will result in increased and more rapid runoff and less infiltration of rain water during precipitation events. These changes in runoff volume and velocity can increase soil erosion and result in greater surface water turbidity.

Sedimentation rates during construction have been estimated. For a 10-year, 24-hour storm, it is estimated that 0.22 ton of sediment per acre will result in areas where vegetation or topsoil have been temporarily removed. Given existing conditions of 0.01 ton of sediment per acre produced during the same precipitation event, there will be a predicted net increase of 0.21 ton (0.1575 yards) of sediment per acre.

An estimate of sedimentation quantities for each segment of the highway for each lane configuration during construction is shown in Table 7.9-1 for the existing alignment. Estimates shown on these tables assume the erosion control plan and mitigation measures described below are properly implemented. As indicated on the tables, wider lane configurations have the potential for greater quantities of sedimentation during construction.

Table 7.9-1 Estimate of Potential Sediment Yield for Existing Alignment (Except Arlee, Ronan, and Polson) During Construction

Segment	Miles	**CSKT Preferred Alternative** Lane Configuration A		Lane Configuration B		Lane Configuration C		Lane Configuration D		**MDT Preferred Alternative**	
		Acres	Tons	Acres	Tons	Acres	Tons	Acres	Tons	Acres	Tons
A	10.2	84.7	18.6	121.7	26.8	138.7	30.5	174.7	38.4	125.0	27.5
B	1.5	2.6	0.6	5.6	1.2	7.6	1.7	10.6	2.3	7.6	1.7
C	6.3	36.3	8.0	40.3	8.9	44.3	9.7	57.3	12.6	41.0	9.0
D	2.0	31.2	6.9	33.2	7.3	35.2	7.7	39.2	8.6	33.2	7.3
E	0.9	7.2	1.6	7.2	1.6	7.2	1.6	7.2	1.6	7.4	1.7
F	3.7	50.6	11.1	63.6	14.0	69.6	15.3	78.6	17.3	63.8	14.1
G	2.4	21.8	4.8	27.8	6.1	31.8	7.0	37.8	8.3	27.8	6.1
H	8.6	95.2	20.9	115.2	25.3	135.2	29.7	167.2	36.8	118.0	25.9
I	4.0	60.4	13.3	70.4	15.5	81.4	17.9	96.4	21.2	73.2	16.1
J	1.5	4.6	1.0	4.6	1.0	6.6	1.5	4.6	1.0	6.6	1.5
K	3.2	55.1	12.1	56.1	12.3	59.1	13.0	66.1	14.5	56.7	12.4
L	3.9	54.5	12.0	57.5	12.6	61.5	13.5	72.5	15.9	60.4	13.2
M	1.8	20.4	4.5	23.4	5.1	27.4	6.0	33.4	7.3	25.4	5.6
N-O-P	6.3	50.4	11.1	68.7	15.1	79.4	17.5	113.0	24.9	60.8	13.3

Morrison-Maierle. 1993.
Assumption: Sedimentation equal to 0.22 ton per acre.

To illustrate the relative magnitude of sedimentation quantities shown on Table 7.9-1, sedimentation quantities for Segment D, which is parallel with the Jocko River for approximately two miles and is separated from the river by the railroad, have been compared with existing sediment loadings. As shown on Table 7.9-1 and depending on the lane configuration used, approximately 6.9 to 8.6 tons of sediment will be eroded during a 10-year, 24-hour storm event. A conservatively high estimate is that approximately one-half of this quantity will reach the river (3.5 to 4.3 tons). During spring run-off, sediment loadings in the Jocko River at Dixon (approximately nine miles downstream of Segment D) typically range up to 115 tons per day. Expected sediment introduction into the river resulting from a major storm occurring during construction will amount to approximately 3.0 to 3.7%~~three to four percent~~ of current sediment loadings.

Sedimentation rates per acre of surface area are estimated to be similar to existing, preconstruction conditions. Larger paved surface areas resulting from the wider lane configurations will increase quantities and velocities of storm water runoff and will therefore increase sedimentation. These increases will be offset by substantially flatter shoulder slopes and excavation/embankment slopes (necessary to improve highway safety) and improved erosion protection measures.

Stream Flow

During and after highway construction, increases in volume and velocity of runoff can be expected. During construction, areas that have been stripped of topsoil or vegetation can experience increases in volume and velocity of runoff during precipitation events. Following construction, slightly increased runoff volume and velocity from larger highway surface areas can be expected.

Wellhead Protection Areas

The existing alignment, excluding the communities of Arlee, Ronan, Pablo and Polson, does not cross any existing or proposed wellhead protection areas.

Other potential impacts on groundwater include:

- Impacts from pesticide use. With any of the proposed alignment alternatives, herbicides will be used to control noxious weeds in the highway ROW.

- Impacts from road deicers. Various evaluations have been conducted on the impacts of the use of chemical road deicers on surface and groundwater. To date, no substantial potential impacts have been identified.

- Impacts from road salts. MDT no longer applies salt directly to roadways as a deicer. A small amount is placed in sanding stockpiles to keep them from freezing during the winter, but the amounts used are expected to have no impact on water quality.

- Impacts from spills of hazardous materials. The potential exists, with any of the proposed alignment alternatives, for accidental spills to occur along the roadway. Improvement of the highway will include various safety improvements that should reduce the potential for accidents on the roadway.

Permits

Section 7.11.1.2 lists permits that will be required for all improvements that affect stream crossings.

Mitigation

A storm water erosion control plan will be developed and a temporary erosion control permit secured from the EPA in accordance with Section 402 of the Clean Water Act. The objective of the plan and permit is to minimize erosion of disturbed areas during the construction and post construction phase. Careful planning and proper implementation of the plan will lessen the likelihood of pollutants reaching area waters. The plan will become part of the construction plans, specifications and documents. Construction contractors will be required to adhere to it.

A plan for runoff control for hazardous materials at construction sites is also necessary and will be coordinated with and approved by the EPA.

The continuous recording stream discharge station at Mission Creek will have to be moved if the highway is widened.

The MDT Standard Erosion Control Work Plan[57] will be used as a guide to prepare a specific work plan for each construction project. This standard plan incorporates seven major principles of soil erosion and sedimentation control including:

Plan the Development to Fit the Site
Detailed design will be employed to assure that roadways, structures and other permanent features of the proposed action conform to the natural characteristics of the site. Areas with steep slopes, erodible soils, and soils with severe limitations will have planned erosion controls to overcome those limitations. For instance, long steep slopes can be broken by benching, terracing or constructing diversion structures.

Minimize Extent of Disturbed Areas and Duration of Exposure
When earth moving activities require the removal of vegetation, the area and the duration of the exposure will be kept to a minimum. Phases or stages of development will be planned so that only the areas which are actively being developed are exposed. Grading will be completed as soon as possible after it is started. When construction is complete, permanent vegetative cover will be established in the area. As cut slopes are made and as fill slopes are brought up to grade, these areas will be revegetated with the progression of work. Timing for installation of best management practices (BMP) will be carefully planned.

Stabilize and Protect Disturbed Areas as Soon as Possible
Disturbed areas will be stabilized as soon as possible using methods appropriate at each site including dikes and swales; roughening, stair stepping and terracing of slopes; mulching; seeding; sodding; erosion control blankets; retaining walls; slope drains; vegetative buffer strips; straw bale barriers; gravel filter berms; silt fences; dugout ditch basins; settling basins; sediment traps and stream bank protection.

Keep Runoff Velocities Low
The removal of existing vegetative cover and the resulting increase in impermeable surface area during construction will increase both the volume and velocity of runoff. These increases will be taken into account when providing for erosion control. Slope changes will be designed to keep slope length and gradient to a minimum. Short slopes, low gradients and the preservation of natural vegetative cover will keep runoff velocities low. This will limit erosion hazards and reduce costs associated with erosion control.

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[57] Pioneer Technical Services, Inc. for Montana Department of Transportation, Highway Construction Standard Erosion Control Work Plan, 30 September 1992.

Protect Disturbed Areas from Runoff
Measures to prevent off-site water from entering and running over the disturbed areas will be implemented. Slope and disturbed ground protection measures are favorable over trying to remove sediment from runoff waters after erosion has occurred.

Retain Sediment within the Corridor Area
Sediment will be retained by two methods: (1) by filtering runoff as it flows, and (2) by detaining sediment-laden runoff for a period of time so that sediment particles settle out. The best way to control sediment, however, is to prevent erosion. As recommended by the CSKT staff, using borrow ditches and natural depressions for construction of sedimentation basins has been used successfully on the existing highway and should be applied, where appropriate, on any new construction.

Implement a Thorough Maintenance and Follow-up Program
The plan will include a thorough maintenance and monitoring plan to ensure that erosion control measures are functioning properly and, where needed, adjustments or improvements are made.

The erosion control work plan will also apply to and be developed for all required borrow sites.

Mitigation of the groundwater contamination problem at Schley homesites is needed. There, contaminated shallow groundwater may be surfacing in the existing highway ditch. Discharge of contaminated ground water could be reduced or eliminated by replacement of existing septic fields, and possibly by shifting the highway alignment to the west, to avoid making a deeper sidecut into the slope east of the highway.

Where necessary to clean bridge decks, as part of construction or during maintenance after construction, the decks should be swept and the debris collected and taken to a proper disposal site. This should be done in lieu of hosing the bridge decks with water, which carries the debris into the streams.

Continued proper use of pesticides and chemical deicers will be important to avoid effects on surface and ground water.

7.9.2.1. Indirect Effects

Indirect effects from a larger population, with residential and business development, can affect surface water quality by lowering infiltration of precipitation and increasing runoff and erosion from developed areas. This can increase the potential for surface water pollution. Long-term growth also will increase the numbers of sewage treatment systems and septic fields which may affect ground water in some areas. The Arlee area is most susceptible to such groundwater contamination, where shallow sand and gravel deposits provide a pathway from the surface down to a shallow aquifer.[58] (Sections 7.2, 7.4 and 7.5)

Mitigation

Indirect effects of residential and other development on groundwater can be mitigated by proper planning and siting of future residential, industrial and commercial development. Areas near water bodies or other sensitive areas, such as those with shallow aquifers, should be avoided. Planning and control of these future developments is within the jurisdiction of CSKT and local governments.

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[58]Makepeace, S. 1989. Simulation of ground water flow in a coarse-grained alluvial aquifer in the Jocko Valley, Flathead Indian Reservation, Montana. M.S. Thesis, University of Montana, Missoula, Montana.

7.9.3. Arlee Alignments

Alignments 1 and 2 in the Arlee area do not cross any streams. Alignment 3 crosses the Flathead Irrigation District's R Canal at three locations. Alignment 4 will require new stream crossings of Agency Creek, the Jocko River, Pellew Creek and Spring Creek.

Water Quality

Since Alignments 1, 2 and 3 in Arlee do not cross any streams, there is less potential for impacts on water quality.

During construction of Alignment 4, there is a potential for diminished water quality at the several stream crossings. Refueling, lubrication, and maintenance of construction equipment; and storage and handling of chemicals, fuels, and lubricating oils could introduce contaminants into surface waters.

Following construction, along Alignment 4, increases in traffic capacity and in subsequent highway use might cause greater non-point pollution resulting from runoff of oil and grease and tire rubber. Traffic accidents resulting in spills of hazardous materials and fuels could also diminish water quality.

Turbidity

Table 7.9-2 summarizes sediment yield quantities for the Arlee alignments during construction. Since Alignments 1, 2 and 3 do not cross any streams, potential for stream sedimentation is low.

Potential for stream sedimentation is higher for Alignment 4 because of the several crossings.

Stream Flow

During and after highway construction, increases in volume and velocity of runoff can be expected. Construction areas that have been stripped of topsoil or vegetation could experience increases in volume and velocity of runoff during precipitation events. Following construction, increased runoff volume and velocity from larger highway surface areas could be expected. However, given the small percentage of the total drainage basin which will be disturbed by the construction and new highway, no measurable increases in stream flow will be noted.

Wellhead Protection Areas

A wellhead protection area is proposed on property owned by the schools near Alignment 3 in Arlee. There is a potential for diminished groundwater quality resulting from increased surface runoff. Wells in Arlee mostly draw water from a shallow aquifer developed in sand and gravel of the alluvial fan deposited by the Jocko River. The increases in volume of surface runoff from the greater surface area of the new highway can result in greater infiltration of water contaminated by hydrocarbons. The potential for increased hazardous chemical spills with increased traffic volume can also be a contributing factor to decreased water quality. These impacts are difficult to quantify.

There are no other existing or proposed wellhead protection areas in the Arlee area.

Other potential impacts on groundwater include:

- Impacts from pesticide use. With any of the proposed alignment alternatives, herbicides will be used to control noxious weeds in the highway ROW.

Table 7.9-2 Estimate of Potential Sediment Yield for Arlee, Ronan and Polson Alignments, During Construction

Segment	Miles	Lane Configuration A CSKT Preferred Alternative		Lane Configuration B		Lane Configuration C		Lane Configuration D		MDT Preferred Alternative	
		Acres	Tons	Acres	Tons	Acres	Tons	Acres	Tons	Acres	Tons
Arlee Alignments											
1	7.0	40.6	8.9	49.6	10.9	60.6	13.3	NA	NA	60.6	13.3
2	7.1	46.5	10.2	56.5	12.4	68.5	15.1	88.5	19.5	56.5	12.4
3	7.2	44.5	9.8	54.5	12.0	65.5	14.4	86.5	19.0	54.5	12.0
4	7.4	62.3	13.7	79.3	17.4	97.3	21.4	115.3	25.4	79.3	17.4
Ronan Alignments											
1	3.5	35.8	7.9	37.8	8.3	35.8	7.9	NA	NA	35.8	7.9
2	3.5	27.8	6.1	NA	NA	NA	NA	NA	NA	NA	NA
3	3.5	35.8	7.9	44.8	9.9	53.8	11.8	65.8	14.5	44.8	9.9
4	3.5	38.8	8.5	47.8	10.5	56.8	12.5	65.8	14.5	47.8	10.5
Polson Alignments											
1	6.3	50.4	11.1	68.7	15.1	79.4	17.5	113.0	24.9	60.9	13.4
2	7.1	91.2	20.1	111.9	24.6	123.9	27.3	161.8	35.6	111.9	24.6
3	7.0	89.9	19.8	110.3	24.3	122.2	26.9	159.5	35.1	110.3	24.3

Morrison-Maierle, 1993.
Assumption: Sediment loading equal to 0.22 ton of sediment per acre. NA - Not applicable.

- Impacts from road deicers. Various evaluations have been conducted on the impacts of the use of chemical road deicers on surface and groundwater. To date, no substantial potential impacts have been identified.

- Impacts from road salts. MDT no longer applies salt directly to roadways as a deicer. A small amount is placed in sanding stockpiles to keep them from freezing during the winter, but the amounts used are expected to have no impact on water quality.

- Impacts from spills of hazardous materials. The potential exists, with any of the proposed alignment alternatives, for accidental spills to occur along the roadway. Improvement of the highway will include various safety improvements that should reduce the potential for accidents on the roadway.

Indirect Effects

Indirect effects will be similar to those described for the existing alignment.

<u>Mitigation</u>

Mitigation measures will be similar to those described in Section 7.9.2.

7.9.4. Ronan Alignments

Alignments 1 and 2 in Ronan will cross Spring Creek at existing roadway culvert crossings. Alignments 3 and 4 will require new crossings of Spring Creek. Alignments 3 and 4 will also cross the Flathead Irrigation District's Lateral A6 and Alignment 4 will cross the district's Canal B.

Water Quality

Since all alignments under consideration in Ronan will cross Spring Creek, there is potential for impacts on water quality. The potential is considered greater for Alignments 3 and 4 because new crossings will be required.

Refueling, lubrication, and maintenance of construction equipment; and storage and handling of chemicals, fuels, and lubricating oils could introduce contaminants into surface waters.

Following construction, along Alignments 3 and 4, increases in traffic capacity and in subsequent highway use might cause greater non-point pollution resulting from runoff of oil and grease and tire rubber. Traffic accidents resulting in spills of hazardous materials and fuels could also diminish water quality.

Turbidity

Table 7.9-2 summarizes potential sediment yield quantities for the Ronan alignments during construction.

Potential for stream sedimentation is higher for Alignments 3 and 4 because they will require new crossings.

Stream Flow

During and after highway construction, increases in volume and velocity of runoff can be expected. Construction areas that have been stripped of topsoil or vegetation could experience increases in volume and velocity of runoff during precipitation events. Following construction, increased runoff volume and velocity from larger highway surface areas could be expected. However, given the small percentage of the total drainage basin which will be disturbed by the construction and new highway, no measurable increases in stream flow will be noted.

Wellhead Protection Areas

There are no existing or proposed wellhead protection areas in the Ronan area.

Potential impacts to groundwater will be similar to those described for the alternative alignments in Arlee.

Indirect Effects

Indirect effects will be similar to those described for the existing alignment.

<u>Mitigation</u>

Mitigation measures will be similar to those described in Section 7.9.2.

7.9.5. Polson Alignments

Alignment 1 will cross the Flathead River at the location of the present US 93 bridge just south of the Flathead Lake outflow. No other perennial streams are crossed by Alignment 1. To the east of Polson, Alignment 1 also crosses the Polson and Pablo Feeder canals. These canals receive water pumped from the Flathead River two miles below the US 93 bridge as well as diversions from streams rising in the Mission Mountains southeast of Polson.

With Alignment 2, the Flathead River bridge crossing will be one-half mile downstream of the existing crossing. Flow there is essentially the same and the channel width is slightly narrower. Alignment 2 also crosses the Polson and Pablo Feeder canals but at different locations. It also crosses the pump canal which brings water from the Flathead River pumping station to the aforementioned canals.

With Alignment 3, the Flathead River crossing will be one-half mile further downstream than the Alignment 2 crossing. Flow there is essentially the same and the channel width is slightly narrower. Alignment 3 does not cross the Polson Canal. It crosses the Pablo Feeder Canal at the same location as Alignment 2 and crosses the pump canal at a different location from the Alignment 2 crossing.

Water Quality

During construction of Alignment 1, there is a potential for diminished water quality in Flathead Lake and the Flathead River. Refueling, lubrication, and maintenance of construction equipment; and storage and handling of chemicals, fuels, and lubricating oils could introduce contaminants into surface waters.

Following construction, increases in traffic capacity and in subsequent highway use might cause greater non-point pollution resulting from runoff of oil and grease and tire rubber. Traffic accidents resulting in spills of hazardous materials and fuels could also diminish water quality.

Turbidity

Table 7.9-2 summarizes potential sediment yield quantities for the Polson alignments during construction.

Total surface disturbance for any of the alternatives under consideration represents a small percentage of the approximately 7,090 square mile Flathead Lake and river drainage basin above the proposed action. The increase in total dissolved solids in the river downstream of the site following a major precipitation event will be small.

Stream Flow

During and after highway construction, increases in volume and velocity of runoff can be expected. Construction areas that have been stripped of topsoil or vegetation could experience increases in volume and velocity of runoff during precipitation events. Following construction, increased runoff volume and velocity from larger highway surface areas could be expected. However, given the small percentage of the total Flathead Lake and river drainage basin which will be disturbed by the construction and new highway, there will be no measurable increases in stream flow in the Flathead River.

Wellhead Protection Areas

Alignment 1 crosses approximately 0.6 mile of Zone 1 of the proposed Polson wellhead protection area in the SW1/4, Sec. 2, T22N, R20W.[59] Approximately 2.5 miles of Zone 2 are crossed by the Alignment 1 in Secs. 11, 12, and 13, T22N, R20W. Zone 1 is the most sensitive zone as it immediately surrounds the Polson municipal water supply wells. Zone 2 is a less sensitive buffer area situated further from the wellhead.

Alignments 2 and 3 will cross less of the proposed wellhead protection area than Alignment 1. They cross two miles of the boundary area between Zones 2 and 3 northeast of the Pablo Reservoir. Zone 3 is less sensitive than Zone 2.

Potential impacts to groundwater will be similar to those described for the alternative alignments in Arlee.

Surface water resource conditions for Alignments 2 and 3 are essentially the same as those for Alignment 1.

Indirect Effects

Indirect effects will be similar to those described for the existing alignment.

<u>Mitigation</u>

Mitigation measures will be similar to those described in Section 7.9.2.

It may be appropriate to place signs along the highway to advise motorists and truckers that they are entering a wellhead protection area and extra caution should be used.

[59]Shannon Environmental Management. 1993. Draft Map of Wellhead Protection Area for Polson, Montana. Missoula, MT.

7.10. WETLANDS

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

7.10.1. No Action

Under No Action, wetlands and non-wetland riparian areas along the highway would not receive additional fill and would remain in their existing states. Existing levels of highway related disturbances to these areas resulting from periodic clear zone maintenance and other maintenance activities would continue. The potential of disturbance to these areas resulting indirectly from forecasted increasing traffic (e.g., fuel spills and other accidents) is expected to increase over time in the absence of highway improvements. (Section 7.1.2)
~~No Action will not result in the filling or disturbing of existing wetlands.~~

7.10.2. Existing Alignment (Except Arlee, Ronan and Polson)[60]

Table 6.10-1, which is presented at the back of Appendix A, lists individual estimated impact acreage for all wetlands and non-wetland riparian areas with alternative alignments and lane configurations. A summary of wetland and non-wetland riparian area impacts by alignment and lane configuration is presented in Table 7.10-1. Estimated impacts by wetland type and overall rating category are summarized in Table 7.10-2.

As determined using the MDT wetland site evaluation method,[61] Table 7.10-3 lists primary functions of wetland acreage expected to be lost to construction for each wetland type and each of the four overall rating categories. These include food chain support, general fish and wildlife habitat, potential habitat for threatened and endangered species, flood attenuation, sediment filtration, erosion control, nutrient cycling, and recreation/education potential. In addition to the direct losses described above, many affected wetlands and non-wetland riparian areas would experience incremental losses in overall function commensurate with their proportional losses in size. For comparison purposes, estimated total sizes and anticipated impacts under each alternative for each wetland and non-wetland riparian area are presented in Table 6.10-1 (Appendix A). These indirect impacts would have little effect on the overall functions of larger Category I and II wetlands, which would experience very minor losses in proportion to their overall sizes. Similarly, indirect effects would not apply to most of the small, low value wetlands (e.g., roadside ditches) that would be lost entirely to construction. These indirect impacts would have the greatest effect on small to medium-sized (e.g., one to five acres) wetlands of high overall value, which primarily consist of potholes (emergent/open water wetlands).

Wetlands and riparian areas may be indirectly affected by development associated with improvement of the highway. However, it is not possible to quantify such impacts without knowledge of where such associated development may or may not occur. With or without highway improvement, the recent pattern of growth and development is expected to continue in the area from Evaro through Polson. Consequently, an improved highway would be a factor that combines with other factors to provide transportation services that support any increase in the rate of population growth (Section 7.4).

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[60]Tables 7.10-1 and 7.10-3 in the draft EIS has been removed, and tables have been renumbered in the final EIS.
[61]Montana Department of Transportation, Wetlands Site Evaluation Form. Unpublished methodology. Helena, Montana. 1994.

Table 7.10-1 Summary of Wetland and Riparian Area Impacts (Acres)

This table has been added to the final EIS.

Alignments	MDT Preferred Alternative Alignments and Configurations*		CSKT Preferred Alternative Lane Configuration A		Lane Configuration B		Lane Configuration C		Lane Configuration D	
	Wetland	Riparian	Wetland	Riparian	Wetland	Riparian	Wetland	Riparian	Wetland	Riparian
Existing Alignment - Does not include Arlee (1-4), Ronan (1-4), or Polson (1-3) Alignments	37.12	6.97	21.75	3.33	36.15	7.05	43.03	8.06	58.71	10.76
Arlee Alignments										
*Arlee #1	2.48	0.68	2.1	0.37	2.33	0.53	2.54	0.68	4.78	0.85
Arlee #2	N/A	N/A	2.58	0.08	2.93	0.21	3.15	0.23	5.09	0.27
Arlee #3	N/A	N/A	2.16	0.37	2.71	0.51	2.96	0.64	5.28	0.72
Arlee #4	N/A	N/A	8.23	0.66	9.86	0.79	10.85	0.87	13.13	1.05
Ronan Alignments										
*Ronan #1	0.59	0.00	0.21	0.00	0.52	0.00	0.72	0.00	1.25	0.00
Ronan #2	N/A	N/A	0.41	0.00	0.72	0.00	0.91	0.00	1.41	0.00
Ronan #3	N/A	N/A	2.42	0.02	2.86	0.02	3.17	0.02	3.87	0.03
Ronan #4	N/A	N/A	6.22	0.05	7.51	0.06	8.27	0.07	10.10	0.08
Polson Alignments										
*Polson #1	0.15	0.00	0.11	0.00	0.18	0.00	0.24	0.00	0.70	0.00
Polson #2	N/A	N/A	0.37	0.00	1.38	0.00	1.64	0.00	2.26	0.00
*Polson #3	0.08	0.00	0.08	0.00	0.09	0.00	0.10	0.00	0.13	0.00
Total Estimated Impacts of Preferred Alignments and Preferred Lane Configurations:	40.42	7.65	24.25	3.70	39.27	7.53	46.63	8.74	65.57	11.61

Morrison-Maierle Environmental. 1996. * Preferred alignments. MDT Preferred Alternative is a combination of Lane Configurations A, B, C and D.

Table 7.10-2 Estimated Wetland Impact Acreage of the Existing Alignment and Polson Alignment 3 ~~Preferred Alignment~~ and Alternative Lane Configurations

Wetland Type	MDT Preferred Alternative Lane Configurations A, B, C and D	CSKT Preferred Alternative Lane Configuration A	Lane Config. B	Lane Config. C	Lane Config. D
Emergent	20.02	12.00	19.44	23.08	32.48
Emergent/Open Water (with scattered shrub component)	2.85	1.70	2.75	3.26	4.59
Emergent/Shrub	8.05	4.85	7.85	9.32	13.10
Forested/Shrub (with scattered emergent component)	9.50	5.70	9.23	10.97	15.40
Total	40.42	24.25	39.27	46.63	65.57
Overall Wetland Category*					
Category I (exceptional)	6.49	3.88	6.28	7.46	10.49
Category II (high)	6.78	4.12	6.67	7.93	11.15
Category III (moderate)	15.77	9.45	15.32	18.19	25.57
Category IV (low)	11.38	6.80	11.00	13.05	18.36
Total	40.42	24.25	39.27	46.63	65.57

Morrison-Maierle Environmental. 1996.
* From MDT Wetland Site Evaluation Forms
This table has been added to the final EIS.

Table 7.10-3 Proposed Wetlands Affected by MDT Preferred Alternative versus Replacement Wetlands

Wetland Type	Estimated Affected Acres	Prominent Functions* at Affected Wetlands	Estimated Acres at Replacement Wetlands	Prominent Functions* at Replacement Wetlands
Emergent	9.89	SF, EC, WH, FCS, NC	20.9 (total both types)	TES, WH, REP, FCS, SF, EC, NC
Emergent/Open Water	2.85	TES, WH, EC, FCS, REP, U		
Emergent/Shrub	5.37	FCS, EC, WH, NC, GDR, SF	14.9*** (total both types)	FCS, TES, WH, FC, NC, GDR
Forested/Shrub	9.5	TES, GDR, WH, FCS, SF, FC, EC, NC, U		
Emergent and Shrub Excavated Ditches	12.81	SF, EC	9.37	SF, NC
Total	40.42		45.17	
Overall Wetland Category **				
Category I (Exceptional Overall Rating)	6.49	FCS, FC, TES, SS, WH, GDR, U, REP, EC, NC, SF	7.4	FCS, TES, WH, GDR, REP, EC, NC, SF, FC
Category II (High Overall Rating)	6.78		28.4	
Category III (Moderate Overall Rating)	15.77	SF, EC, WH, FC, NC	9.37 (excavated ditches)	SF, NC
Category IV (Low Overall Rating)	11.38	SF		SF
Total	40.42		45.17	

* Prominent Functions (as determined using MDT wetland site evaluation forms. Functions generally rating as "high" or "exceptional" at wetlands representative of each type are indicated as prominent functions.):

EC - Erosion Control
FCS - Food Chain Support
HD - Habitat Diversity
REP - Recreation/Education Potential
SS - Sensitive Species Habitat
U - Uniqueness
FC - Flood Control & Storage
GDR - Groundwater Discharge/Recharge
NC - Nutrient Cycling
SF - Sediment Filtration
TES - Threatened and Endangered Species Habitat
WH - General Fish & Wildlife Habitat

** As determined using MDT wetland site evaluation forms.

*** Total does not include proposed enhancement/restoration of woody vegetation along Post Creek on the Yatchak property.

The potential for disturbance of wetlands and riparian areas resulting indirectly from forecasted increasing traffic (e.g., fuel spills and other accidents) is not expected to increase substantially due to proposed traffic safety improvements. (Section 7.1.2)

~~Table 7.10-1 lists wetlands that will be impacted along the existing alignment.~~

Temporary ~~Indirect~~ impacts to wetlands and riparian areas would be ~~are~~ minor and would include ~~, including~~ temporary effects on wildlife, vegetation, and surface and ground water flow and quality during construction. ~~Unavoidable environmental effects also include minor temporary damage to some existing wetlands adjacent to the construction site.~~ These would ~~This might~~ result from ~~occur through~~ temporary draining or ponding of water, operation of machinery along wetland edges, sediment washed into wetlands, and disturbance of wildlife and vegetation. Following construction, temporary impacts would result from periodic clear zone maintenance and other maintenance activities.

7.10.3. Arlee, Ronan and Polson Alignments

Table 6.10-1 (Appendix A) lists individual estimated impact acreage for all wetlands and non-wetland riparian areas with alternative alignments and lane configurations. A summary of wetland and riparian area impacts by alignment and lane configuration is presented in Table 7.10-1. Estimated impacts by wetland type and overall rating category under the existing alignment and alternative lane configurations are summarized in Table 7.10-2.

Types of direct, indirect, and temporary impacts to wetlands and riparian areas under implementation of alternative alignments and lane configurations would be similar to those discussed in the preceding section. The magnitude of these impacts would vary with the amount of wetlands and riparian areas affected, which, in turn, varies depending on the combinations of alignments and lane configurations selected for analysis. Depending on the combinations selected, direct wetland impacts could range from approximately 24.25 to 84.2 acres, while impacts to riparian areas could range between 3.7 and 11.89 acres (Table 7.10-1).

<u>Alternative Alignments</u>

As shown in Table 7.10-1, the alternative alignments through or around Arlee, Ronan, and Polson would directly impact more wetlands than would the existing alignments in these areas, regardless of the lane configuration selected. In the Arlee area, Arlee Alignment 4 would result in the most wetland impacts (including a new crossing of the Jocko River), generally followed in decreasing order of impact by Alignments 3, 2, and 1. Arlee Alignment 2 would generally result in the least impact to non-wetland riparian areas. In the Ronan area, Ronan Alignment 4 would affect the greatest amount of wetlands and riparian areas, followed by Alignments 3, 2, and 1. Polson Alignment 2 would result in greater wetland impacts, as well as more impacts to the Flathead River, than would the proposed combination of Alignments 1 and 3 (Table 6.10-1, Appendix A). No impacts to non-wetland riparian areas would result from any of the Polson alignments.

<u>Alternative Lane Configurations</u>

Lane Configuration A would result in the least amount of wetland and riparian area impacts, followed in increasing order of impact by Lane Configurations B, C and D, regardless of the alignments selected. (Table 7.10-1)

~~Table 7.10-3 compares total estimated areas of directly impacted wetlands on alignment alternatives for each lane configuration.~~

~~Arlee Alignments 1, 2 and 3 have no wetlands on segments of the roadway in which they correspond.~~

~~Arlee Alignment 4 will have roughly the same impact on wetlands as will Alignment 1 (on the segments of the roadway in which they correspond).~~

~~Ronan Alignment 1 impacts less wetlands than Ronan Alignments 3 and 4. Ronan Alignment 2 has no wetlands, and has a marginal, unsubstantial advantage over Alignment 1. Both cross Ronan Spring Creek, but only minimal impacts to the narrow wetland along Alignment 1 are expected.~~

~~Polson Alignments 1 and 3 have equivalent, low impacts to wetlands, mostly at narrow strips along canals. Both alignments have a substantial advantage over Alignment 2.~~

~~No mitigation projects are planned that are specific to any of the alignment alternatives.~~

7.10.4. Cumulative Impacts

While the total acreage of drained and filled wetlands on the Flathead Indian Reservation has never been calculated, the Confederated Salish and Kootenai Tribes estimate that at least 30% of the pothole wetlands on the reservation have been drained over time through farming practices, road construction, and other development.[62] Additional wetland losses within the reservation are likely to result from future activities, including timber harvest and residential development; however, it is not possible at this time to accurately predict or quantify these potential impacts. Proposed projects which may affect wetlands or other waters on the reservation would be subject to the tribal ALCO permit process.

According to MDT, it is estimated that proposed highway improvement projects north of Missoula and west of the Continental Divide would result in the cumulative loss of approximately 60 wetland acres (of which approximately 25 acres would occur on the Flathead Indian Reservation) in addition to anticipated losses associated with the proposed action to improve US 93 from Evaro through Polson. Another loss of 45 acres of wetlands may result from a proposed action for improvement of US 93 south of Missoula. ~~Currently, proposed highway improvement and reconstruction projects in northwestern Montana would adversely affect 90 to 103 acres of wetlands.~~ Although wetlands would be lost or degraded by proposed highway projects, wetlands would be created or enhanced to mitigate for losses in functions and values. Consequently, no net losses of wetland functions and values should result from these projects if mitigation projects are successful. ~~The Section 404(b)(1) Guidelines specify that if projects are permitted which destroy or degrade wetlands that wetlands and their associated functions and values must be replaced so there is no net loss in wetland resources.~~ No net loss in wetland resources is (unofficial) national policy with respect to wetland mitigation.

While past wetland losses on the reservation were considerable, present and anticipated future losses would be temporary as compensatory mitigation would be provided to satisfy the requirements of the Confederated Salish and Kootenai Tribes, the U.S. Department of the Army, Corps of Engineers (COE) and the U.S. Environmental Protection Agency (EPA). Many of these projects may, as a result of required mitigation, result in the restoration of previously drained wetlands. Consequently, pending the success of proposed mitigation, the proposed action would have relatively minor cumulative impacts on wetland resources, particularly because wetland mitigation would be constructed in advance of anticipated impacts over the expected construction period.

Mitigation

Permits for placing fill in wetlands under ~~along~~ any alternative ~~the preferred alternative~~ (alignments and lane configurations) must be obtained from COE, under Executive Order 11990, and Section 404 of the Federal Clean Water Act. (Appendix C) Mitigation is discussed in this section with respect to general principles that apply to alternative alignments and lane configurations.

[62] Mary Price, Tribal Wetlands Coordinator. Personal communication.

Wetlands were ~~have been~~ ~~formally~~ delineated as described in Section 6.10 ~~with formal wetland surveys~~. Projected wetland and riparian area impacts were estimated as accurately as possible using "as built" highway plans and cross sections; increasingly accurate measurements of affected wetlands may be available as ~~will be done during final design, using~~ detailed highway plan maps are produced.

The overall wetland mitigation goal must be no net loss in wetland ~~area or quality~~ functions and values. The Council on Environmental Quality (CEQ) (40 CFR 1508.20) provides regulations for sequencing of wetland mitigation, in the following order of priority:

1. Avoidance of Wetlands. Avoiding the impact altogether by not taking a certain action or parts of an action.

2. Minimization of Impacts. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

3. Repair, Rehabilitation, Restoration. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

4. Preservation and Maintenance. Reducing or elimination of the impact over time by preservation and maintenance operations during the life of the action.

5. Replacement. Compensating for the impact by replacing or providing substitute resource or environments.

In the following sections, wetland mitigation is discussed according to these priorities.

Avoidance. Complete avoidance of all wetlands is not possible with any of the lane configurations. Immediately north of the Jocko River crossing (MP 19), however, the alignment would be shifted to the east to avoid fill placement on the east bank of the Jocko River.

As more detailed roadway design is completed, minor alignment adjustments may ~~will~~ be made throughout the proposed action where ~~when~~ practical and feasible to help reduce impacts to wetlands. ~~Several identified~~ Areas where the alignment may ~~will~~ be adjusted slightly during the design phase to further avoid wetlands, while still providing a safe highway meeting current design standards, are listed on Table 7.10-4~~12~~. In order to assess impacts conservatively, these potential shifts were not considered when calculating wetland impact acreage under any of the alternatives. As can be seen on the photographs in Appendix A, however, in most other areas shifting the alignment away from one wetland area will create similar offsetting impacts to wetlands in the direction of the shift.

Minimization of Impacts. Minimization through selection of the narrowest feasible lane configuration and the best alignment are discussed above. The following site-specific minimization measures are proposed:

At the Jocko River crossing, if the highway is widened, care will be taken to avoid rolling or sliding of fill material into the channel along the river's east bank several hundred feet north of the existing bridge. As needed, work will be done from the roadbed above, keeping machinery out of the channel.

In the Ninepipe area (Mileposts 39.5 to 44.1), placement of fill at potholes will be minimized in some locations through the use of guardrail in conjunction with nearly vertical gabion retaining walls below shoulders instead of normal fill slopes. This measure is proposed at larger potholes and where guardrail currently exists in this area. ~~Where Ninepipe pothole ponds are traversed by the existing highway, if the highway is widened, consideration will be given to using steeper fill slopes below shoulders, to minimize placement of fill in adjacent wetlands.~~ Installation of wildlife mitigation measures will help to reduce road kills. (Section 7.12)

Table 7.10-~~12~~ ~~Proposed~~Potential Wetland Avoidance Sites

From/To Milepost	Avoidance Measure Under Consideration
~~19.0 - 19.2~~	~~North of Jocko River crossing. Avoid alignment shift west into east side of channel; keep fill and machinery out of channel~~
43.3 - 44.0	Potholes in Ninepipe area, just south of Crow Creek. Shift alignment west to avoid encroachment.
48.3 - 48.8	Shift alignment east to avoid wetland encroachment
50.4 - 50.6	Shift alignment west to avoid wetland encroachment

This table has been changed in the final EIS.

Repair, Rehabilitation, Restoration. Removal of vegetation will be kept to the minimum necessary for construction and for safety.

All exposed areas will be revegetated to reduce potential erosion and sedimentation, to provide desirable ground cover, to inhibit noxious weed invasions, and for aesthetic purposes.

Perennial stream crossing mitigation measures will include mulching, reseeding, netting, plantings, and other bank stabilization/erosion control measures as discussed in Section 7.9.

Preservation and Maintenance. To assure preservation and maintenance of wetlands, MDT will purchase each mitigation site or a permanent conservation easement. A memorandum of agreement (MOA)~~MOA~~ between CSKT and MDT covering mitigation of unavoidable impacts to wetlands by highway construction ~~is complete and will~~ provides for case-by-case site development plans for replacement wetlands; disposition of land titles and conservation easements; agency coordination (including the U.S. Fish and Wildlife Service (USFWS), COE, the CSKT Shoreline Protection Office (SPO) and Aquatic Lands Conservation Ordinance (ALCO), the Interagency Wetlands Group, the Montana State Historic Preservation Office (MSHPO), the Advisory Council on Historic Preservation (ACHP), and the Flathead and Kootenai culture committees); and funding for development and management.

Annual monitoring will be conducted during the first three ~~few~~ years to determine the effectiveness of the mitigation measures, and to determine the need for additional mitigation measures or adjustments.

Road maintenance does not appear to have a substantial detrimental effect on wetlands in this area. Sand used for icy roads may be plowed into adjacent wetlands. This has not been a problem along the existing highway.

Replacement Wetlands (either created or restored) can only be used if there is no practical alternative to the discharge of dredged or fill material in a wetland which will have less adverse impact on the aquatic ecosystem and without other substantial adverse environmental consequences that do not involve discharges into "waters of the United States."

Replacement must be done according to the following priorities.

1. On-site replacement or enhancement is the preferred type of mitigation.

2. When on-site mitigation is not practical, off-site replacement or enhancement will be considered.

3. When the above are not practical, "wetland banking" will be considered; this allows the highway agency to develop wetland complexes in the general area, and then, as wetland losses occur, the acreage will be subtracted.

A mitigation plan has been prepared which demonstrates replacement for losses of wetland functions and values.[63] Mitigation of the unavoidable wetland losses resulting from the improvement of the highway would ~~can~~ be accomplished ~~done~~ using a combination of on-site and off-site mitigation. CSKT is reviewing the proposed mitigation plan ~~measures,~~ to assure that it ~~they~~ minimizes or precludes potential adverse impacts to the aquatic environment as provided by ~~CSKT~~ ALCO.

Wetlands would be restored or created on four parcels in the area, three of which are considered "onsite" and occur immediately adjacent to US 93; the fourth occurs approximately 0.5 mile from the highway. Wetlands would be created using very minor excavation commensurate with existing topography. Restoration would occur largely by plugging drainage ditches. Water would be provided to sites by groundwater, existing surface flows and irrigation water. Revegetation would initially ~~will mostly~~ occur ~~naturally~~by intense planting and seeding of wetland trees, shrubs, and emergents. ~~Proposed mitigation will involve enhancement and expansion of existing wetlands by placement of check dams, and excavation of new channels, ponds and marshes. At some riparian sites, plantings of shrubs might enhance habitat interspersion.~~ Excavated borrow would ~~will~~ be used for highway construction. Control of grazing (fencing, for example) would ~~will~~ be required at some sites. Details of proposed mitigation activities at each of the sites are presented in the mitigation plan.

Construction of mitigation sites would be staggered over the project construction period in conjunction with proposed highway construction segments. It is expected that mitigation sites offering replacement acreage that corresponds to anticipated impacts of the six proposed highway construction segments would be developed one to two years in advance of anticipated impacts.

Table 7.10-3 compares wetland types, prominent functions, and overall ratings among wetlands expected to be directly affected by the proposed action and proposed mitigation measures for wetlands. Emergent/open water and forested/shrub/emergent wetlands would be restored and created to, at a minimum, match anticipated losses of these communities. A higher proportion of emergent/open water wetlands is proposed to compensate for the expected increased indirect affects to these communities (Section 7.10.2). A portion of the proposed mitigation includes establishment of roadside ditch wetlands to compensate for expected impacts to these communities. A total of 45.17 acres of created and restored wetlands is proposed to compensate for the expected loss of wetlands.

The MDT wetland site evaluation method was applied to proposed mitigation sites in their anticipated "completed" states. As shown on Table 7.10-3, prominent wetland functions lost to construction would be replaced at mitigation sites. Table 7.10-3 also demonstrates that, if mitigation is successful, most of these sites would rate as Category I or II (exceptional to high overall ratings, respectively) wetlands.

~~Wetland projects with potential for about 107 acres of new and enhanced wetlands are now being evaluated. Some of the sites will be eliminated, others retained, with the goal of matching the mitigation area to the total area affected by the preferred alternative. Of the total area, 13% will involve enhancement of existing wetlands and 87% creation of new wetlands.~~

~~Proposed mitigation is "in kind," in close proportion to these percentages of impacted wetland types. Approximately 10% of the total mitigation area now under consideration will involve ponds, 66% marsh habitats, and 24% riparian (stream) wetlands.~~

[63]Draft Wetlands Mitigation Plan. Project F 5-1(9)6. US 93 Evaro to Polson, Montana. Morrison-Maierle. 1996.

~~**Off-Site Wetland Replacement.** Off-site mitigation of the impacts to pond and marsh wetlands in potholes of the Ninepipe area will be emphasized, rather than on-site mitigation. Off site wetland replacement and enhancement is often desirable because it is more efficient to restore and enhance wetlands in large, off site tracts, and because on-site mitigation could increase road kills of waterfowl and turtles. Various off-site mitigation tracts are being investigated throughout the area.~~

~~**On-Site Wetland Replacement.** Nineteen small areas next to ROW of US 93 are potential on-site mitigation projects. During further site studies, some sites will be eliminated because of cost, availability, lack of reliable water, poor soil conditions, or land management problems. Other sites that have not yet been identified may be encountered.~~

~~The advantage of on-site projects is that in kind mitigation is easier. Disadvantages are that many prospective wetland sites are small, and extend into adjacent private land as narrow strips along streams or as irregular marshy tracts. This makes easement acquisition, grazing control and general land use management difficult. Fencing of numerous small tracts is typical, along with long term maintenance and easement monitoring costs. There are few large sites near the highway, and reliable water sources are often not available.~~

~~Most of the prospective sites lie mostly on private land, and will require purchase of the property or conservation easements. At all sites, recommended mitigation will involve excavation of borrow to create new ponds and marsh habitat. At some sites, especially those with small streams, low check dams will pond and divert water into marshes or new channels. Various on-site wetland mitigation projects are under review throughout the area.~~

Mitigation for the expected loss of non-wetland riparian areas would primarily be achieved through the protective purchase and enhancement of a 36-acre parcel adjacent to US 93 in the Post Creek area. The wetland/riparian zone bordering Post Creek is considered an extremely high value corridor for grizzly bears and other wildlife, and has been degraded over the years by grazing of livestock. Existing riparian and wetland vegetation along the creek would be enhanced through planting of woody vegetation and exclusion of grazing. Additionally, all riparian vegetation that would be disturbed temporarily by construction activities would be restored. (Section 7.9)

Land use planning and regulation should greatly reduce potential wetland and riparian area impacts potentially resulting from increased population growth and development.

7.11. FLOODPLAINS AND STREAM CROSSINGS

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

7.11.1. Impacts Common to All Alternatives

7.11.1.1. Floodplain Encroachments

As indicated in Section 6.11.2, flood insurance studies have been performed for Missoula and Lake counties, and both counties have adopted standards for floodplain management for non-tribal lands and are participating in the National Flood Insurance Program (NFIP). Any encroachment in a designated floodplain will require a floodplain permit.

Floodplain regulations require that structural improvements create no more than one-half foot of increased flood elevation during a 100-year flood. A 100-year flood will be expected to occur on the average once every 100 years. All culvert and bridge crossings will be designed and constructed to meet this requirement.

The standards are administered by a local floodplain administrator. A floodplain permit will be required for stream crossing structures located in a delineated floodplain.

Using the one-half foot backwater criterion will limit floodplain impacts. In special cases where this criterion cannot be met, other means such as flood easements will be used to mitigate damage to surrounding property owners.

Table 6.11-1 lists the drainage crossings that have been delineated by approximate methods. A floodplain permit will not be required for drainages with no delineation.

7.11.1.2. Permit Requirements

The following permits may be required for highway improvement that affects floodplains or stream crossings:

- An ALCO 87-A permit for all perennial stream crossings will be required by CSKT. CSKT SPO will review the permit application and administer the ALCO process.

- An ALCO permit will also be required for all the smaller drainage crossings listed on Table 6.11-1. The final permit requirements for these structures will be determined after final design. Upon preliminary review of the final design, CSKT SPO will determine whether individual permits will be required for each drainage culvert or whether a project-wide permit can be submitted.

- COE requires that a COE Section 10/404 permit be obtained for all perennial and other stream crossings listed on Table 6.11-1. Upon review of the final design, COE will determine which permit classification, individual or nationwide, will apply for each crossing site.

7.11.2. No Action

With No Action, the existing stream crossings, stream crossing structures and characteristics of the floodplains will not change. Permits will not be required. Existing stream crossing and floodplain problems related to the highway will not be corrected.

7.11.3. Existing Alignment (Except Arlee, Ronan and Polson)

All existing bridges must be widened to accommodate any of the lane configurations.

~~The Jocko River bridge will likely require reconstruction because, in addition to being too narrow to accommodate the new roadway, it is too low to allow needed improvement in vertical grades. If it is widened, it will not adequately pass the estimated 100 year flood flows.~~

~~Reconstruction, instead of just widening, will be necessary at the Post Creek bridge to provide a wider opening for wildlife crossings.~~

All lane configurations will require reconstruction of the roadway on the existing alignment, with extensions of most of the existing pipe or box culverts. It will be necessary to replace most of the existing culverts with longer culverts. Many of the existing culverts are old and in poor condition. The location, elevation and grade of many others will not properly accommodate the new roadway.

Lane Configuration A will require the widening of bridges and extension of culverts because of a slightly wider pavement width and substantially flatter and wider shoulder slopes and fill slopes than the existing roadway. Lane Configurations B, C and D will require progressively greater bridge widening and extension of culverts as summarized in Table 7.11-1.

All of the reconstructed, wider bridges and reconstructed, longer culverts will be designed to adequately pass the estimated 100-year flood flows without substantially increasing historic floodplain elevations.

Allowance for fish passage will be provided at all stream crossings. Culvert crossings will be designed and constructed to allow free and unrestricted passage of fish. Crossing structures will be selected based on the least impact to fisheries, sediment load and wetland or riparian lands.

Finley Creek and Railroad Bridge. This bridge will be widened or replaced in its current location.

Table 7.11-1 Bridge and Culvert Extensions

Lane Configuration	Approximate Additional Bridge Width[1] (Feet)	Approximate Additional Culvert Length[1] (Feet)
Lane Configuration A	12	50
Lane Configuration B	36	74
Lane Configuration C	50	88
Lane Configuration D	76+	114+

Morrison-Maierle. 1993.
[1]Total, both sides, in feet.

Agency Creek

With any of the lane configuration alternatives, the opportunity exists to improve less than desirable flow conditions at the existing Agency Creek crossing. The following options are under consideration:

- Increase the size of the culvert (from the existing 18-inch pipe culvert to approximately a 42-inch pipe culvert) under the highway to convey the estimated 100-year flood flows to an existing gravel pit west of the highway and then to a drainage swale on the railroad ROW. This option will increase the flow into the gravel pit and in the railroad drainage swale but will decrease the flow in the east borrow ditch of US 93.

- Maintain the 18-inch pipe culvert size at its existing location. Convey excess drainage in the east borrow ditch of US 93 northward to a point just south of Arlee, provide a new drainage crossing adequate to accommodate the estimated 100-year flood flow under the highway and a drainage ditch westward to Finley Creek. This option may increase flood flow west of the highway and impact residences or other features located near the drainage ditch.

- Agency Creek eventually flows into Finley Creek but it will not be desirable to provide fish passage from Finley Creek to Agency Creek -- this is to help protect the natural cutthroat fishery in Agency Creek.

Jocko River. The existing bridge will be reconstructed at its existing location. If four lanes are constructed, the additional two lanes will be placed to the northeast side of the existing roadway. Wildlife crossing is not to be enhanced at this location.

The Jocko River bridge will require reconstruction because, in addition to being too narrow to accommodate the new roadway, it is too low to allow needed improvement in vertical grades. If it is widened, it will not adequately pass the estimated 100-year flood flows.

Spring Creek Near Ravalli

Because portions of Spring Creek are located immediately adjacent to the existing highway in this area, all lane configurations will require relocation of the channel for at least 300 to 400 feet.

~~Final design of the preferred alternative will include measures to mitigate the displaced stream channel with a channel change providing improved fish habitat and a crossing with improved fish passage.~~

The current conditions will be improved by providing a direct, same-location crossing of US 93 and the railroad and then placing the creek back in its natural channel west of the railroad. As with all stream crossings, it will be important to adequately protect newly constructed channels from erosion, provide adequate separation between the highway and the stream and revegetate the disturbed area.

Mission Creek. A wildlife crossing will not be desirable at this location because it will encourage wildlife to move into the town of St. Ignatius.

Post Creek. The span of this bridge will be increased to provide adequate width (45 feet minimum on each side of the stream) and clearance (minimum nine feet) for a wildlife crossing to be used by animals following the Post Creek riparian corridor.

Ronan Spring Creek. A new culvert is needed at this location. Any storm drainage systems must be treated, using settling basins or other methods, before discharging into the stream.

Fish Passage. It will be important to provide fish passage at the following creek crossings:

Finley Creek	Jocko Spring Creek
Sabine Creek	Mission Creek
Post Creek	Ninepipe Reservoir
Crow Creek	Ronan Spring Creek
Mud Creek	

7.11.4. Arlee Alignments

Alignment 1, the existing alignment, and Alignments 2 and 3 do not cross any streams and will not require the stream crossing structures.

Alignment 3 crosses the Flathead Irrigation District's R Canal at three locations and will require new irrigation crossing structures.

Alignment 4 will require new stream crossings over Agency Creek, the Jocko River, Pellew Creek and Spring Creek. The Jocko River crossing occurs in the Jocko River Canyon. Conceptual design indicates the bridge will be approximately 90 feet high and have a span of approximately 400 feet. The south abutment will require a trapezoidal fill section approximately 75 feet high and up to 500 feet wide depending on the width of the bridge lane width.

As indicated on Table 6.11-1, the Jocko River floodplain has been delineated by approximate methods in this area. A detailed hydraulic analysis during the design phase for the bridge crossing will be required to determine and document its impact on the floodplain.

Stream crossings over Agency Creek, Pellew Creek and Spring Creek will be accomplished with pipe culverts or box culverts and no particular problems are anticipated.

7.11.5. Ronan Alignments

Since the existing culvert for Spring Creek in Ronan will not accommodate estimated 100-year flood flows, any of the lane configurations on Alignments 1 or 2 will require modifications. If Alignment 3 or 4 is constructed, there will be no modification to the culvert.

Alignments 3 or 4 will require new stream crossing structure on Spring Creek southwest of Ronan and a new irrigation crossing structure for Lateral A6 of the Flathead Irrigation District. Alignment 4 will also require a new crossing structure over Ronan Canal B of the Flathead Irrigation District.

7.11.6. Polson Alignments

Alignment 1 with Lane Configuration A will require no change to the bridge structure over the Flathead River.

Alignment 1 with Lane Configuration B, C or D will require bridge widening, or a new bridge structure over the Flathead River to be located west of the existing bridge. Span lengths will be approximately 125 feet. The new bridge is estimated at a total of 1,575 feet in length.

Alignment 2 will require a new bridge structure over the Flathead River. The bridge is estimated to be approximately 1,325 feet in length. It will use 125-foot spans.

Alignment 3 will require a new bridge over the Flathead River estimated to be 750 feet long, using 125-foot spans.

7.12. FISH AND WILDLIFE

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

7.12.1. No Action

No Action will have little or no impact on wildlife habitat that is not currently disturbed or reduced in value as a result of displacement of animals from habitat near the highway. Direct mortality from vehicle collisions will increase as a result of increased traffic levels that will occur with or without the improvement of the highway.

7.12.2. Existing Alignment (Except Arlee, Ronan and Polson)

Impacts on wildlife will result from increased mortality and loss of habitat either from direct removal of vegetation or displacement of animals from areas near the highway. Direct mortality from the highway will result from animal-vehicle collisions.

Areas of wildlife habitat that will be affected by the proposed action will differ, depending on the lane configuration. Lane Configuration A will result in the smallest loss of habitat converted to pavement and grass-dominated ROW. Lane Configuration D will result in the largest loss of habitat converted to pavement and ROW, while Lane Configurations B and C will result in intermediate levels of loss of habitat to pavement and ROW.

For the 56.3 miles of highway on the existing alignment from Evaro through Polson, the most extensive habitat that will be affected by the highway improvement will be agricultural lands with hay/pasture and grain fields. Other types of habitat that will be affected include conifer forest, native (palouse) prairie, riparian and unvegetated areas. Refer to Section 7.2 for details about areas of land converted to ROW.

Lane Configuration A may provide slightly less impact risk to wildlife than will the wider lane configurations, but the difference in impact potential will not be substantial. The types of habitat that will be lost (with the exception of wetlands) with all lane configurations are not especially important or limited in the area of the proposed action. Habitat losses with all lane configurations will be not be substantial to regional wildlife populations.

Lane Configuration A may inhibit wildlife crossing of the highway less than will wider lane configurations. All lane configurations probably will exert similar levels of displacement of animals from habitat because displacement is dependent primarily on traffic volume. The existing highway and the proposed action probably have sufficiently high levels of traffic to discourage use of habitat near the highway by wildlife sensitive to noise and human activity (e.g., grizzly bear, gray wolf, elk, and mountain lion).

Lane Configuration A may have slightly less potential than the other lane configurations to cause wildlife mortality from vehicle collisions. Because Lane Configuration A will be narrower than other lane configurations, animals crossing the traffic lanes will be vulnerable to vehicle collision for less time, assuming that animals will cross a narrower highway faster than they will cross a wider highway. Wider lane configurations, however, may provide more opportunity for motorists to avoid wildlife in the traffic lanes. With Lane Configuration A, motorists will have little opportunity to change lanes to avoid wildlife collisions.

Among lane configurations, differences in mortality risk from vehicle collision will be slight. Traffic volume and vehicle speed are the primary factors influencing mortality from vehicles. Traffic volume will be high for all lane configurations.

Although vehicle speed for Lane Configuration A (two-lane highway) will be lower than the speeds for Lane Configurations B, C and D (four-lane highways), vehicles will be spaced more closely in the two lanes of traffic, with fewer gaps in the traffic stream. The higher density of vehicles with Lane Configuration A will offset the lower mortality risk associated with lower speed.

Indirect effects that could increase mortality will relate to increased human activity (e.g., subdivision and business establishments) brought about by improved access. Increased human activity resulting from the proposed action could increase animal-human interactions which could result in mortality due to legal and illegal killing. The potential impact to wildlife will depend on the species, type of habitat affected, behavior of the animal, use of habitat and success of proposed mitigation. The following sections discuss potential impacts on various species of wildlife and suggest mitigation measures. (Sections 7.2, 7.4 and 7.5)

7.12.2.1. Fish

Potential impacts on fish and aquatic habitat could result from habitat degradation from siltation, habitat alteration from construction of culverts and bridges, and channelization. Suspended and deposited sediments enter streams from unvegetated highway embankments and borrow ditches. Deposited sediments reduce habitat volume by filling pools and intergravel spaces which are critical to young fish. Fine sediments in stream gravels affect incubating eggs and developing alevins (sac embryos) by inhibiting dissipation of metabolic wastes of developing embryos in intergravel spaces.[64] Fine sediments in stream gravels also abrade, or scrape off, developing embryos and emerging fry, delay the rate of egg hatching, and reduce survival during incubation.[65] Moving suspended and bedload sediments also abrade aquatic insects (important fish food) and reduce both insect biomass and species diversity.[66] (Sections 7.9, 7.10 and 7.11)

Physical alteration of habitat can result from placement of culverts and bridges. Water velocities can increase and inhibit upstream fish movement if culverts are not sized correctly. Fish migration also can be inhibited or prevented if culvert outflows are perched above the streambed so that fish cannot enter. Bridge construction is not expected to impact the fisheries resource. Construction will follow approved construction measures used in river crossings. Impacts to fish and aquatic habitats will result if water removal from streams for dust suppression will greatly reduce flows. Low stream flows from water removal will reduce living space for fish and aquatic insects (important fish food), increase water temperatures, and make fish more vulnerable to predation.

Mitigation

Impacts to fish and aquatic habitat will be mitigated by use of BMP for erosion control. This will include constructing silt fencing to prevent sediment from the highway embankment from entering water bodies. Bales of straw also will be placed in bottoms of borrow ditches to prevent erosion and sediment transport on slopes. Disturbed areas, embankments, and borrow ditches will be quickly revegetated with perennial vegetation to stabilize soils, as specified in storm water permit documents. Buffer strips of vegetation will be left between water bodies and construction areas to trap sediment, control erosion, and maintain and enhance fish habitat.

Culverts will be sized correctly to prevent water velocities from inhibiting fish passage. Water velocities in culverts should not exceed three feet/second, and minimum water depths in culverts during periods of fish passage should

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[64]Phillips, R. 1971. Effects of sediment on the gravel environment and fish production. In: J. Krygier and J. Hall (eds.), Forest land uses and stream environment. Corvallis, Oregon.

[65]Weaver, T. and R. White. 1985. Coal Creek fisheries monitoring study No. III. Final report. Montana Cooperative Fishery Research Unit, Montana State University, Bozeman, Montana.

[66]Hynes, H. 1973. The effects of sediment on the biota in running water. Ninth Canadian Hydrology Symposium, University of Alberta, Edmonton, National Research Council of Canada.

not be less than eight inches.[67] Culverts will be placed to prevent the ends from being perched above the streambed, except at East Finley Creek. Maintaining minimum instream flows will help ensure that important fisheries are not jeopardized by water removal or inhibition of flows during construction (for instance, by coffer dams or flumes).

Site specific mitigation is proposed at the following key stream crossings.

1. North Fork Finley Creek. To prevent migration of non-native species eastward up this stream CSKT biologists suggest leaving the culvert perched. This barrier will isolate west slope cutthroat trout in the upper section of the creek from rainbow trout in the lower stream. The present culvert is perched.

2. Agency Creek. This creek is largely diverted for irrigation in several ditches at the present crossing of the highway; some water is diverted toward Arlee along the highway borrow ditch. During spring runoff, water flows in these ditches; later in the summer as flows decrease and are diverted for irrigation, the stream dries up, from west to east. Reconstructing the ditches to feed water under the highway through a ~~single open-bottom~~ culvert is recommended. This will allow fish to retreat upstream (eastward) as the stream dries up, and provide for passage of flood waters.

3. Jocko Spring Creek. A~~n open-bottom concrete box~~ culvert rather than a bridge will satisfy fish passage needs on this stream. The road grade will have to be raised considerably to place a bridge.

4. Sabine Creek. A~~n open-bottom~~ culvert at the highway crossing is recommended.

5. Mission Creek. A~~n open-bottom~~ 13-foot culvert with an additional 20-foot cement box culvert for wildlife passage, or a 40- to 75-foot bridge span, are being considered for bear and other wildlife passage. Either of these two design options will provide an adequate stream bed for fish passage.

6. Post Creek. To facilitate wildlife crossings under the highway, an extended, 100-foot long bridge is proposed. The fishery will also benefit because the stream will have an undisturbed bed, and be free to shift laterally under the bridge.

7. Crow Creek. A new culvert will be provided at this location and will be constructed to provide fish passage.

~~7~~8. Ronan Spring Creek. At the highway crossing, the stream enters a long culvert leading southwestward under a bank building; water emerges in a park one block to the southwest. A~~n open-bottom~~ culvert at the highway crossing is recommended; this will provide for fish passage and water velocity control. No substantial benefit to the fishery will result from a new bridge.

~~8~~9. Mud Creek. This creek has excellent spawning habitat, and receives both mountain runoff and spring water. Locally the stream is channelized, and banks are broken down by heavy grazing. A~~n open-bottom~~ culvert at the highway crossing is recommended.

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[67]Leedy, D. and L. Adams. 1982. Wildlife considerations in planning and managing highway corridors. Federal Highway Administration FHWA-TS-82-212.

7.12.2.2. Reptiles and Amphibians

Amphibians, such as salamanders, toads, and frogs, lay eggs in the spring in ponds and standing water. Before egg laying, amphibians move to wetlands and water bodies for breeding and may cross roads and highways. They are vulnerable to vehicle mortality when they cross roads and highways to reach breeding areas. They also are susceptible to mortality when young emerge and disperse from breeding areas to other suitable habitat.

Turtles also are susceptible to vehicular mortality when they cross highways. In the spring, turtles leave wetlands and travel to traditional upland sites to lay eggs. During the breeding season, turtles leave water and may move several hundred yards seeking suitable sites for egg laying. They are vulnerable to vehicular mortality when they are moving to and from egg laying sites. Newly hatched turtles also are vulnerable to mortality if they must cross highways and roads to move from hatching sites to wetlands or during spring or fall dispersal.

Currently, high rates of turtle mortality occur in the Ninepipe-Crow Creek area on US 93. Increasing the width of the highway will increase the mortality risk to turtles, amphibians, and other reptiles. With a wider highway, amphibians and reptiles will spend more time crossing the highway, thereby increasing the probability that they will be struck by vehicles.

<u>Mitigation</u>

Highway mortality to turtles and other amphibians and reptiles may be reduced if effective, practical designs can be developed for encouraging them to cross under the highway in culverts rather than travelling over the highway. Biologists representing CSKT, USFWS and MDT currently are evaluating several proposals, including placement of one-foot high concrete "drift fence" to direct turtles towards proposed and existing culverts under the highway at some of the larger ponds. If it is determined these designs will be effective and practical, they will be implemented during project construction.

Locations where turtle mortality is most concentrated and where these crossings may be most effective include: 1) near the scenic turnout south of Ronan, 2) south of Crow Creek, 3) and 4) the two large permanent wetlands split by the highway in the area of the Ninepipe National Wildlife Refuge.

7.12.2.3. Birds

Highway construction can have both positive and negative impacts on bird habitat and food availability. Increased mortality will occur resulting from vehicular collisions. A nesting area for bank swallows will be displaced by widening the highway through the narrow portion of the Jocko River Canyon south of Ravalli because widening the highway will remove the steep banks of lacustrine sediment at the edge of the existing highway.

Typically, roadsides and borrow ditches provide relatively dense and succulent vegetation growth due to enhanced moisture runoff from paved roadways. Increased growth of vegetation along highways often leads to larger populations of insects and small mammals, important food for hawks, owls, and other birds.[68,69] Vegetated roadsides and borrow ditches also provide nesting cover for pheasants, gray partridge, and ducks.[70,71] Bridges provide nesting sites for cliff swallows, barn swallows, pigeons, dippers, and other birds adapted to rock and cliff nesting.

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[68]Huey, L.M. 1941. <u>Mammalian invasion along the highway. Journal of Mammalogy</u> 22(4):383-385.

[69]Ferris, C. 1974. <u>Effects of highways on red-tailed hawks and sparrow hawks</u>. Master's Thesis. West Virginia University, Morgantown, West Virginia.

[70]Oetting, R. and J. Cassel. 1971. <u>Waterfowl nesting on interstate highway right-of-way in North Dakota</u>. Journal of Wildlife Management 35(4):774-781.

[71]Leedy, D.L., T.M. Franklin, and E.C. Hekimian. 1975. <u>Highway-wildlife relationships, Volume 2</u>. Annotated bibliography. Report No. FHWA-RD-76-5.

Although food and habitat values can be improved along highways, attraction of birds to roadsides increases mortality risk due to vehicle collisions. Fences and utility poles that parallel highways provide perch sites for hawks, owls, ravens, and magpies seeking insects, small mammals, and animals killed by vehicles. Birds often are hit by vehicles as they pursue prey or are attracted to other road-killed birds and animals. Birds, such as ducks, pheasants, gray partridge, horned owls, and larks, are vulnerable to traffic because they seek roadsides for grit in winter when other areas are snow covered.[72] Other birds commonly frequenting the roadside, also vulnerable to mortality from traffic, include Brewer's blackbird, red-winged blackbird, meadowlark, American robin, and American kestrel.

Currently, in the Ninepipe-Crow Creek area pheasants and waterfowl experience high rates of mortality along US 93. Duck broods cross the highway when moving from upland nesting areas to wetlands. Canada geese also are vulnerable to mortality on the highway because they often nest on small ponds and move to Ninepipe Reservoir for young rearing.[73] Canada geese with young have been documented to travel a mile or more from nest sites to larger water bodies.[74]

Mitigation

Reduction of mortality to raptors by providing additional perches in open, agricultural areas and grasslands away from the highway ROW was considered. Typically, in the Mission Valley most perch sites are power poles and fencelines along roads and highways. However, birds still will be attracted to the highway because of road-killed prey and high populations of insects and small mammals usually present along roadways. Few birds are observed scavenging on the existing highway. Little benefit will be obtained by construction of perches, and this mitigation measure is not recommended along the existing alignment. Raptor proofing of powerlines is necessary. Refer to Section 7.13.4 for discussion of bald eagle mitigation along Polson alignments.

Reduction of mortality to duck broods by constructing underpasses linking wetlands or wetlands and upland breeding sites on either side of the highway was considered. This mitigation measure will require use of 52-inch culverts or larger. Because this form of mortality is low and use of such large culverts is not cost-effective, it is not recommended.

The Migratory Bird Treaty Act ~~prohibits~~includes prohibitions on the killing, pursuit, taking and hunting of all migratory birds, including swallows. Impacts to bank swallow colonies~~swallows~~ could be reduced by constructing after the swallows have nested and young have left the nest. Nesting and rearing occur April through July. By leaving near-vertical cuts in lacustrine sediments adjacent to the highway south of Ravalli Canyon, habitat for nesting will be replaced following construction. No revegetation will be needed at the site. All necessary slope cutting must be done before April 15. Swallows returning earlier will shift to other suitable habitats within the area. Work could probably resume in August with the start of swallow migration. MDT or CSKT biologists could refine these dates and coordinate with contractors to possibly allow a better window of construction. Any request for construction at the swallow sites after April 15 should be considered, but with the provision that no birds occupy the colony at the time of work.

[72]Hammond, M. 1941. Fall and winter mortality among Hungarian partridges in Bottineau and McHenry counties, North Dakota. Journal of Wildlife Management 5(4):375-382.

[73]Morrison-Maierle; personal communication with West. 1992.

[74]West, W.. 1992. Annual cycle of the giant Canada goose flock at Trimble Wildlife Area. Masters thesis. University of Missouri, Columbia, Missouri.

7.12.2.4. Mammals

Impacts to small mammals (e.g., meadow voles, ground squirrels, rabbits, skunks, mink, porcupines, and muskrats) will result from vehicle collisions as they cross the traffic lanes. Impacts to larger animals will result from collision mortality and displacement from habitat near the highway.

Most studies of wildlife mortality resulting from traffic have dealt with impacts on deer. Deer mortality from vehicles is proportional to traffic volume, speed and population; however, time of day, time of year, and habitat characteristics adjacent to the highway also influence mortality.[75,76] According to Feldhamer et al.[77], deer mortality on highways is highest in areas with forest habitat adjacent to highways and lowest where broad, uninterrupted areas of agricultural lands abut ROW. More deer are killed in fall and spring than during other seasons because forbs and grasses along ROW are the first to green-up and remain succulent into fall.

In 1988, O'Gara and Harris[78] studied deer mortality in the Swan Valley of Montana and found that 90% of deer killed in winter along MT 83 were in poor physical condition. They hypothesized that sick or malnourished deer travel on highways plowed clear of snow because movement requires less energy. Also, weakened deer are not alert and cannot easily jump or climb snowbanks along roads to avoid traffic.

Expansion of US 93 may result in somewhat greater displacement of sensitive species of wildlife; however, the existing highway with its high traffic volume probably exerts a near-maximum level of displacement under current conditions. The expanded highway width may deter some species or individuals of some species from attempting to cross the open traffic lanes. The extent to which animals will be inhibited from crossing the expanded highway will depend primarily on the specific behavioral characteristics of the animal trying to cross, including its response to crossing openings, changes in substrate, cover requirements and traffic volume. Although it will be desirable for animals to use habitat on both sides of US 93 to reduce habitat fragmentation, mortality risk increases when animals cross the traffic lanes. Widening the highway and constructing steep vertical slopes in some parts of Ravalli Canyon, which is the only segment of the proposed action in which highway improvement may increase steep slopes in a wildlife crossing corridor, will inhibit and may preclude crossing of wildlife in some areas.

Mitigation

Attempts to mitigate lethal deer-vehicle encounters have met with mixed success. In 1986, Feldhamer et al.[79] expressed the view that the most common approach is a warning sign; however, signs appear to be of little value in reducing the number of road-killed deer. Roadside mirrors also have been ineffective in most, but not all, instances. Highway underpasses of sufficient size (13 x 59 x 49 feet - height x width x length) were effective in allowing migratory mule deer to cross under an interstate highway in Colorado, although deer were reluctant to use them.[80] In 1976, Ward et al.[81] found that elk will not use underpasses to cross an interstate highway in

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[75]Leedy, D.L., T.M. Franklin, and E.C. Hekimian. 1975. Highway-wildlife relationships, Volume 2. Annotated bibliography. Report No. FHWA-RD-76-5.

[76]Leedy, D. and L. Adams. 1982. Wildlife considerations in planning and managing highway corridors. Federal Highway Administration FHWA-TS-82-212.

[77]Feldhamer, G., J. Gates, D. Harman, A. Loranger, and K. Dixon. 1986. Effects of interstate highway fencing on white-tailed deer activity. Journal of Wildlife Management 50(3):497-503.

[78]O'Gara, B. and R. Harris. 1988. Age and condition of deer killed by predators and automobiles. Journal of Wildlife Management 361-320.

[79]Feldhamer, G., J. Gates, D. Harman, A. Loranger, and K. Dixon. 1986. Effects of interstate highway fencing on white-tailed deer activity. Journal of Wildlife Management 50(3):497-503.

[80]Reed, D. 1981. Mule deer behavior at highway underpass exit. Journal of Wildlife Management 45(2):542-543.

[81]Ward, A., J. Cupal, G. Goodwin, and H. Morris. 1976. Effects of highway construction and use on big game populations. Federal Highway Administration. FHWA-RD-76-174.

Wyoming; however, in 1992, Becker et al.[82] cites studies in Canada which documented the use of underpasses on the Trans-Canada Highway by deer, moose, wolves, coyotes, black bears, and grizzly bears.

Studies of wildlife use of underpasses of I-75 in Florida found that endangered Florida panther and other animals, including bobcats and raccoons, crossed through underpasses to gain access to habitat fragmented by a major highway.[83,84] Underpasses and bridges were constructed so that they did not present a tunnel appearance to animals approaching the highway. A clear view of habitat from one side of a bridge or underpass to the other, to present a continuous expanse of cover was a high priority in design. A width of about 100 feet and a height of about eight feet was found to be the most cost-effective design. Extending bridges so there was at least 40 feet of land on either side of the stream also was recommended. Wing fences 10 to 13 feet high were used to direct animals to underpasses.

A wildlife overpass probably offers the best option in terms of likelihood of use by large carnivores and ungulates. Four wildlife overpasses are presently being constructed in Canadian national parks to facilitate movement of large carnivores across the Trans Canada Highway, and similar overpasses are being constructed in France to prevent the disruption of brown bear habitat and to avoid collisions.[85]

The most effective means of preventing highway-associated mortality of deer and elk appears to be through the use of nine-foot high fence along ROW to exclude animals from traffic lanes.[86,87] The use of fence, however, leads to fragmentation of habitat and can trap deer and elk on the highway ROW if they are able to skirt the edges of the fence. In areas with many access points and developments along the highway, continuous fencing is impractical and its effectiveness is greatly reduced.

The mitigation measures proposed to reduce impact risk to deer and other species of wildlife, including grizzly and grey wolf, are as follows.

1. **Wildlife Passage Structures.** The major mitigation measure that has been proposed is to build a wildlife overpass at Milepost 10.3. The overpass will include two arch structures, one over the two northbound lanes and one over the two southbound lanes. The structures will support a minimum of four feet of topsoil on which vegetation will be established to provide cover for wildlife. The structure will create a tunnel for highway traffic approximately 165 feet long.[88] ~~two wildlife passage structures in the 0.4 mile forested area east of Joe's Smoke Ring (north of Evaro).~~ Existing wildlife activity has been documented by studies conducted by CSKT.[89] These studies used camera surveillance and track surveys during 1992 and winter 1993.~~ The structures proposed are:~~

   ~~Wildlife underpasses will be constructed at Mileposts 10.3 and 10.5. The wildlife underpass at milepost 10.3 will be a three-span structure with a 60-foot center span, and the structure at milepost 10.5 will include a single 60-foot span with vertical wall abutments. At the underpasses,~~

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[82]Becker, D., D. Lipscomb, and A. Soukkala. 1992. Evaro corridor wildlife use study and mitigation recommendations. U.S. Highway 93 Reconstruction Project.

[83]Evink, G. 1992. Wildlife crossings of Florida I-75. Transportation Research Record 1279.

[84]Foster and Humphrey. 1992.

[85]Becker et al. 1993.

[86]Bashore, T., W. Tzilkowski, and E. Bellis. 1985. Analysis of deer-vehicle collision sites in Pennsylvania. Journal of Wildlife Management 49(3):769-774.

[87]Feldhamer, G., J. Gates, D. Harman, A. Loranger, and K. Dixon. 1986. Effects of interstate highway fencing on white-tailed deer activity. Journal of Wildlife Management 50(3):497-503.

[88]Morrison-Maierle Environmental Corporation, Biological Assessment, F 5-1(9)6, U.S. Highway 93, Evaro through Polson, 11 October 1996.

[89]Becker, D., D. Lipscomb, and A. Soukkala. 1992. Evaro corridor wildlife use study and mitigation recommendations. U.S. Highway 93 Reconstruction Project.

~~the highway will be divided to provide a 40-foot median to create an opening at the center of the structures to avoid a "tunnel effect" and thereby increase the use by animals crossing the highway.~~

Between about Mileposts 10.0 and ~~10.8~~10.6 (the section with the wildlife overpass~~crossing structures~~), the highway ROW will be bordered with 10-foot high fences located 150 feet from the outer edge of the borrow pit on both sides of the highway. Near the overpass~~two wildlife crossing structures~~, the fence will be aligned and connected with the structure to allow and encourage movement of animals through the overpass~~underpasses~~.

Vegetation outside fences will provide security for animals approaching the underpasses. Tree and shrub plantings that will screen animals from traffic, and will be beneficial where natural vegetation has been removed or is sparse.

Vegetation will be managed between the fences and the highway to provide escape and security cover for animals that become trapped inside of fences, and to provide good visibility near the roadway for both drivers and animals. Dead-end roads leading off the highway will be closed and revegetated.

A management plan and agreement for the Evaro wildlife corridor will be prepared. This plan will include details of land use and vegetation management at and near the structures and management for the entire area so that future rural development does not preclude wildlife movement to and from the structures. Topics which will be covered are: logging, rural homesite development, and road construction and management. A plan, with provision for funding, is also needed for monitoring wildlife usage of the overpass~~structures~~.

Post signs advising motorists of wildlife crossing the highway in the Evaro, Post Creek, Mission Creek, Ninepipe and Ravalli Canyon areas.

Close and revegetate dead-end roads leading off the highway, as part of a joint effort by CSKT, Missoula County and USFWS to develop planning for special management status in the Evaro area.

~~Noise dissipation measures in wildlife underpasses~~

2. **Extended Bridge at Post Creek.** An extended bridge at Post Creek will allow passage of deer and other animals (including grizzly). A 100-foot long bridge to replace the existing 50-foot bridge ~~under~~ is under consideration. This design will span the creek with at least 15 meters of land on either side of the stream and an average height of three meters or higher. A small grade raise of the highway will be needed to provide sufficient vertical clearance.

   Vegetation dominated by shrubs will be established both upstream and downstream of the bridge and, if possible, under the bridge.

3. **Mission Creek.** A~~n open bottom~~ 13-foot culvert for flood-water and fish passage is proposed. A 40- to 75-foot long bridge at Mission Creek was considered, to replace the existing 13-foot wide by eight-foot high culvert. This will include excavation to provide an opening, and raising roadway grade about four feet, to provide three meters of vertical clearance, and about 15 meters of land on either side of stream. This option is not recommended because of the proximity to developed areas in and around St. Ignatius, where benefit to wildlife passage will be limited.

4. **Other areas considered for wildlife crossings.** Other potential wildlife crossing sites were evaluated, including the Jocko River and the area of the Ninepipe National Wildlife Refuge. None of the other sites were identified as desirable for developing special wildlife crossing facilities.

7.12.2.5. Vegetation

Clearing and related construction activities could permanently remove individuals or small groups of plants of special concern near Ninepipe Reservoir and near Kicking Horse Reservoir.

One of the more serious concerns associated with the highway reconstruction entails the creation of habitat suitable for noxious weed colonization. Exposed soils, particularly adjacent to highways, are vulnerable to weed establishment. Off site movement from highway corridors onto adjacent land can result in serious land devaluation and productivity, added operational costs and the potential for environmental degradation through improper herbicide use. The presence of flowing water in the immediate vicinity lends an additional risk to downstream landowners concerned over noxious weed invasion. Seeds and plant fragments can travel great distances in water before resettling in a germinable position.

Mitigation

A survey of ROW ~~of the preferred alternative~~ will be done by a biologist before construction begins. This survey should concentrate on the dry range areas in Ravalli Canyon and Ravalli Hill, the Ninepipe pothole area, and any local remnants of native prairie.

In the event additional sensitive plant surveys are conducted prior to disturbance and population(s) are discovered, appropriate means of mitigating their loss will be initiated. This may include, but not be limited to, transportation to like habitats off site, seed collection and reseeding, preservation of the site if possible, and/or minor realignment. Coordination of activities with CSKT and Montana Natural Heritage Program personnel will assure that efforts to relocate or reestablish populations will have reasonable chance of success.

Weed control associated with construction activities of this nature will be approached in two phases; temporary (construction) and permanent (post-construction). A predisturbance survey and/or review of weed district records will indicate the presence or prior occurrence of weeds in the disturbance corridor. The assumption can be made that a sizable seedbank of weed seeds exists on site if either of the above conditions are met. It is imperative that noxious weeds be prevented from going to seed on exposed soils in light of the potential of one spotted knapweed plant to produce upwards of 2,000 thousand seeds in one season.

Seeds or plant fragments attached to construction equipment or vehicles and placement of contaminated fill or erosion control material are common means of weed seed introduction. ~~Judicious cleaning of equipment and selection of weed seed free materials will be employed.~~ Equipment entering the job site will be inspected to ensure that it is not carrying large amounts of soil or vegetation that may carry noxious weed seeds -- if necessary, the equipment will be cleaned.

Temporary weed control will entail careful monitoring of newly exposed soils and immediate removal of noxious weed plants. ~~Handpulling or hoeing will be employed for scattered plants.~~ Grubbed plants will be collected and disposed of if any flowers have opened. Spot spraying will be utilized if excessive numbers of weeds establish on site. Herbicide applications will be made by a knowledgeable, licensed applicator. Spraying will be timed to achieve maximum efficacy. Spraying is not recommended on topsoil stockpiles or in highly erosive areas. Short residual herbicides will be used to prevent possible phytotoxicity to newly emerged grass seedlings once seeding is conducted. In no case, shall soil sterilants be used.

Control of weeds and weed seeds will be a requirement of the construction contracts. Permanent weed control will be approached through preventive measures. Proper grading, topsoil treatment, seedmix selection and seeding operations will be employed to establish a vigorous cover of competitive, desirable species. Monitoring and removal of even small numbers of individual weeds for two to three years following disturbance will greatly enhance grass stand development.

7.12.3. Arlee Alignments

Alignments 1, 2 and 3 will have similar impacts on fish and wildlife. These impacts will be negligible.

Alignment 4 will have minor effects on fisheries in the Jocko River through construction of a bridge at a point with no existing bridge. Construction impacts will be short-term and will result from increased sedimentation. At the Jocko Spring Creek crossing, an open-bottom concrete box or culvert rather than a bridge will satisfy fish passage needs.

This alignment will have a higher potential than other alternate alignments to affect wildlife through direct mortality caused by vehicle collisions. This alignment will traverse riparian areas interspersed with agricultural land and residential areas, which provide habitat for a variety of birds, small mammals, and deer. Bald eagles wintering along the Jocko River will be displaced from riparian habitat by construction over the Jocko River at an area with little or no existing traffic. This impact will be minor because bald eagles will select suitable habitat at more secure locations along the Jocko River or other ice-free water bodies for perching and foraging.

7.12.4. Ronan Alignments

All alignments will pose similar, negligible impact risks to wildlife. Fish and fish habitat in Ronan Spring Creek will be adversely affected with all alignments as a result of increased sediment levels during construction. These impacts from sediment will be short-term and minor with appropriate mitigation.

Alignment 4 will pose slightly greater impact risks to fish in Ronan Spring Creek. Alignments 1, 2 and 3 will affect habitat that has been degraded by removal of riparian vegetation and urban development. Alignment 4 will affect higher value aquatic and riparian habitat. Sediment levels will be carried downstream to habitat with higher fish populations.

7.12.5. Polson Alignments

A potential impact common to all Polson Alignments is increased animal/vehicle collision. This impact is expected to be low, for the following reasons. ~~Wildlife near Alignment 1 are accustomed to US 93.~~ Widening the highway should not change the species' perceptions of the area. Alignments 2 and 3 are in both agricultural areas and existing rights-of-way. In general, wildlife densities are lower in agricultural areas because of the homogeneous habitat. ~~In addition, wildlife that might occur in these areas are already somewhat accustomed to disturbance.~~ Therefore, Alignments 1, 2, and 3 will not adversely impact wildlife through substantial increases in animal/vehicle collisions.

Although the highway will not impede wildlife movement, extensive development over the long term could present a barrier. Some of the area around Alignment 1 near the city of Polson is presently developed, and development likely will increase with improvement of the highway. Wildlife barriers posed by expected development near Alignment 2, which is mostly undeveloped and Alignment 3, which is presently undeveloped, could have long-term adverse impact on wildlife in the area.

<u>Alignment 1</u> will have less impact on wildlife than Alignments 2 or 3. The greatest impact to wildlife will be loss of habitat. Lane Configuration A will have the least habitat lost or converted to grass-dominated ROW, and Lane

Configuration D will have the most habitat lost or converted to grass-dominated ROW. The existing habitat generally has low wildlife densities. Approximately two acres of urban habitat will also be impacted. Areas of wetlands will be lost at irrigation canal crossings and the Flathead River. Although some habitat will be lost, no unique or limiting habitats are known in the area, and no substantial adverse impacts to wildlife are expected as a result of the habitat loss along this alignment.

<u>Alignment 2</u> will have greater impact on wildlife than Alignment 1. Most habitat lost will be agricultural. Lane Configuration A will have the least habitat lost or converted to grass-dominated ROW, and Lane Configuration D will have the most habitat lost or converted to grass-dominated ROW. Some habitat loss will also occur in wetlands at crossings of irrigation canals and the Flathead River. In addition, there will be some loss of urban habitat.

Habitats crossed by this alignment are neither unique or limiting in the area. Bridge placement could displace waterfowl and shorebirds. However, no substantial adverse impacts to wildlife are expected as a result of the habitat loss along this alignment. Mitigation measures necessary will be done through implementing those proposed for the bald eagle.

<u>Alignment 3</u> impacts are expected to be similar to those for Alignment 2. Lane Configuration A will have the least habitat lost or converted to grass-dominated ROW, and Lane Configuration D will have the most habitat lost or converted to grass-dominated ROW. No urban habitat will be impacted. Areas of wetlands will be impacted at irrigation canal crossings, depressions, and the Flathead River. Mitigation measures are those proposed for the bald eagle.

7.12.6. Cumulative Impacts

Improvement and reconstruction of highways in northwestern Montana will act cumulatively with the proposed action to adversely affect wildlife through vehicle-animal collisions, direct loss of habitat, and displacement from habitat near highways. Highway improvement generally will increase traffic speed, which will increase probability of vehicle-animal collisions; however, mortality risk from increased speed and traffic volume may be offset by increasing motorists' visibility of animals on or near the highway, increasing motorists' opportunity to avoid animals by changing lanes, and through construction of fences or other mitigation measures to reduce impacts to wildlife.

7.13. THREATENED AND ENDANGERED SPECIES

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

7.13.1. No Action

No Action will have little or no impact on wildlife habitat that is not currently disturbed or reduced in value as a result of displacement of animals from habitat near the highway. Direct mortality from vehicle collisions will increase as a result of increased traffic levels that will occur with or without the proposed action.

7.13.2. Existing Alignment (Except Arlee, Ronan and Polson)

7.13.2.1. Peregrine Falcon

The proposed action will not affect peregrine falcon nesting sites. The highway, however, passes through the Ninepipe area where peregrine falcons are occasionally present as seasonal migrants. CSKT has initiated a reintroduction program in this area. There is a slight risk to peregrine falcons from vehicle collision, particularly when they are pursuing prey and may not be aware of approaching traffic. In general, peregrine falcons are able to avoid vehicle collisions because of their high mobility and speed.

No mitigation is needed or proposed for peregrine falcon. Raptor-proofing of powerlines, mentioned in Section 7.13.2.2 for the protection of bald eagles, also may benefit the peregrine falcon and other raptors.

7.13.2.2. Bald Eagle

No nesting bald eagles will be affected by the proposed action. The nearest nests are more than a mile from US 93. This will be sufficiently far from construction activity and traffic to have negligible impact on nest and brood rearing. Eagles nesting within one to two miles of US 93 probably have become accustomed to traffic and noise levels which will change little following construction.

Wintering bald eagles will have a low probability of being affected by improvement of the highway; however, potential impacts to bald eagles could result if wintering eagles were attracted to road-killed animals. Eagles feeding on road-killed animals will be vulnerable to collisions with vehicles.

<u>Mitigation</u>

Removal of road-killed animals, as part of normal MDT maintenance operations, from ROW will reduce the potential for bald eagle impacts to negligible levels. ~~MDT will fund CSKT to remove and dispose of road killed animals.~~

Off-highway perches are not recommended, because adequate raptor perches exist away from the highway.

Raptor-proofing of powerlines is needed.

7.13.2.3. Grizzly Bear

Impacts of highways on grizzly bears include lethal bear-vehicle collisions, habitat modifications, and stress-related behavioral adaptations (such as displacement and habituation to humans). Avoidance and displacement of grizzly bears from roads have been reported by various researchers.[90] Most studies have been conducted concerning the impacts of secondary roads and trails rather than major highways on grizzly bear displacement. In 1977, Lloyd and Fleck[91] reported that grizzly bears avoided habitat within 0.5 mile of roads in southeastern British Columbia. Similarly, grizzly bears along the Rocky Mountain Front Range in Montana avoided habitat within two miles of automobile roads and four miles of four-wheel drive roads.[92] In 1988, Zager and Jonkel et al.[93] observed that grizzlies in northwestern Montana were more likely to use logged areas if the areas were adjacent to secondary and closed roads rather than near primary roads.

In 1985, McLellan and Mace[94] studied grizzly bears in British Columbia, adjacent to Montana, and found that grizzlies used habitat less if they were 300 feet or less from roads, with bears in remote areas being more sensitive to disturbance than bears habituated to humans. Data from their studies show that a disproportionately high number of bear mortalities occur near roads due to shooting.

In 1983, Aune and Stivers[95] found that increased traffic may substantially reduce available habitat. Data show that habitat as much as 0.6 mile from roads may be used less by grizzlies.

Grizzly bears generally avoid roads regardless of the productivity of adjacent habitats, but may reduce the degree of avoidance of high quality habitats during certain seasons and in years when food supply is limited.[96] In 1989, Aune and Kasworm[97] reported that bears avoided habitats within 1,500 feet of roads during all seasons; however, berry patches were not strongly avoided in fall. Berries are of critical nutritional importance in fall. In 1980, Schallenberger and Jonkel[98] found mean distances of bears from roads decreased in poor food supply years, suggesting that bears compromised security factors when stressed by food shortages.

Security cover adjacent to roads may influence how grizzly bears respond to human activities. In 1989, McLellan and Schackleton[99] never recorded a bear in cover fleeing from an approaching vehicle. Bears exhibited the strongest aversion when they were in direct view of vehicles and away from protective cover.

Responses of grizzly bears to roads may differ with the size of the road and traffic levels. In 1985, Aune and Stivers[100] reported that grizzlies often used jeep trails, occasionally used secondary roads at night, and rarely used heavily traveled primary roads. Seasonal increases in traffic volume in Yellowstone National Park during spring and early-summer resulted in increased avoidance of habitat near roads. In 1984, Brannon[101] reported that bears

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[90]Frederick, G. 1991. Effects of forest roads on grizzly bears, elk, and gray wolves: A literature review. U.S. Department of Agriculture, Forest Service, Kootenai National Forest, Libby, Montana.

[91]Lloyd, K. and S. Fleck. 1977. Some aspects of the ecology of black and grizzly bears in southeastern British Columbia. British Columbia Fish and Wildlife Branch, Victoria.

[92]Schallenberger, A. and C. Jonkel. 1980. Rocky Mountain East Front grizzly studies, 1979. Annual report. University of Montana, Border Grizzly Project, School of Forestry, Missoula, Montana.

[93]Zager, P. and C. Jonkel. 1983. Managing grizzly bear habitat in the northern Rocky Mountains. Journal of Forestry 81(8):524-526.

[94]McLellan, B. and R. Mace. 1985. Behavior of grizzly bears in response to roads, seismic activity and people. Preliminary report. Canadian Grizzly Project, Cranbrook, British Columbia.

[95]Aune, K. and W. Stivers. 1983. Rocky Mountain Front, grizzly bear monitoring and investigation. Montana Department of Fish, Wildlife and Parks, Helena, Montana.

[96]Frederick, G. 1991. Effects of forest roads on grizzly bears, elk, and gray wolves: A literature review. U.S. Department of Agriculture, Forest Service, Kootenai National Forest, Libby, Montana.

[97]Aune, K. and W. Kasworm. 1989. Final report East Front grizzly bear study. Montana Department of Fish, Wildlife and Parks, Helena, Montana.

[98]Schallenberger, A. and C. Jonkel. 1980. Rocky Mountain East Front grizzly studies, 1979. Annual report. University of Montana, Border Grizzly Project, School of Forestry, Missoula, Montana.

[99]McLellan, B. and D. Schackleton. 1989. Immediate reactions of grizzly bears to human activities. Wildlife Society Bulletin 17:269-274.

[100]Aune, K. and T. Stivers. 1983. Rocky Mountain Front, grizzly bear monitoring and investigation. Montana Department of Fish, Wildlife and Parks, Helena, Montana.

[101]Brannon, B. 1984. Influence of roads and developments on grizzly bears in Yellowstone National Park. Interagency Grizzly Bear Study Team, Bozeman, Montana.

were located at the greatest average distance from roads in summer when traffic exceeded 6,000 vehicles per day. Grizzly bears increased their degree of response to vehicles in Alaska when traffic volume and noise increased.[102]

The highway expansion will not affect grizzly bear use of habitat in the wetlands and riparian areas east of Ninepipe National Wildlife Refuge. Important grizzly bear feeding areas are sufficiently distant from the highway to prevent displacement from these lowland habitats.

Grizzly bear habitat in the area may be indirectly affected by development associated with improvement of the highway. However, it is not possible to quantify such impacts without knowledge of where such associated development may or may not occur. With or without highway improvement, the recent pattern of growth and development is expected to continue in the area from Evaro through Polson. Consequently, an improved highway would be a factor that combines with other factors to provide transportation services that support any increase in the rate of human population growth (Section 7.4). Land use planning should greatly reduce potential impacts to grizzly bear habitat potentially resulting from growth.

Both the existing highway with its high traffic volume and an expanded highway will inhibit grizzly bear movement to areas of the Mission Valley west of US 93. Grizzlies will be reluctant to approach and cross a busy highway, particularly since there is little cover to protect bears from direct view as they approach the highway. Displacement of grizzlies from habitat west of US 93 within the Mission Valley may indirectly benefit some ~~the~~ bears by ~~preventing~~reducing human-bear lethal encounters. ~~High levels of human activity and settlement in Mission Valley west of the highway may not be compatible with long-term grizzly bear survival.~~

If grizzly bears were present in the Evaro area, it is likely the expanded highway will displace them from habitats within 0.5 to one mile from the highway. Although the expanded highway will inhibit grizzly bear use of habitat in the vicinity of the highway, it is likely that this displacement will be similar to that caused by the existing highway with its high traffic volume. If grizzly bears were present in the Evaro area and attempted to cross the highway over the traffic lanes, the potential for collision with vehicles will be relatively high because of high levels of traffic.

Mitigation

Mitigating potential impacts to grizzly bears will require that safe passage of bears across the highway be encouraged, particularly in the Evaro area. Underpasses may be useful in allowing bears to safely cross the highway; however, there are little data concerning whether grizzly bears will use an underpass rather than moving over the traffic lanes. It is likely that bears will be encouraged to cross over the highway at points where dense vegetation abuts the highway ROW. Encouraging bears to cross over rather than under the highway will increase the mortality risk to bears. It is questionable whether promoting movement across the highway as a result of maintaining dense stands of vegetation along the roadway will offset the mortality risk of vehicle collision associated with crossing busy traffic lanes. In 1982, Leedy and Adams[103] expressed concern that when a highway bisects habitat occupied by threatened and endangered species, it may be better to maintain wide, closely clipped rights-of-way to discourage animals from getting on the road rather than encourage crossing and increasing mortality.

~~Suggested m~~Mitigation for grizzly bears will be construction of an extended bridge over Post Creek and construction of ~~underpasses and~~ an overpass, along with fencing and related measures, at the Evaro area (Section 7.12.2.6).

[102]Interagency Grizzly Bear Committee. 1987. Grizzly bear compendium. U.S. Fish and Wildlife Service, Missoula, Montana.

[103]Leedy, D. and L. Adams. 1982. Wildlife considerations in planning and managing highway corridors. Federal Highway Administration FHWA-TS-82-212.

7.13.2.4. Gray Wolf

Information on the response of wolves to roads is mostly limited to radio telemetry studies and wolf track surveys.[104] Wolves often travel in winter on plowed roads with low traffic volumes, but avoid roads in summer. In 1991, Frederick[105] cited data that dispersing and lone wolves (wolves not affiliated closely with a pack) typically travel over larger areas than members of a stable pack and, therefore, are more likely to encounter roads.

Wolves tend to avoid areas with high levels of human activity even though the areas may have high quality habitat and food resources.[106] Although wolves travel through the Evaro area, high levels of human activity undoubtedly discourage wolves from moving through the area and prevent wolves from expanding their home ranges to include the densely settled habitat adjacent to US 93 as permanent habitat.

Mitigation

Mitigation of impacts to gray wolves poses the same conflicts as mitigation of grizzly bear impacts. Although it is desirable to encourage highway crossing to reduce impacts of habitat fragmentation, it is undesirable to increase the risk of mortality by promoting passage over traffic lanes. The same mitigation as proposed for mammals (Section 7.12.2.4) is proposed for wolves.

7.13.3. Arlee and Ronan Alignments

Impacts to threatened and endangered species will be the same as on the existing alignment. No mitigation specific to these alignments is suggested.

7.13.4. Polson Alignments

Along all alignments, potential impacts to bald eagles are associated with construction of a new bridge over the Flathead River. Construction during the winter may displace eagles from their traditional foraging areas along the river.

Limiting the construction of the bridge and related activities to the summer will minimize impacts to bald eagles and other birds that forage along the river during the winter, which is the heaviest period of use.

Alignment 1 is expected to have the lowest impacts to bald eagles. Eagles are presently accustomed to disturbances related to the existing bridge. A slight relocation of the bridge should not disrupt current foraging patterns. Also, preferred foraging areas or perch sites are not crossed by this alignment. All known sites are downstream of Alignment 1.

No mitigation measures will be necessary for this alignment.

Alignment 2 has the highest potential for adverse impacts to bald eagles. The bridge will cross over feeding areas and shallow water perches at gravel bars (Figure 6.13-1) commonly used by four to 12 eagles during the winter for perching, hunting, feeding, and loafing.[107] Placement of a bridge in this area probably will displace these eagles.

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[104]Frederick, G. 1991. Effects of forest roads on grizzly bears, elk, and gray wolves: A literature review. U.S. Department of Agriculture, Forest Service, Kootenai National Forest, Libby, Montana.

[105]Ibid.

[106]Singer, F. 1979. Status and history of timber wolves in Glacier National Park, Montana. In: Klinghammer, E. (ed.), The behavior and ecology of wolves. Garland STPM Press, New York.

[107]Morrison-Maierle; personal communication with Becker. 1993.

Bridge design could include avoidance of gravel bars in pier placement. Bridge design could include avoidance of changes in flow patterns that impact the gravel bars downstream of the bridge. Together, these measures will maximize the potential for retention of the gravel bars.

Development of riparian habitat downstream of the new bridge could also mitigate impacts to bald eagles. The loss of raised perching sites could be replaced by cottonwood plantings or placement of artificial perching structures. Plantings and structures could be located where existing raised perching sites are limited.

In addition to raised perch sites, development of low perching sites ~~will~~could provide additional feeding perches for foraging eagles. This will be done at shallow water sites downstream of the new bridge. Large boulders, snags, or artificial materials could be placed in these areas as low perches. In consideration of safety of boat traffic in the area during the summer, these low perches ~~will~~could be designed to be exposed only during moderate to low flows.

To mitigate cumulative impacts, the acquisition of narrow buffer zones along the river banks is recommended. The buffer zones will offset impacts from potential business and residential development and restricting public access during critical time periods.[108] The size of these zones will depend on topography, and will be determined by local wildlife biologists.

Alignment 3 A new bridge on this alignment is expected to have a moderate impact to eagles. The proposed bridge is not near known shallow water or tree perch sites (Figure 6.13-1). It does, however, cross known foraging areas. A tree used by eagles for perching is about 0.25 mile upstream of the proposed crossing, but is in a developed area and will not be impacted by the bridge.

~~Because the bridge will be in a previously undeveloped and undisturbed section of the river, the extent of impacts to eagles is not known. Buffer zones to protect foraging areas, development of raised perches and shallow water sites, as described in Alignment 2 mitigation measures, will address some potential impacts to eagles at the new bridge site. However, implementation of all or some of these mitigation measures will not ensure that wintering bald eagles will not be displaced.~~

A large wetland/vegetated shallows mosaic occurs immediately upstream of the bridge site for Alignment 3. This site attracts waterfowl and is used occasionally by foraging bald eagles; primarily during winter.[109] Depending on its exact placement, the bridge may traverse the extreme downstream tip of the mosaic. However, existing human use of the site is high, including a private boat dock within the southern tip of the site and a community boat dock immediately downstream of the site. Due to the minimal direct impact to the site that would be caused by the bridge, the relatively high existing levels of human use and the relatively low existing levels of bald eagle use, impacts to bald eagles resulting from encroachment on the wetland by a new bridge would not be severe, although some displacement would occur.

Construction of the new bridge for Alignment 3 would likely displace eagles which forage in the immediate area. Because eagles often frequent areas close to human activities and habitations, it is likely that some eagles would become habituated to the new bridge and routine associated traffic, and would continue to forage in the area. In a study conducted to assess behavioral responses of wintering bald eagles to human activity, Stalmaster and Newman (1978) found that wintering eagles can become habituated to routine human activities. They concluded that human activities directly on river channels, such as boating and fishing, were most disturbing to eagles if these activities did not regularly occur there.

[108]Steenhoff, K. 1993. Raptor Biologist. Personal Communication. BIM Raptor Research and Technical Assistance Center, Boise, Idaho.
[109]Becker pers. comm., 1995

If construction of the new bridge for Alignment 3 were limited to the traditional construction, impacts to birds foraging along the river during winter (the heaviest period of use) would be further reduced; however, some displacement would likely still occur.

7.13.5. Cumulative Impacts

Reconstruction and improvement of highways that traverse grizzly bear and wolf habitat, in the Northern Continental Divide Ecosystem, will act cumulatively with the proposed action to increase mortality risk to grizzly bears and wolves; inhibit movement between adjacent parcels of habitat divided by highways; and displace bears and wolves from habitat near highways.

Improvement of MT 83 through the Swan Valley, US 2 between East and West Glacier, and MT 200 in the vicinity of Rogers Pass, will affect wolf and grizzly bear movement between habitat bisected by the highways. Widening traffic lanes and removal of vegetation from ROW likely will inhibit movement of some grizzly bears and wolves across the highway. Increased traffic volume and vehicle speed, resulting from highway improvements, will increase the risk of mortality due to vehicle-animal collisions; however, highway improvements would also increase motorists visibility of animals on or near the highway and allow avoidance of collisions. Widening highways would also provide a greater opportunity for drivers to change lanes and avoid animals.

In the Swan Valley, upgrading of MT 83 has been designed to minimize impacts to grizzly bears through habitat fragmentation by identifying and maintaining zones where grizzly bears (and other wildlife species) can approach and cross the traffic lanes with relatively high security. These zones are known as habitat "linkage zones" and have been established in areas where vegetation and topography are conducive to grizzly bear use of habitat near the highway.[110]

7.13.6. Determination of Effect

It has been determined the proposed action is not likely to adversely affect the threatened grizzly bear, the endangered gray wolf, the endangered peregrine falcon or the threatened bald eagle.[111] The US Fish and Wildlife Service has concurred with this determination.[112]

[110]Montana Department of Transportation. 1993

[111]Morrison-Maierle Environmental Corporation, Biological Assessment, F 5-1(9)6, U.S. Highway 93, Evaro - Polson, 11 October 1995.

[112]McMaster, Kemper M., Field Supervisor, Montana Field Office, Ecological Services, Fish and Wildlife Service, United States Department of the Interior, letter dated 07 December 1995. A copy of this letter is included in Section 2.2., comment A-199 of Volume II of the final EIS.

7.14. CULTURAL RESOURCES

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

7.14.1. Impacts Common to All Alternatives

Potential adverse effects associated with the proposed action to eligible, formally recorded cultural resource properties could include physical, visual and auditory effects. Whether or not an effect is considered to be an "adverse effect" will depend upon the character of significance of specific eligible resources. General guidelines for determining adverse effect are provided in the ACHP criteria of Adverse Effect as defined in 36 Code of Federal Regulations (CFR) 800.3:

Adverse effects on formally recorded National Register of Historic Places (NRHP) or eligible properties may occur under conditions which include but are not limited to:

1. Destruction or alteration of all or part of a property;
2. Isolation from or alteration of the property's ~~surrounding environment~~setting;
3. Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
4. Neglect of a property resulting in its deterioration or destruction;
5. Transfer or sale of a property without adequate conditions or restrictions regarding preservation, maintenance, or use.

Of the five listed conditions, the first three are most applicable to the proposed action. Physical effects may include ground disturbing construction activities that result in the alteration of resources that contribute to the eligibility of a property. With regard to historical properties with standing buildings, this could include the destruction and/or removal of resources associated with the property, including buildings, structures and landscaping elements. Traditional cultural properties are also susceptible to physical effect, since the character of the setting may be primary to the eligibility of the property. Archaeological properties (both historic and prehistoric) may be adversely affected by ground disturbing activities, if the depositional integrity of artifacts is disturbed.

Visual effects associated with the proposed action may be considered "adverse" if they alter the setting of an eligible property by the introduction of incompatible elements of the relationship of one eligible property to another. For example, the construction of a roadway that is of a much larger scale or at a different grade than the existing roadway could alter the setting of a property in a manner that impacts the qualities that contribute to its significance. In general, the impact of visual effect is considered only in relation to cultural resource properties for which integrity of setting is an important integral component of eligibility. These types of properties are usually those eligible under NRHP criteria A or B. Cultural resource properties eligible only for their architectural value (criterion C) or their information potential (Criterion D) tend not to be susceptible to, or adversely affected by, visual effects. With regard to the proposed action, rural homesteads and traditional cultural properties are the property types that may be susceptible to visual effects.

Like visual effect, audible effect associated with the proposed action may be considered adverse if it impacts the qualities of significance of an eligible property. With regard to the proposed action, auditory effects may include an increase in the overall traffic noise level. Traditional cultural properties are particularly susceptible to auditory effects, since the addition of traffic noise, or an increase in traffic noise, may impact the sense of isolation and permanency of the site. In some instances, the continued use of a site will depend upon the retention of a private natural setting.

With regard to formally recorded cultural resource properties, the long-term effects may be difficult to assess and document. Generally speaking, an improved highway has the potential to contribute to changes in land use, which in turn likely will affect previously unrecorded cultural resource properties. Development such as subdivision of lands, and the improvement or construction of additional secondary road systems, have the potential to create additional physical, visual and auditory effects that could impact significant cultural resources. However, it is likely the case that many cultural resources will go unrecorded since this type of development may fall outside the auspices of federal cultural resource compliance legislation. For these reasons, it will be difficult to predict and document cumulative long-term effect, and to determine its impact to important cultural resources.

A more clearly discernable long-term effect will be the effect on the traditional cultural values of the Salish and Kootenai people. Although the construction of the proposed action in and of itself may not substantially alter the existing road corridor, the long-term effects of improving the transportation system could generate indirect effects that threaten the "cultural environment"--those qualities that are essential to the preservation of Native American culture and spiritual values.

One of the primary concerns is that an improved highway between the Mission Valley and the city of Missoula will result in the former becoming an "overwhelmingly non-Indian suburbia."[113] Improved access will make commuting between the Mission Valley and Missoula more attractive to current "city-dwellers," who want to move to a more rural setting. This in turn may affect the sense of Native American "community" which currently exists in some areas of the reservation. (Sections 6.4 and 7.4)

The pattern of subdividing agricultural lands (which already is underway), has the potential not only to "fill up" currently open lands, but to destroy or to make inaccessible, areas that contain natural resources of cultural significance to the Salish and Kootenai people. The elimination of plant gathering areas, the disruption of animal migration routes, and the reduction or elimination of some species of reptiles, birds, mammals, fish and plants from the reservation--all have the potential to adversely affect the natural and thus the cultural environment. The Flathead and Kootenai cultural committees fear that construction of an improved transportation corridor within the reservation has the potential to bring yet another segment of reservation land under national and regional scrutiny and regulatory control.

As discussed in Section 7.12, impacts to fish and wildlife will occur through either loss of habitat, or by direct mortality resulting from vehicle collisions. The current highway alignment bisects several wildlife corridors and results in relatively high mortality rates among some species of animals (notably turtles in the vicinity of the Ninepipe Wildlife Refuge). The extent of this impact is not limited to the direct effect to fish and wildlife populations; it also impacts traditional Salish and Kootenai cultural values, which, as stated previously, are predicated upon the primary relationship between people and natural ecosystems. When fish and wildlife populations are reduced or displaced, the well-being of the tribal culture also is affected. The alternative that requires the least disturbance to fish and wildlife habitat would be preferred.

The effects of increased noise levels on cultural values may be felt at a variety of levels. There is the cumulative effect that is felt by the general population, as they go about their daily life and find that the quality of their environment has been degraded by new or amplified noise. This degradation may be realized in a number of ways: By noticing a change in environmental systems due to noise-related impacts (e.g., the abandonment of nesting sites, etc.); or by the realization that the level of traffic noise has increased so that it is heard from a greater distance, at different times of the day, or at different seasons of the year.

Specific cultural practices may be directly affected if Salish or Kootenai people are forced to abandon the sites where these activities occur. As discussed in Section 6.14.3, the use of an area for these types of purposes may be

[113]Letter from Flathead Culture Committee to Mr. Michael T. Pablo, Chairman of the Confederated Salish and Kootenai Tribes. June 4, 1992, p.5.

dependent upon the conditions of purity, privacy, isolation and permanency of the site. Pollution of any kind, including intrusive noise, may render a site unusable.

As with impact resulting from an increase in noise level, lowering of water and air quality standards could affect the cultural environment of the reservation (as well as the health of its residents), by further degrading the natural environment.

Mitigation

When adverse impacts to NRHP eligible cultural resource properties cannot be avoided, property specific mitigation plans have been developed which address the qualities of significance inherent in the eligible property. Mitigation plans have been developed and approved within the context of an MOA for each site between the sponsoring federal agency (in this case FHWA and its representative MDT) and MSHPO. ACHP is also party to each of the MOAs. These mitigation plans and MOAs are discussed, for each site where direct use cannot be avoided, in the Section 4(f) Evaluation in Chapter 12.

Mitigation of adverse effects to traditional cultural sites may be more difficult. In order to avoid as many cultural sites as possible, MDT and CSKT will consider methods to use the Tribes' cultural clearance permit to enhance consultation during the design and construction process.

With regard to specific culturally significant areas, avoidance of impact may be achieved through a coordinated consultation process between design engineers and representatives of the Flathead and Kootenai culture committees. Coordination with representatives of the culture committees will occur prior to the beginning of each design project and continue through the construction phase of the project.

Coordination will include a preliminary field visit during which the design engineering team will identify design options (general routing, lane widths, etc.) to representatives of the Flathead and Kootenai culture committees. The culture committees will present the results of this preliminary on-site meeting to their tribal elders.

A second on-site meeting will be held, during which representatives of the culture committees will provide information from the elders to the engineering design team. The process of consultation will continue through the construction period and may include additional on-site visits. Culture committee members may wish to monitor the project area during the construction phase -- this will be coordinated directly with the construction contractor.

~~Thus far the Flathead and Kootenai cultural committees have not identified any mitigation methods specific to traditional cultural properties other than avoidance. The Flathead Cultural Committee has worked directly with transportation engineers to avoid culturally sensitive properties.~~

Mitigation of long-term effects to traditional values of the Salish and Kootenai Tribes will be addressed with two types of action:

1. Using traditional Native American and English languages for highway signs:
   - Major highway signs entering and leaving the Flathead Indian Reservation
   - Community signs located on highway right-of-way for all major communities located on the Flathead Indian Reservation
2. Establishment of two visitor information centers to be located and designed in cooperation with tribal architects and the Flathead and Kootenai culture committees.

7.14.2. No Action

No action will have no effect on NRHP eligible cultural resource properties or the traditional (confidential) cultural properties located within or near the proposed action.

7.14.3. Impacts at Eligible Sites

Table 7.14-1 indicates the effects of the proposed action, at each of the NRHP eligible sites (Table 6.14-1), as determined by MDT with the concurrence of MSHPO.

Lane Configuration D has not received substantial public or agency support and, in many cases, will cause substantially greater environmental impacts and will require substantially more use of Section 4(f) lands than Lane Configurations A, B or C. It has not been evaluated for impacts to NRHP eligible sites.

Lane Configurations B, C and D on Alignment 1 in the city of Polson have not been evaluated for impacts to NRHP eligible sites because they are not part of the MDT Preferred Alternative in this area (Section 5.3).

As indicated on Table 7.14-1, the following sites will be adversely impacted by the proposed action.

Ravalli School (24LA131)

Because concrete curb and gutter is planned through Ravalli, ROW requirements can be reduced and the ROW boundary will move only five or 10 feet closer to the site with Lane Configurations B or C, which will result in the direct use of 0.02 and 0.03 acres -- no new ROW or direct use of the site will be required with Lane Configuration A. Lane Configuration A will not move highway traffic closer to the site while Lane Configurations B or C will place highway traffic approximately 43 or 48 feet closer to the site.

Although the Ravalli School building will not be directly affected by the construction of a new roadway, MDT, with the concurrence of MSHPO, has determined the site will be adversely affected by impacts to its setting. Impacts, avoidance alternatives and measures to minimize harm to this site are discussed in the Section 4(f) Evaluation in Chapter 12.

Northern Pacific Railroad, Dixon-Polson Branchline (24LA89)

It has been determined by MDT and MSHPO that this property will be adversely affected by the proposed action. Approximately 1,800 linear feet of railline will be obliterated. About 1,750 feet of new railline will be reconstructed about 100 to 150 feet from the existing line. If Alignment 2 or 3 is constructed, a new crossing of the railroad will be required. Construction of Alignment 2 or 3 will remove highway traffic from the existing alignment (and away from the railroad), but a substantial amount will remain.

Impacts, avoidance alternatives and measures to minimize harm to this site are discussed in the Section 4(f) Evaluation in Chapter 12.

Table 7.14-1 Effect on NRHP Eligible Properties

Number	Description	Milepost Location	Determination of Effect
24MO316	Evaro School	6.8	No Effect
24MO319 24LA199	Northern Pacific Railroad Grade	Crossing at 9.7, parallel from 6.5 to 7.3, 13.4 to 15.4, and 19.1 to 27.1	No Effect on 24MO319; No Adverse Effect on 24LA199
24LA131	Ravalli School	27.0	Adverse Effect
24LA133	Salzman Residence	27.2	No Adverse Effect
24LA158	Woods Agricultural Complex	38.5	No Adverse Effect
24LA159	Jenkins/Rungborg Farmstead	39.2	No Effect
24LA161	Anderson Farmstead - Barn	45.2	No Effect
24LA211	Lake Flour Mill and Granary	47.1, Alignment 4	No Effect
24LA89	Northern Pacific Railroad, Dixon-Polson Branchline	56.6 to 59.5	Adverse Effect
24LA167	Casey Dentist Office	61.0	No Effect
24LA177	Faunce House	60.6	No Effect
24LA197	Paul House	59.8	No Effect
24LA188	Tiddy House	60.3	No Effect
24LA175	Anderson Cottage	60.8	No Effect
24LA181	Poage House	60.5	No Effect
24LA204	Caffrey Place - Barn, Feature 8	59.1, Alignments 2 and 3 (2.6 Miles west of US 93)	No Effect

Morrison-Maierle and Carter Burgess, 1994.

7.15. PARKS AND RECREATION

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

7.15.1. Impacts Common To All Alternatives

Population growth and growth of tourism in the area of the proposed action and throughout western Montana will continue to increase public use of parks and recreation areas with all alignments and lane configurations, including No Action. Increasing traffic, with more noise and visual distraction, will encroach on areas used for recreation along the highway. Impacts to parks, recreation areas and wildlife refuges are discussed in further detail in the final~~draft~~ Section 4(f) evaluation in Chapter 12.

7.15.2. Existing Alignment (Except Arlee, Ronan and Polson)

Highway improvement will provide an opportunity to improve access to parks, recreation areas and wildlife and waterfowl refuges. Most of the nine scenic/historic turnouts adjacent to the highway will be perpetuated and will not be reduced in size by any of the lane configurations.

Improved access may cause an increase in public use of parks and recreation areas. In some cases, increased use may reduce the quality of the recreation experience.

Lane Configurations A, B and C will require land from the National Bison Range visitor center, which is operated by CSKT and is located on the south side of US 93 on Ravalli Hill. The Fort Connah Historic turnout near Milepost 38.8 north of Post Creek is on a steeper grade which adversely affects safety and traffic flow as recreational vehicles or trucks enter or leave it. It may be desirable to relocate this turnout. A new location should also be considered for the turnout and picnic area south of Ronan near Milepost 44; much of its area will be converted to highway ROW with Lane Configuration B, C or D, and the area also has a high water table that prohibits operation of sewage disposal facilities. Other turnouts may be constructed, as part of highway improvement projects, where desirable and appropriate and where they can be constructed without adversely affecting safety, traffic flow and the environment.

Lane Configurations B and C will require land from the National Bison Range, which is operated by the U.S. Fish and Wildlife Service (USFWS). Lane Configurations A, B and C will require land from the Ninepipe National Wildlife Refuge, which is owned by CSKT and managed by USFWS and from the Ninepipe Wildlife Management Area, which is operated by the Montana Department of Fish, Wildlife and Parks (MDFWP). None of the lane configurations, including No Action, will have direct impact on either the fishing access site or the wildlife management viewing area, which are located near Ninepipe Reservoir. Public use will not be disrupted for any of the parks, recreation areas and wildlife and waterfowl refuges.

Lane Configurations A, B and C will require land from the Kicking Horse Waterfowl Production Area (WPA), and the Duck Haven WPA. Public use will not be disrupted for the WPAs, which are operated by USFWS.

There will be no direct impact to the ballfield at St. Ignatius with any of the lane configurations, including No Action. All lane configurations may reduce the size of existing informal recreation sites by encroaching in areas with natural settings adjacent to the highway. Lane Configurations B, C and D will place traffic, with more noise and visual distraction, closer to areas used for recreation along the highway, but public use will not be disrupted if access is perpetuated to these sites. (Appendix A, aerial photographs and maps)

7.15.3. Arlee Alignments

Highway improvement will provide an opportunity to improve access to parks and recreation sites.

Alignment 1, with Lane Configurations B and C, will place traffic, with more noise and visual distraction, closer to the community park, but public use will not be disrupted for the park. Lane Configuration C will require a small part of current park land.

Alignment 2, with all lane configurations, will divert through traffic away from the existing alignment and reduce traffic near the community park. Alignment 2 will require local residents to cross the highway for fishing and swimming at Finley Creek.

Alignment 3, with all lane configurations, will place traffic, with more noise and visual distraction, closer to the powwow and rodeo grounds, elementary and junior high school playgrounds, the high school athletic field and ballfield, a community ballfield and the Jocko River Trout Hatchery.

Alignment 3 will separate the schools from the hatchery and will eliminate the use of hatchery land, for athletic activities and science education studies and observation, by the schools. The schools and MDFWP consider this a substantial adverse impact and are opposed to Alignment 3 for that reason and others.[114]

Alignment 4, with all lane configurations, will require a new crossing of the Jocko River and disrupt the natural setting used for recreation.

7.15.4. Ronan Alignments

Highway improvement will provide an opportunity to improve access to parks and recreation sites.

Alignment 1, with Lane Configurations B and C, will place traffic, with more noise and visual distraction, closer to the ballfield on the northern edge of Ronan. Public use will not be disrupted for the ballfield.

With Lane Configuration A, Alignment 2, the one-way couplet, will require land from the high school athletic field and the city park on First Avenue Southwest. It will place traffic closer to the high school athletic field, and it will introduce highway traffic, with noise and visual distraction, into a residential area. Public use will be disrupted for the athletic field and city park.

Alignments 3 and 4, with all lane configurations, will place traffic, with more noise and visual distraction, closer to the ballfield on the western edge of Ronan. With Alignment 4, Lane Configurations A, B and C will require land from the ballfield on the west edge of Ronan. Alignment 4 will disrupt public use of the ballfield.

7.15.5. Polson Alignments

Highway improvement will provide an opportunity to improve access to parks and recreation sites.

With Alignment 1, and Lane Configuration B and C, land, including some mature trees, will be converted to ROW along the edge of Ducharme Park, while the highway will encroach slightly, with more noise and visual distraction, on land along the edge of the golf course and Lions Park.

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[114]Crane, Gayle, Superintendent, Joint School District No. 8, letter dated 28 March 1994 and Ron Snyder, Montana Department of Fish, Wildlife and Parks, letter dated 24 March 1994.

A portion of the Seventh Avenue ballfield, including part of one ball diamond, will be converted to ROW if Alignment 2 is constructed.

Alignment 3 will not affect parks and recreation land.

Mitigation

ROW will be acquired only as required to construct the highway improvements in areas with land used for parks, recreation areas and wildlife and waterfowl refuges. Where direct impact occurs, alignments may be shifted away from the site. Where severe restrictions exist, where substantial environmental impacts may occur, and where safety standards are not compromised, the width of total ROW may be reduced in some areas.

7.15.6. Section 4(f) and Section 6(f) Properties

Chapter 12 discusses impacts for parks, recreation areas and wildlife and waterfowl refuges that are subject to Section 4(f) of the 1966 U.S. Department of Transportation Act, 49 U.S.C. 303 and Section 6(f) of the Land and Water Conservation Fund Act.

7.16. HAZARDOUS MATERIALS

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

7.16.1. No Action

Existing Hazardous Material Sites

As indicated on Table 6.16-1, various potential hazardous material sites exist within or adjacent to the ROW of the existing highway. With No Action, these sites will remain as they are. No substantial highway construction will occur that will alter the sites. No contaminated soil will be disturbed or removed. A Phase II hazardous materials assessment will not be conducted so sites of concern will not be further defined or evaluated and removal or mitigation plans will not be completed and implemented.

Potential for Highway Related Contamination

With No Action, safety on the existing highway will not be substantially improved so the potential for additional highway and transportation related accidents or spills will continue to exist. As traffic volumes increase, the number of hazardous material transport trips also will increase; safety will further deteriorate; and the potential for hazardous material related accidents and spills will increase.

7.16.2. Existing Alignment (Outside Arlee, Ronan and Polson)

Existing Hazardous Material Sites

~~After the preferred alternative has been selected, a~~A Phase II investigation will be conducted in the areas described in Table 6.16-1 that are ranked as high and moderate and that may be affected by the proposed action. A Phase II hazardous materials assessment targets specific sources and usually involves field sampling and laboratory analysis of the soil and/or water to determine the nature and extent of any contamination encountered. Any further investigation or cleanup often involves identification of a potentially responsible party and any additional work becomes the responsibility of that party.

Most of the highway construction in potentially contaminated areas will occur on flatter land in and around communities. Excavation will be shallow, will not be extensive and should not affect or require the removal of contaminated soils.

Because construction and ROW widths increase with Lane Configurations A, B, C and D, respectively, impacts on existing hazardous waste sites also will increase.

Some beneficial impacts may occur when removal or remediation is completed on new highway ROW for existing contaminated sites that otherwise may not have been corrected.

Potential for Highway Related Contamination

The potential for highway related accidents involving the transport of hazardous materials will decrease with the construction of any of the lane configurations because, as indicated in Section 6.1, alignments, grades, shoulder widths and other geometric design features will be improved to meet current standards. The improvements will improve safety for all vehicles, including vehicles transporting hazardous materials, and decrease the likelihood of accidents or spills.

Lane Configurations B, C or D will further improve safety and decrease the potential for hazardous materials incidents because they will be wider highways with more space for larger vehicles to maneuver.

Lane Configuration D will have added safety features related to the wider, unpaved center median which will effectively separate opposing traffic lanes and virtually eliminate head-on collisions.

Mitigation

In areas where new ROW must be acquired, negotiations and agreements between the owner and MDT will ensure that necessary removal or other required remediation work will be completed, by the parties determined responsible, before construction occurs.

Where removal of contaminated soil is required, it will be disposed of in an approved manner and location.

7.16.3. Arlee, Ronan and Polson Alignments

Existing Hazardous Material Sites

As indicated on Table 6.16-1 and as summarized in Table 7.16-1, most potential hazardous material sites ranked moderate to high are located on Alignment 1 in the Arlee, Ronan and Polson areas.

Potential for Highway Related Contamination

Because of the proximity of residences, schools and businesses, the potential for human injury related to hazardous materials spills or accidents is greater as the highway passes through the communities of Arlee, Ronan and Polson.

Table 7.16-1 Summary of Potential Hazardous Material Sites

Number of Sites Ranked Moderate to High				
Location	Alignment 1 (Existing Alignment)	Alignment 2	Alignment 3	Alignment 4
Arlee	9	None	None	None
Ronan	9	15	3	3
Polson	22	3	1	--
Chen-Northern, Inc., Phase I Hazardous Material Assessment, U.S. Highway 93 Right-of-Way Corridor: Evaro to Polson, February 1993 and Chen-Northern, Inc., Phase I Hazardous Material Assessment, U.S. Highway 93 Polson Bypass Study, June 1993.				

If Lane Configuration B or C is constructed through these communities, the hazard will increase because traffic lanes will be placed closer to homes and businesses. This may be offset by the wider roadway provided by a four-lane highway and resulting fewer head-on and rear-end collisions and greater maneuverability to avoid accidents.

Alignments 2, 3 and 4 through Arlee will move highway traffic out of the most populated area of the town and therefore away from areas of concentrated human activity. Alignment 3, however, will place the highway closer to the Arlee schools on the east edge of the town.

Alignment 2 in Ronan will place traffic in a residential area that is currently not exposed to highway traffic with related potential for hazardous materials spills and resulting potential contamination and human injury.

Alignments 3 and 4 through Ronan and Alignments 2 and 3 through Polson will move highway traffic out of the most populated area of the town and therefore away from areas of concentrated human activity.

Mitigation

Mitigation will be as described in Section 7.16.2 for Alignment 1, the existing alignment outside Arlee, Ronan and Polson.

7.17. VISUAL

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

A visual impact assessment has been completed for the proposed action.[115] The following is a summary of impacts and mitigation measures identified.

7.17.1. Visual Impacts Common to All Alternatives

The growth of traffic on US 93 in the Evaro Canyon, the Jocko Valley, Ravalli Canyon and the Mission Valley landscape units with all alignment and lane configuration alternatives, including No Action, will increase demand for highway related services. General visual quality will deteriorate if there is a proliferation of outdoor advertising or more strip development and sprawl along the highway. Foreground vegetation and landforms will be destroyed in the development process.

Mitigation

Visual quality will be highest if alignment and lane configuration alternatives vary the roadway to accommodate unique characteristics of existing land cover and landforms. Access should be limited to locations now in use to insure that higher future traffic volume will not result in development sprawl. This will cause visual fragmentation, which will confuse situations for travelers. Visual quality will be lost in the foreground view.

The following mitigation or visual quality management measures should be considered for each section of the highway. The relative importance of each measure in managing (protecting, conserving, enhancing or mitigating) visual quality in specific landscape units depends on the unique resources, patterns and character of each landscape unit.

View Sequences

Visual quality relates to specific views, as well as the order or sequence as they are experienced. The view sequence of each landscape unit has been assessed and recommendations developed. It is important to frame or preserve desirable views, buffer visual encroachments, and redirect, focus or enhance views to provide diversity and add interest to the view sequence.

Vegetation

Normal MDT practice for all highway construction includes placing topsoil on newly constructed slopes and planting, fertilizing and maintaining newly seeded areas until vegetation is established. MDT uses grasses and shrubs that are native to the area and will establish themselves and survive without long-term irrigation. Preservation and enhancement of vegetation includes reclamation seeding to provide landcover, reduce unsightly erosion and visually integrate the highway into the visual environment. Other potential landscaping items that can be completed, if funding and maintenance commitments are available, may include:

- Revegetation with woody plants is appropriate where existing buffers between conflicting land uses are destroyed or important vegetation patterns are disturbed, such as along drainages and forested corridors. Preservation of existing vegetation will retain the character and composition of the

[115] Fischer & Associates, Visual Impact Assessment, U.S. Highway 93, Evaro to Polson, March 1993.

landscape and minimize the perception of encroachment by providing visual separation of the highway and development.

- Retaining existing vegetation will provide foreground and middle ground interest, and may provide drivers with alignment clues, particularly when located along curves. Selective clearing will occasionally increase opportunity for visual access to unique visual resources. Care must be taken to avoid adversely altering views of the road.

- Vegetative screens may be introduced to mitigate the impact of man-made encroachments, particularly unsightly development located on curves and the numerous substations, gravel pits and highway maintenance facilities located along this route.

- Urban planting may contribute to overall image enhancement of communities and help delineate special districts. To be effective, plantings must be maintained and appropriate sized species and forms must be selected to be compatible with the community streetscape. Maintenance of ROW vegetation to control noxious weeds and maintain appropriate cover will be important to visual quality throughout the area.

Landforms

Generally, curvilinear alignments will visually integrate best into areas of steep topography and provide more visual interest and diversity to the route. When feasible, the road should wrap around landforms rather than cut through them. Because of the restricted ROW and, in many cases, substantial environmental impacts that may occur, substantial adjustments to provide curvilinear alignments strictly for visual quality is often not practical or desirable.

Modifications to standard sections, for the purpose of narrowing the width of the standard cross section solely to improve visual quality, is generally not appropriate because highway safety and operation will be adversely affected.~~, may be appropriate in areas where important resources will be disturbed.~~ While generally not recommended from a visual standpoint, the use of structures such as bridges, barriers, retaining walls and guardrail may be desirable if use substantially reduces the amount of disturbance to landforms.

Where disturbance of landforms is unavoidable, the feasibility and effectiveness of slope flattening, rounding, rock fracturing, picking of disturbed faces and reclamation should be assessed. When practical, the road should be designed to minimize disturbance to west and south facing slopes because they are more difficult to reclaim.

Variable slope configurations and landform modifications may occasionally be undertaken to enhance view sequences or eliminate unnatural looking remnants of landforms. Indirect benefits will be the creation of moisture pockets facilitating the establishment of native vegetation.

Water

Designing roads should respond and relate to the visual aspects of surface water features. Where practical, vegetated drainages should be bridged rather than filled to minimize disruption to important lines and avoid creating unnatural looking fills. Where bridges are impractical and preservation of existing vegetation will not be an issue, culverts should be lengthened to avoid the need for guardrail and leave more natural looking landforms.

Floodplains should be crossed at locations as narrow as possible, and they should be bridged rather than filled to preserve the natural appearance of the riparian habitat. Visual access to water amenities should be enhanced through sensitive alignments and design details which permit visual access to the resource.

Alignment

The horizontal and vertical alignments of highways affect the quality of views from and of the road. Assuming safety design criteria can be met, roads conforming to natural grades and forms will be more visually appealing than roads which interface, or connect, abruptly with landforms and landcover.

Roadside Development

Generally the existing facilities along US 93 are too close to the road and sited in less than optimum locations. To the extent practical, new sites should be selected and existing facilities upgraded to provide multiple benefits including, but not limited to, resource identification and orientation, recreation, landscape reclamation, community identification, habitat preservation and resource enhancement.

Visual quality, particularly in the valleys, is negatively impacted by signage, billboards, fencing, overhead utilities and power poles. To the extent practical, the roadway corridor should be protected from these encroachments.

Highway Structures and Appurtenances

Highway construction involves use of structures that often are visual encroachments requiring some degree of mitigation. Structures include bridges, guardrails, culverts, concrete median barriers, wildlife and livestock crossings, retaining structures, traffic signals, curb and gutter, curbed median, wildlife fencing and fencing.

Visual quality will benefit from sensitive detailing and siting. Occasionally structures may be introduced to protect visual resources. Refer to the discussion of visual impacts with design options in Section 7.17.7 for more information about the visual impacts of structures.

Land Use and Development

Land use contributes to the overall character and visual quality of views from and of the road. The visual impacts of land use will be greater in valleys than canyons because of the openness and length of views.

To protect scenic resources, MDT will coordinate access management with local governing agencies. ~~in association with MDT, should undertake comprehensive land use planning studies to address visual quality of future development along highway corridors.~~ Planning should address conservation and preservation of scenic qualities using land use planning and regulation~~zoning~~, access control, development guidelines, signage ordinances (including removal of billboards and signs) and scenic and conservation easements.

Access Management

Access points should be controlled and consolidated, and where space permits, frontage roads should be developed. Additional ROW should be acquired and access control~~development standards~~ should be adopted by MDT ~~and local governing agencies~~ to provide generous setbacks and insure visual compatibility between the highway and developed areas.[116]

Design details used to manage access include access control easements, curbs, consolidated access and frontage roads.

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[116]Condemnation of land under eminent domain will not be a method used to preserve an undeveloped corridor for an alternative alignment of the highway.

Community Interface

The visual connection, or interface, between the highway and communities may be enhanced to improve the image and provide opportunities for travelers to enjoy and be oriented to natural and cultural resources. Image enhancement and gateway concepts for individual communities require coordination of highway design with existing patterns and character.

7.17.2. No Action

With No Action, existing problems in visual quality will worsen with higher traffic volume that interrupts views and reduces visual connectedness. Visual quality in the foreground will deteriorate and enjoyment of scenic background views will be diminished. Without control of access, approaches to the highway will increase, creating more hazardous driving conditions that demand constant driver attention. Drivers will have less time to notice distant scenic views.

Continued population growth will result in residential, commercial and industrial development that diminishes visual quality along the highway. Views of and from US 93 will continue to deteriorate.

Increased traffic congestion will result in greater visual separation (the degree to which two sides of the road are perceived to be related) through communities.

7.17.3. Existing Alignment (Except Arlee, Ronan, and Polson)

Visual quality impacts related to lane configurations (Figure 5.1-4) will be associated with road section width, design flexibility and visual load/capacity as it affects driver attention requirements and consequent ability to enjoy the scenic setting.

Lane Configuration A (two-lane highway) will have a pavement width of 40 feet compared with the existing pavement widths of 32 to 40 feet. This will result in only minor changes to the visual environment. The roadway will be narrower and most easily designed to match existing conditions, resulting in less change. Where passing and designated left-turn bays are added, and road width increases, the result will be greater negative impacts on landforms and landcover.

Lane Configuration B (four-lane highway: 64-feet wide~~, or 68 feet wide if the four foot painted center median is used~~) will be wider than Lane Configuration A and further reduce visual quality for all viewers. Its greater width will be more difficult to match existing conditions. Lack of left-turn bays will maintain an existing hazard, diverting travelers' attention from scenic views. Two lanes of traffic in each direction will provide more visual openings, increasing visual access to surroundings, particularly along curvilinear alignments. Lane Configuration B will be more comfortable to drive than a two-lane highway, and drivers will be more able to view the scenery. ROW purchase will result in relocation of fences and utilities to be relocated which will improve the visual appearance of the highway.

The width of Lane Configuration C (four-lane highway: 78 feet) will result in slightly lower visual quality than Lane Configuration B. The continuous two-way left-turn center median will, however, create a generally safer left-turn movement, resulting in greater driver comfort and opportunity to enjoy views. Other beneficial impacts described above for Lane Configuration B will also occur with Lane Configuration C.

The width of Lane Configuration D, from outside edge of pavement to outside edge of pavement, including the median, will be at least 104 feet. The greater width will result in lower visual quality than Lane Configurations B and C. The unpaved center median, however, offers a greater measure of visual comfort to drivers by separating opposing traffic lanes and by inserting special lanes in the median space to eliminate hazardous turning movements, thus assuring greater enjoyment of scenic views. Use of a median wider than 40 feet may improve visual quality by enhancing the visually accommodating independent vertical alignments which will better fit with the existing terrain.

Mitigation

Where practical and feasible, without decreasing safety and creating other environmental impacts that might be more severe, variation of the horizontal and vertical alignments may provide a curvilinear alignment to conform to vegetation and landforms with the least reduction of visual quality.

Where existing overhead utilities require relocation, consideration should be given to placing them underground or locating them away from the highway. Consideration should also be given to incorporating vegetative screens at noncommercial buildings and facilities such as power substations and highway maintenance shops.

With any of the lane configurations, the number of driveways and other accesses to the highway will be reduced, partial access control will be implemented, and future accesses will be effectively limited.

Other mitigation measures will include the following:

- Retention of trees and natural vegetation except where removal is required for construction, for sight distance improvement or for other safety requirements.
- Construction of the roadway with smooth, rounded excavation and embankment slopes to match and blend in with the adjacent natural terrain as much as possible.
- Excavation and embankment slopes will generally be constructed flat enough to allow re-establishment of natural vegetation.
- Where steeper slopes are required, the newly seeded topsoil will be protected with mulch or protective mats.
- Topsoil will be placed on all new excavation and embankment slopes to facilitate re-establishment of natural vegetation. Slopes will be seeded with plant varieties native to the area. Wherever practical, and where noxious weeds do not occur, existing topsoil will be salvaged in areas of road construction and reused -- this topsoil will contain natural seeds and organic matter.
- Erosion control measures will be constructed and maintained, as described in Section 7.9, to prevent related negative visual impacts.
- Noxious weeds will be controlled as discussed in Section 7.12.

7.17.3.1. Evaro Canyon Landscape Unit

The proximity of the Evaro Canyon landscape unit to Missoula makes it more susceptible to population growth due to reduced travel time and improved convenience for workers who commute outside the area. Additional development of land in the rural, mountainous area will diminish visual quality. (Sections 6.4 and 7.4)

Mitigation

Protect the visual character and resources of Evaro Canyon by minimizing disturbance to existing mature vegetation and preserving the existing view sequence. Generally follow the existing alignment. The existing curvilinear road alignment, considered important for the scenic quality of the highway, will be maintained.

Preserve and protect existing mature conifers as much as possible since they are considered an important part of the landscape and scenery. Trees should be removed only where required for construction, for sight distance improvement or for other safety requirements.

A mitigation measure, sometimes employed to~~To~~ enhance the view sequence in areas where the road grade is unnaturally high, ~~consideration should be given~~is to lower~~ing~~ the road to reduce the need for guard rail and improve the visual relationship between the road and adjacent land and development. However, a review of the proposed action indicates that there are no areas where the roadway is unnaturally high.

The concrete glare screen located near Schley Homesites should be replaced with a vegetation screen.

7.17.3.2. Jocko Valley Landscape Unit

All lane configurations through the Jocko Valley generally will retain the sequence of long tangents and short curves that result in static views and visual discomfort for travelers. The visual disruption will continue to be reinforced by the railroad and by overhead powerlines that distract from scenic mountain views.

Other man-made developments, such as scattered businesses, billboards and residences, will remain with any of the lane configurations and will continue to influence the visual environment.

Widening of the Jocko River bridge will diminish the view from the road by removing mature trees from the vegetation line along the river and by moving travelers into the visual space of developed areas adjacent to the highway.

Views from the road will be impacted by the road alignment and associated view sequences, handling of the Jocko River crossing, changes in land use and encroachment of commercial development. Views of the road will be impacted by increasing the scale and visibility of the highway, and the conversion of new lands to highway usage likely will contribute to commercial expansion.

Mitigation

Vegetated drainages, agricultural lands and the rural landscape will protect visual quality. Visual impacts for the Jocko River crossing will be less with narrower lane configurations.

Ideally, for visual quality, overhead utilities that require relocation should be placed underground. However, utilities have indicated that placement underground is generally much more expensive. Where overhead utility lines are required, they should be placed near vertical elements that will conceal them; not where they silhouette against the sky or near heavy concentrations of viewers. ~~In Jocko Valley, this will be away from the highway and, perhaps against the toe of the mountain ranges where they will be concealed by trees, if practical and feasible.~~

~~Dirty Corner, near Milepost 15.2, is an area where consideration should be given to lowering the grades to remove the awkward appearance and enhance the view sequence.~~

Priority mitigation measures in order of importance are land use preservation, development controls, conservation of the Jocko River environment and alignment enhancements.

7.17.3.3. Ravalli Canyon Landscape Unit

All lane configurations through Ravalli Canyon will retain the awkward relationships between the Jocko River, the MRL railroad, MT 200 and the community of Ravalli. Because of limited physical space, the narrowness of the canyon and the small scale of the development, any increase in width of the highway or roadside development will diminish visual quality. The attention of travelers will be diverted from the scenery by a visually confusing landscape.

All lane configurations through Ravalli Canyon will diminish views of the major visual resources: Ravalli Canyon enclosure; National Bison Range; and the Jocko River environment. Additional pavement width will intensify the visual encroachment of the railroad and commercial development.

In the Ravalli Canyon area, south of the community of Ravalli, the existing large highway excavations in the toes of the hills east of the highway will be increased in some areas with any of the lane configurations to provide for a wider highway, to increase safety recovery areas adjacent to the highway, to improve slopes and to improve existing substandard horizontal curves. The largest excavation area is located near Milepost 25.4 (Figure 7.17-1).[117]

Approximate excavation heights in this area for each of the alternatives are summarized below:

No Action	50 Feet
Lane Configuration A	140 Feet
Lane Configuration B	160 Feet
Lane Configuration C	170 Feet
Lane Configuration D	185 Feet

Geological conditions are such that these slopes can be constructed nearly vertically, which will allow the least possible excavation into the hill sides. Thus possible adverse impacts to land use, cultural resources and wildlife habitat will be reduced. Construction of flatter slopes will require substantially greater areas of disturbance because the flatter slopes must be extended further before they intersect the slope of the hillsides. The near-vertical slopes will not necessarily provide the least visual impacts. They may be out of place because there is no vertical element in this unit except power poles.

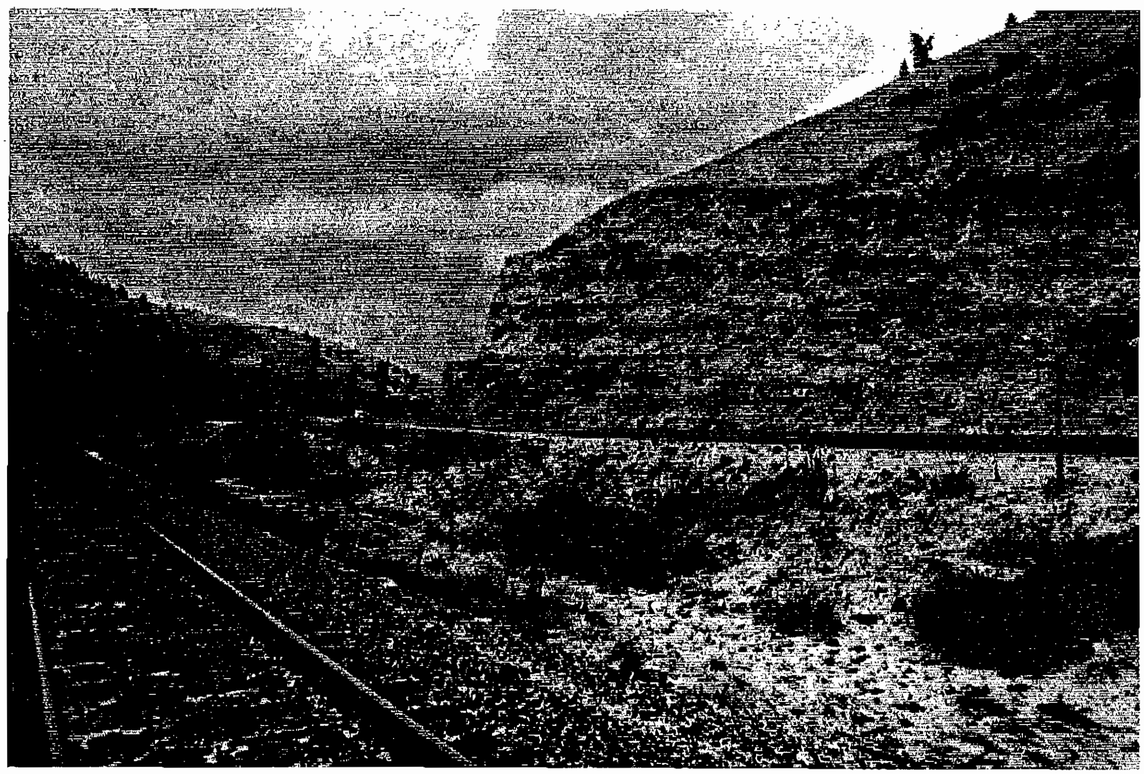
Views of the road will be impacted by the perceived and actual encroachment of the highway into private space and the increase in scale and visibility of the highway from roadside facilities and adjacent development.

Mitigation

The narrowest roadway width that will provide safety and accommodate traffic demand should be considered to minimize disturbance. Consideration should be given to narrowing borrow ditches through some of the large cut sections to minimize disturbance to important roadside landforms.

[117]This photographic representation is intended only to show the general appearance of the roadway after construction. It is not intended to show all design details, and some details may change when final design is completed.

EXISTING 2 – LANE HIGHWAY



LANE CONFIGURATION B

EXCAVATION IN RAVALLI CANYON - MP 25.4

FIGURE 7.17-1

Where landforms are disturbed, slope rounding, revegetation and fracturing of exposed rock faces is encouraged to leave natural looking forms. All disturbed areas should be revegetated with special attention given to matching existing species, particularly near the Bison Range.

Mitigation measures in order of importance are landform conservation and mitigation of disturbance, land use preservation, access and development control, vegetation protection/reclamation. The cut slopes should be graded and revegetated to restore natural looking contours, landcover, color and texture.

7.17.3.4. Mission Valley Landscape Unit

All lane configurations will retain existing long straight view sequences that some viewers may consider to be static, uninteresting and limiting for travelers' exposure to unique resources of the area.

Views of the road from St. Ignatius will be impacted by disturbance to creekside vegetation, commercial sprawl or deterioration of panoramic views.

Views of the road from roadside parks, wildlife viewing areas and commercial establishments will be impacted by an increase in road width. Views from the road will be most impacted by the width of pavement, quality of roadside development and proliferation of highway appurtenances.

Views of the road in Pablo from scattered commercial and roadside facilities will be impacted by commercial sprawl, proximity and scale of the highway to existing development and extent of disruption of existing vegetation, which will have the greatest negative visual impact near Pablo. Views from the road will be most impacted by commercial sprawl, and destruction of roadside vegetation.

<u>Mitigation</u>

Roadway width and fill slopes no wider than necessary to provide for safety and to accommodate~~d~~ traffic demand will be particularly desirable to preserve visual quality in places where the roadway passes through potholes and major wetlands in the Ninepipe area.~~, especially at vegetated creek crossings, such as the Mission Outwash adjacent to St. Ignatius; throughout the Mission Moraine at places crossing wetlands; and at places with wildlife views; and the community of Pablo where a narrow roadway will preserve mature vegetation.~~ Constructing narrower and consequently steeper fill slopes will, in many areas, require installation of guardrail which may be considered an adverse visual impact.

Some diversity in lane configuration will add visual interest to the long, straight parts of the highway.

To the extent possible, the foreground visual exposure for travelers will be enhanced by reducing excessive length of guardrails and developing and linking roadside parks in the area of Ninepipe National Wildlife Refuge.

~~To the extent possible, reduce excessive length of guardrails, and develop and link roadside parks in the area of Ninepipe National Wildlife Refuge to enhance the foreground visual exposure for travelers.~~

With protection~~Protection~~ of land use~~,~~ and mitigation of highway structures and man-made encroachments;~~.~~ sSpecific enhancements to be considered include enlarging, enhancing and linking the existing roadside parks to provide an enhanced interpretation of the resource. Other measures include pPedestrian enhancements for wildlife viewing and reduction of guardrails to the extent feasible. Introduction of additional, naturalized vegetation will~~to~~ provide foreground interest and improved wildlife habitat.

~~Include c~~Conservation of vegetation near Post Creek and smaller drainages, conservation of the rural character of the agricultural valley, and enhancement and preservation of distant views of the Mission Mountains~~. Specific~~ will be enhanced by ~~Specific mitigation opportunities include~~ vegetative screening of the electric power substation and commercial development, particularly on curves.

7.17.4. Arlee Alignments

Existing conditions and Lane Configurations A and C on the existing alignment in Arlee are illustrated on Figure 7.17-2.[118] With Alignment 1 (existing alignment) in the community of Arlee, visual quality in the foreground will deteriorate and enjoyment of scenic background views will be diminished similar to No Action. More traffic and congestion will worsen the existing visual and functional division for views of the road. Widening of the existing alignment to four lanes through Arlee will fragment an already discontinuous streetscape, removing "edge" buildings and vegetation, diminishing views from adjacent properties and encroaching on adjacent businesses and pedestrians. The scale of the road will visually and functionally divide the community, being incompatible with the scale of the community and roadside development, for views from the road.

Alignment 2 (west alignment) and Alignment 3 (east alignment) will divert traffic around the developed area of Arlee, but they will not be outside all of the area visually contained in the Arlee community. Each creates visual divisions that weaken existing forms and negate the opportunity to give Arlee added visual cohesiveness.

Alignments 2 and 3 will cross the Jocko River at the existing bridge location, visually separating all the development north of Saddle Mountain Road and in Jocko Hollow from Arlee. Any widening of the existing Jocko River crossing will disrupt a visually important vegetation line along the river, and move travelers into the visual space of adjacent users.

Alignment 3 will pass east of town, opening a major new highway view to a large concentration of viewers, many of whom will be occupied with outdoor community, private residential or school and church related activities which are sensitive to views of the highway. Although this location will provide a pleasant view for highway users with its east edge along the high wooded bank of the Jocko River, the view into private and institutional spaces on the west side of the road will conflict with and be out of scale with the highway. Alignment 3 also will eliminate future linkage of the Jocko River frontage to the town of Arlee, creating a visual unit without riverside amenities.

Where Alignment 2 passes west of Arlee it negatively exposes new residential viewers to highway views without reinforcing the logical visual boundary of the community.

Alignment 4 (Jocko Valley Alignment) will be east of Arlee and farther from the town than Alignments 2 and 3. It will connect with the existing alignment south of Arlee at a visually logical location, straight off the tangent at Dirty Corner. It will expose cropland and scattered homes to the highway, and it will cross the Jocko River at a new location presenting the opportunity to enhance the scenic visual quality with an advancing mountain view framed by river vegetation. After crossing the Jocko River, Alignment 4 curves to the northwest revealing a stunning, revolving view of the Mission Mountains.

Alignment 4 will be located on low ground, exposing some new viewers to the highway. It intersects existing field and road patterns at odd angles, without offering the compensatory value of long, scenic views.

Mitigation

If Alignment 2, 3 or 4 is constructed, the existing alignment should be retained and signed as a "business route" providing access for travelers to services in Arlee. Community gateways on the north and south ends of town should identify routes and provide the opportunity to develop community identity, combining image enhancements,

[118]This photographic representation is intended only to show the general appearance of the roadway after construction. It is not intended to show all design details, and some details may change when final design is completed.

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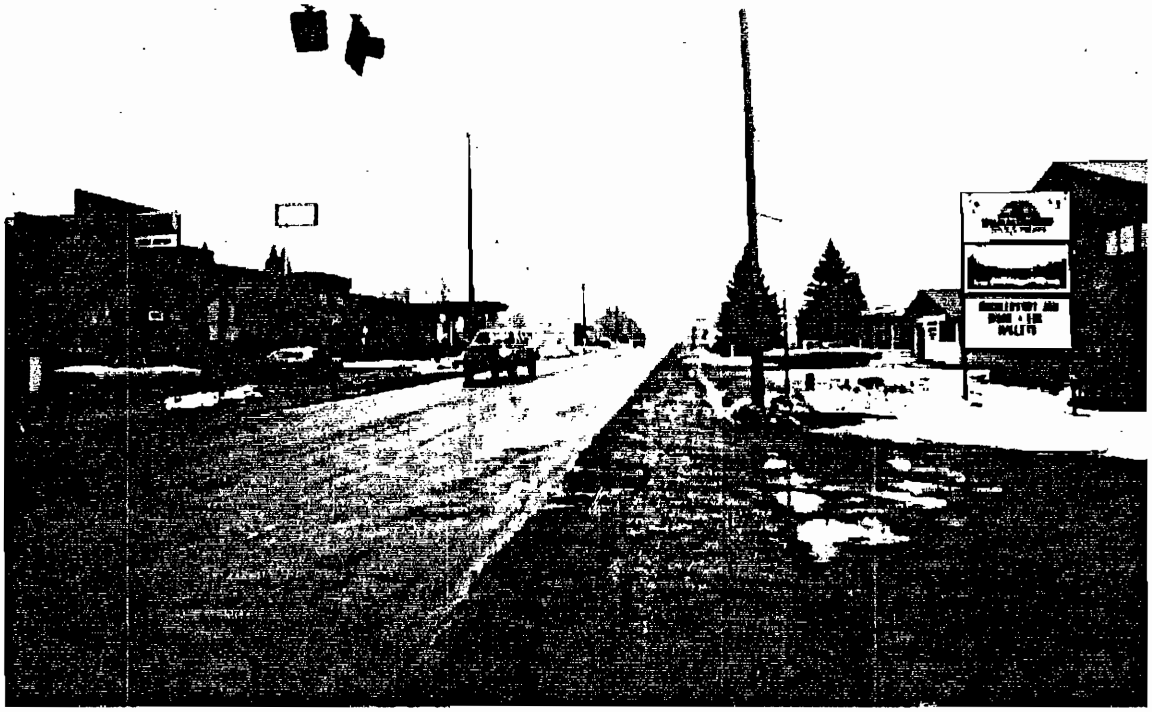
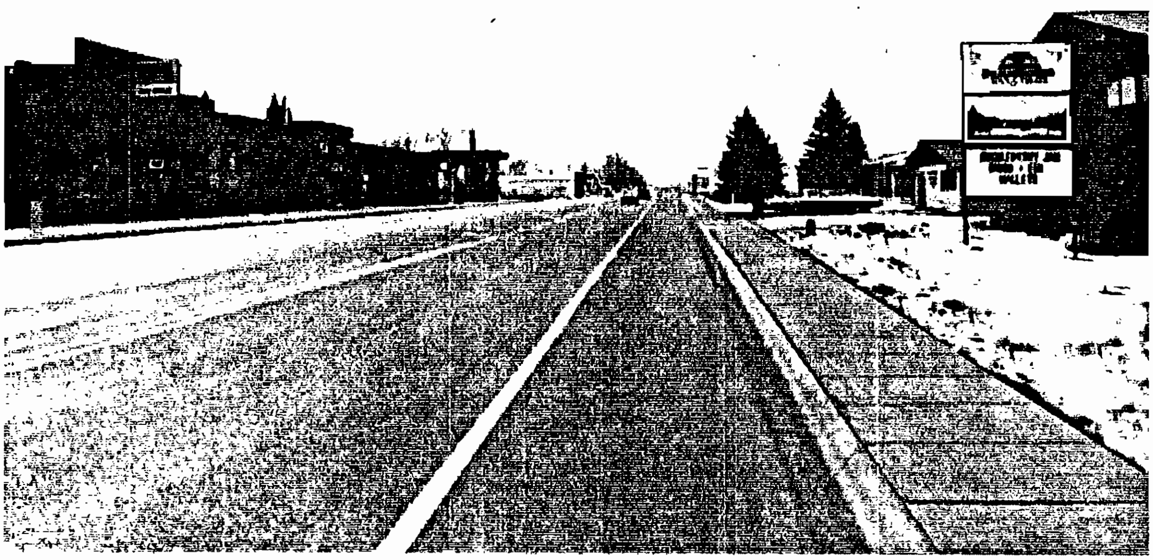


EXISTING 2 – LANE HIGHWAY

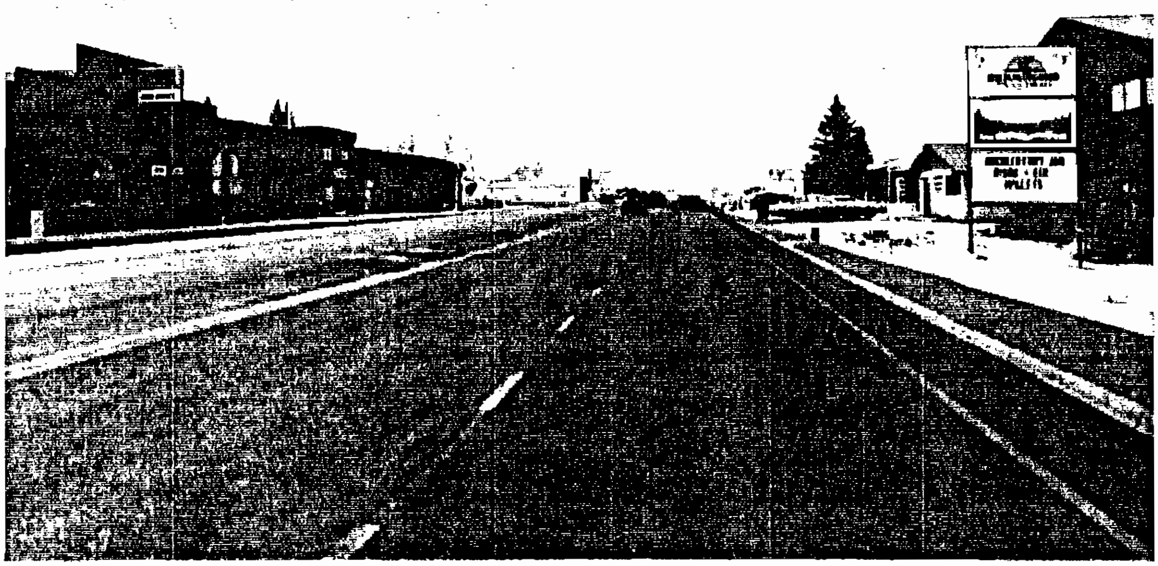


LANE CONFIGURATION A
WITH CONTINUOUS 2–WAY LEFT TURN MEDIAN

ARLEE LANE CONFIGURATIONS

FIGURE 7.17-2

EXISTING 2 – LANE HIGHWAY



LANE CONFIGURATION C

ARLEE LANE CONFIGURATIONS (CONT.) **FIGURE 7.17-2**

directional signage, roadside interpretive and park facilities. With Alignments 2, 3 or 4, the creation of gateways with park and scenic/historic information at the north and south ends of Arlee will provide an opportunity to orient travelers to alternative scenic routes that expose travelers to areas of cultural and historic interest in the Jocko Valley.

If Alignment 2 is constructed, consideration should be given to locating it closer to the railroad tracks to improve the visual quality by conforming to the existing logical edge of the tracks.

Consider reclamation of the gravel pit at the south end of town for use as a roadside park and interpretive site to create a gateway and enhance the community image.

If Alignment 4 is constructed, it will visually conflict less with local field patterns if it more closely follows Pellew Creek.

7.17.5. Ronan Alignments

Existing conditions and Lane Configuration C on the existing alignment in Ronan are illustrated on Figure 7.17-3.[119] With Alignment 1 (existing alignment) and Alignment 2 (one-way couplet), visual quality in the foreground will deteriorate and enjoyment of scenic background views will be diminished similar to No Action. More traffic and congestion will worsen the existing visual and functional division for views of the road. Widening of the existing alignment to four lanes through Ronan will fragment an already discontinuous streetscape, removing "edge" buildings and vegetation, diminishing views from adjacent properties and encroaching on adjacent businesses and pedestrians. The scale of the road will visually and functionally divide the community, being incompatible with the scale of the community and roadside development, for views from the road.

In addition, Alignment 2 will introduce highway traffic into an existing residential setting which will change the visual environment.

Alignments 3 and 4 will divert traffic around the developed area of Ronan, and they will be outside all of the developed area visually contained in the Ronan community. However, future development is expected to extend west, beyond the routes of Alignments 3 and 4. Generally, they will be located between developed land and natural visual boundaries, and they will provide visual and physical access to the business district. Near its northern end, Alignment 3 will pass through and diminish the views of and from an established residential area. Alignments 3 and 4 will diminish views of and from agricultural land and scattered homes on their southern ends.

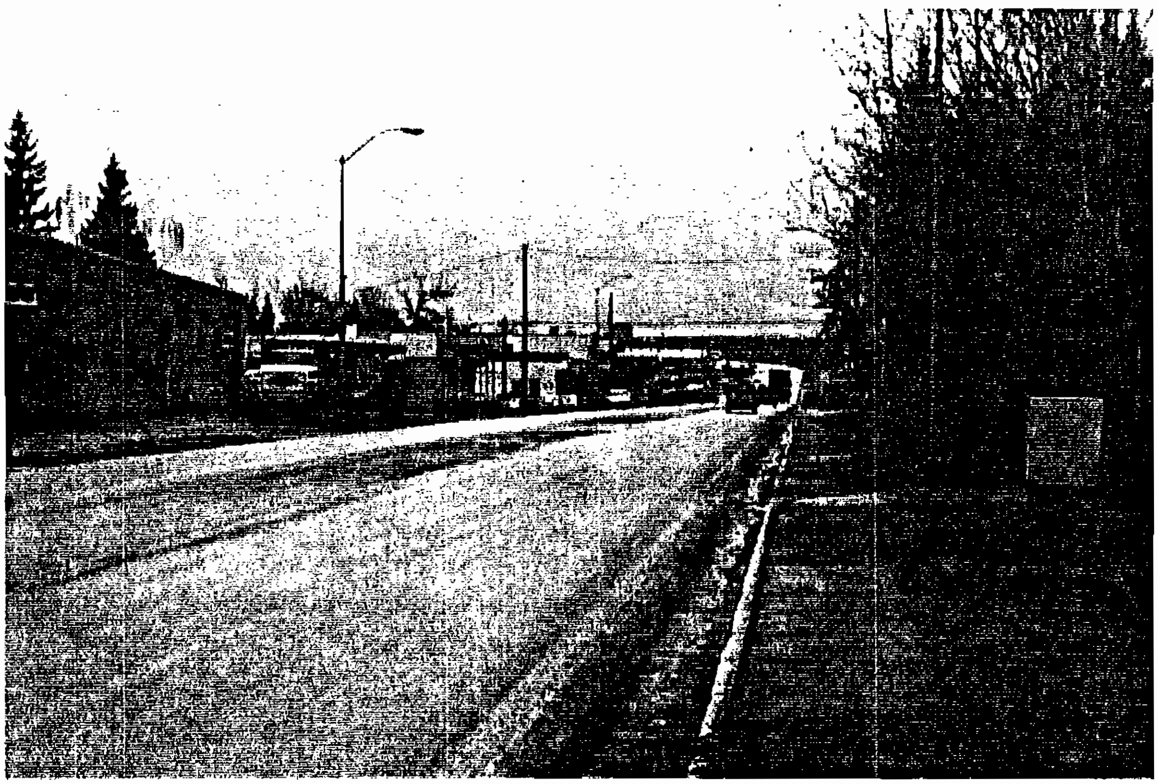
Alignment 4 (west of Ronan) will cross agricultural land diagonally and expose views of powerlines, sewage treatment facilities, a power substation and other industrial areas. These views will not provide a positive image of the community.

Alignment 4 will provide more area for the town to expand without having to cross the physical boundary of a highway. Alignment 3 will provide an interesting, somewhat distant view of an old granary.

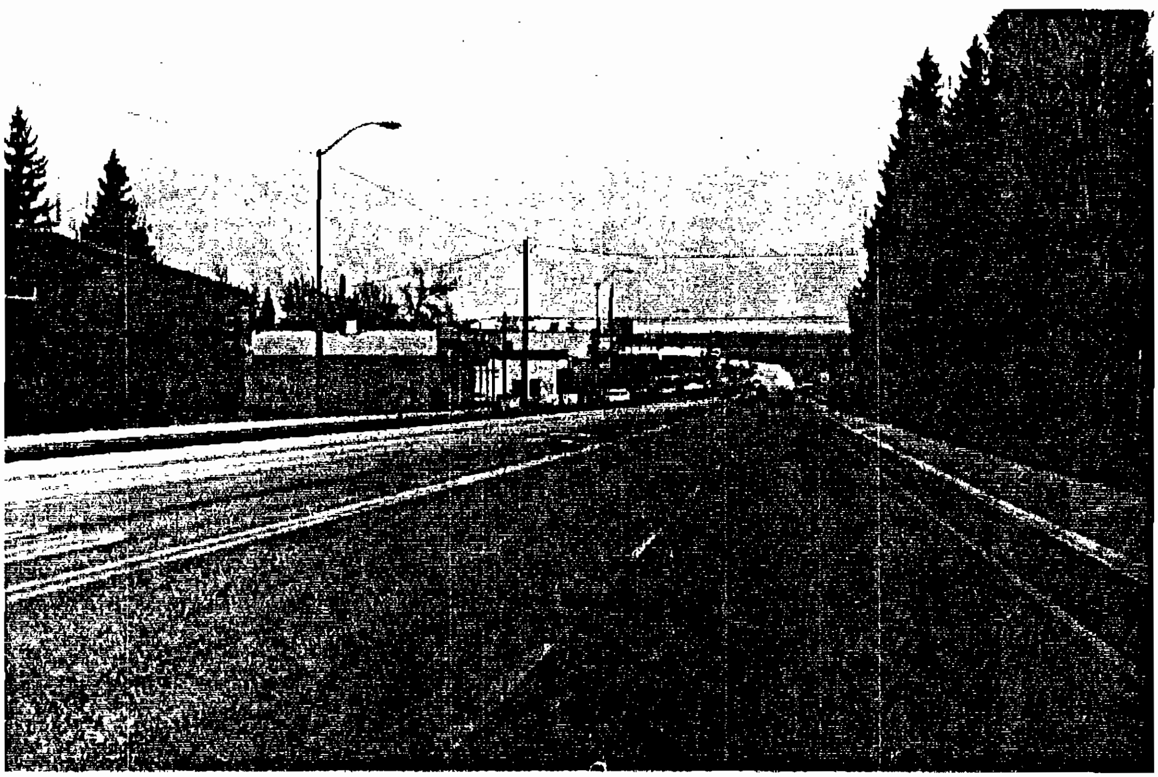
Alignments 3 and 4 will provide opportunity to enhance the view for northbound travelers west to the Salish mountains.

Alignments 3 and 4 will be located on low ground, intersecting existing field and road patterns at odd angles.

[119] This photographic representation is intended only to show the general appearance of the roadway after construction. It is not intended to show all design details, and some details may change when final design is completed.



EXISTING HIGHWAY WITH CONTINUOUS 2-WAY LEFT TURN MEDIAN



LANE CONFIGURATION C

RONAN LANE CONFIGURATIONS

FIGURE 7.17-3

Mitigation

If Alignment 3 or 4 is constructed, the existing alignment should be retained and signed as a "business route" providing access for travelers to services. Community gateways on the north and south ends of town should identify routes and provide the opportunity to develop community identity, combining image enhancements, directional signage, roadside interpretive and park facilities. With Alignments 3 or 4, the creation of gateways with park and scenic/historic information at the north and south ends of Ronan will provide an opportunity to orient travelers to alternative scenic routes that expose travelers to areas of cultural and historic interest in the Mission Valley. A secondary gateway should be considered at the intersection of Main Street and Alignments 3 and 4 to invite travelers to visit downtown and take advantage of services.

To be visually compatible, Alignment 3 should be located west of 9th Avenue Northwest to avoid diminishing views of and from the developed residential area. The opportunity exists to follow Alignment 3 south to Little Martin Road, then cross diagonally to intersect the existing highway in the same location as Alignment 4. This will be less disruptive of visual quality for field patterns, and it will increase the area south of town for development expansion within a logical visual boundary.

7.17.6. Polson Landscape Unit

Alignment 1, if Lane Configuration B or C is constructed, will increase the highway width and create larger cut and fill slopes. The visual scale of the highway will increase, particularly through town. A single row of mature deciduous trees in Ducharme Park will have to be removed. The increased highway width will increase views of the lake and of town. (Figure 7.17-4)

Alignment 2 will increase views of Polson and Flathead Lake. However, new road segments plus a wider road along existing segments will be a visual impact to rural residential areas. Grade changes along Kerr Dam Road will require cut and fill to maintain an acceptable road grade; this will be a visual impact to nearby residential areas as well as to highway users.

Alignment 2 crosses the Flathead River at a new location. This new bridge crossing will be a visual impact to the existing river view from many areas of town. The users of the new bridge will experience a new view of the lake, river, and of Polson.

Alignment 3 will decrease views of Polson and Flathead Lake. Hilly terrain will not permit a view of the river until the road turns west to cross the river, and there will not be a view available of Polson. The new road segments and increased roadway width along existing segments of this alignment will have a visual impact to rural residential areas east of the Flathead River. Due to the hilly terrain that this alignment encounters as it travels parallel to the Flathead River, large cut and fill slopes will occur.

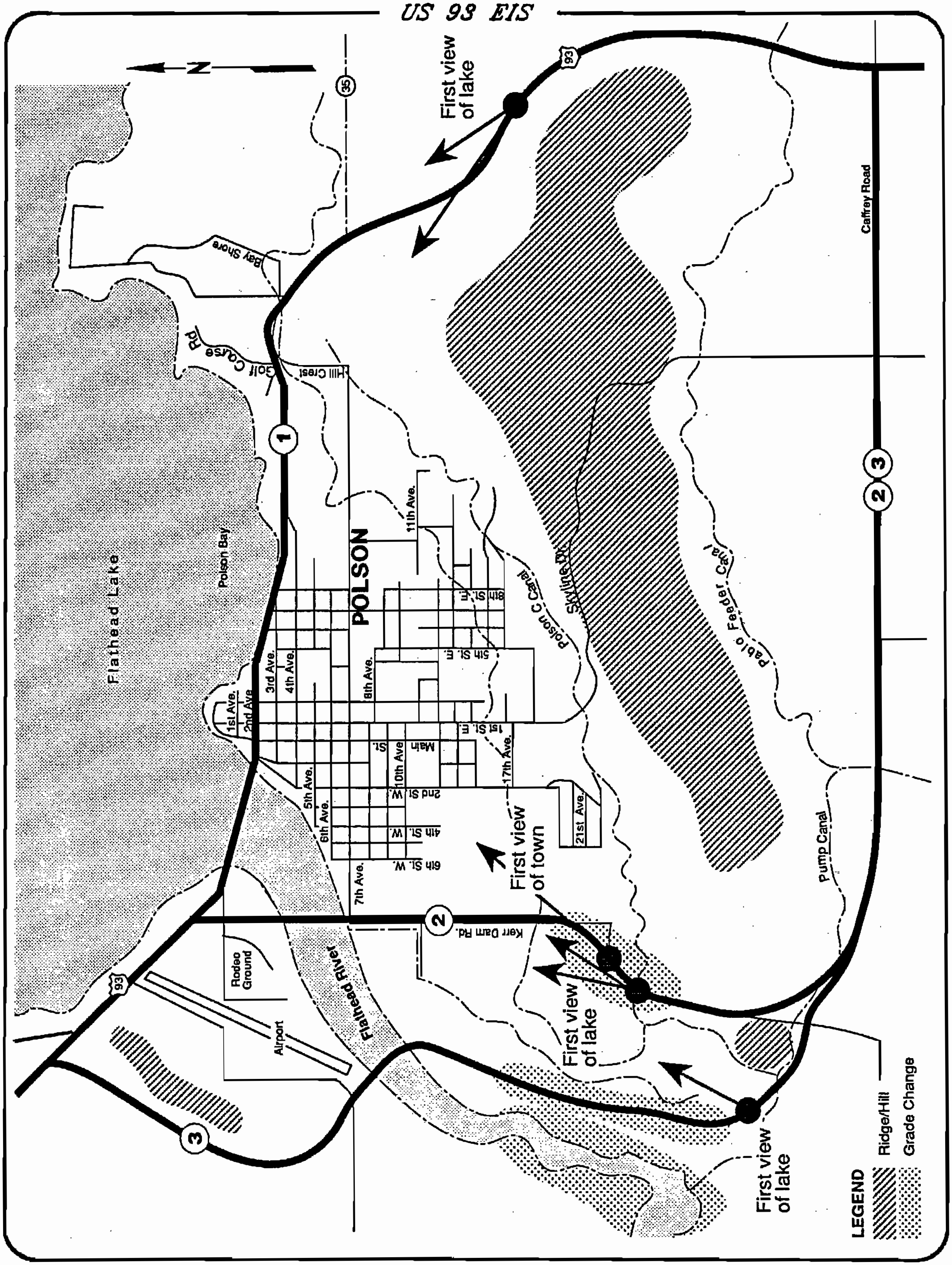
Alignment 3 crosses the Flathead River in a new location south of the airport and will be a visual impact to the existing river from rural residential areas. It will not be a visual impact from town. The users of the new bridge will experience a new view of the lake and the river.

Mitigation

Slope Cuts

Slope molding techniques will be used to enhance the diversity of the landform and provide visual variety. These include:

- Accentuating ridges and laying the slope back at draws.



VISUAL CHARACTERISTICS OF VIEWS & GRADE CHANGES FIGURE 7.17-4

- Modifying slope ratios to reflect existing terrain characteristics to minimize visual impacts.

All cut and fill slopes will be rounded at the top and bottom to present a softer transition between constructed and existing slopes. This may require greater disturbance of existing vegetation; however, scars due to clearing of vegetation heal faster. Cross-slope drainage should be treated with random placement of rock of various sizes to reduce their visual dominance. These drainages will be further softened by adding topsoil and seeding.

Revegetation

Vegetation will be re-established in patterns similar to adjacent undisturbed slopes. Grasses and wildflowers are valuable for soil stabilization and erosion control. Native grasses should be used on all disturbed areas, and wildflowers should be used in more highly visible areas. Soil mulches and netting, if needed, can be used to stabilize slopes until vegetation is established.

7.17.7. Visual Impacts of Highway Design Options

Several design options have been proposed as mitigation, safety or transportation needs. The impact of each option on visual quality is discussed generally in the following paragraphs. The manner in which relevant options, alignments and road details are combined and adapted to site-specific conditions will determine their impact on visual quality and effectiveness as mitigation measures. Appropriate applications of these options in specific locations are addressed in the discussion of mitigation of impacts in specific landscape units.

Access Control positively impacts visual quality by limiting strip development and influencing land development patterns adjacent to highway corridors. Access control reduces visual distraction associated with too many approaches and unclear definition of traffic patterns and the road edge.

Pedestrian Facilities. Pedestrian overpasses will reduce visual quality, interrupting views in all situations causing considerable encroachment in open, horizontal valley landscapes.

Painted Median. Visual acuity, particularly during periods of snow cover, may be a problem on roads frequented by a mix of travelers. Some are familiar with the route and "in a hurry", like commuters and logging trucks, while others are unfamiliar tourists driving at a leisurely pace.

Wildlife Fence. In general, fencing reduces visual quality by interrupting views. Lower, open fences in styles and materials characteristic of the landscape setting will be less distracting than fences placed in response to property lines. To reduce the visual impact, align fences to follow natural topographic, vegetation or water lines and avoid silhouetting against the sky.

Curb and Gutter. To the extent curb and gutter is used to define the road edge, control perimeter access and manage storm water, the visual impact will be positive. Potential negative impacts will result where this urban element is introduced into a rural setting. Use of gutter sections to reduce the need for ditches and hence minimizing the disturbance to landforms and landcover will have positive visual impacts.

Frontage Roads. Introduction of frontage roads to limit the number of turning points off and access points onto the highway will be visually desirable, providing opportunity for a visual buffer and further delineation of the road edge. Potential negative impacts may include excessive disruption of vegetation and further increasing the road width with all the associated disadvantages of wide roads discussed previously.

Bicycle Facilities may negatively impact the visual quality. When included as part of the roadway shoulder they will have little or no negative impacts. Construction of separate paths will disrupt additional landforms and vegetation and will have corresponding additional negative impacts.

Wildlife and Livestock Crossings require culverts or bridges to maintain livestock or wildlife routes. Bridges have the advantage of avoiding unnatural embankments commonly associated with installation of culverts. Where culverts are used the lengths should be increased and extended to eliminate unnatural slopes and embankments and avoid requirements for guardrail.

Traffic Signals. Visual impacts are negligible, and to the extent traffic signals improve safety, they increase travelers opportunity to enjoy scenery.

Directed Routes provide the opportunity to direct travelers to alternate routes designed to meet differing needs. Discussions have focused on alternate routes and truck routes near existing communities. Additionally, opportunities exist to develop commercial service, scenic or heritage routes. Visual impacts of directed routes may be positive or negative depending on the designation, location and land use controls associated with each. Truck routes should follow corridors where highway commercial services are already available. New corridors should be selected to expose travelers to cultural and scenic resources. Land use controls should be implemented to eliminate strip commercial sprawl.

Turnouts. The provision of turnouts increase the travelers opportunity to appreciate the scenic, historic and cultural aspects of the landscape. Visual quality for all viewers may be positively or negatively impacted depending on the siting, layout and design details.

Concrete Median Barriers in nearly all cases are a visual distraction, collecting dirt and introducing an urban element into a predominantly rural setting. Positive visual impacts include reduction of headlight glare for night time travelers, particularly along long straight road tangents.

Sidewalks may positively or negatively impact visual quality depending on location and resulting disturbance to existing roadside features.

One-way Couplet. Visual issues are site specific relating primarily to road width. Specific applications and related impacts are discussed in other sections.

7.18. RELOCATIONS

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

7.18.1. No Action

No removal of structures or relocations of households in residences ~~or commercial buildings businesses or other buildings~~ will be required with No Action. With No Action, structures near the existing highway will continue to be affected by highway traffic operation and resulting safety, air quality, noise, visual and other highway related impacts as described in related sections of this document. As traffic volume increases, these adverse impacts will become more severe. (Table 6.18-1)

7.18.2. Existing Alignment (Except Arlee, Ronan and Polson)

Table 7.18-1 summarizes removal of~~relocations of homes, businesses and other~~ structures that will or may be required for each of the lane configurations. Where it is indicated on the table that a structure <u>will</u> require removal~~relocation~~, it is because preliminary design and surveys have indicated that it will not be practical and feasible to construct the lane configuration while avoiding the structure with required excavation and embankment slopes. Also, it is not possible to adjust the alignment away from the structure without creating more severe ~~relocation or other~~ impacts in another area. Where it is indicated on the table that a structure <u>may</u> require removal~~relocation~~, it is because, though the structure is near the existing highway, it may be practical and feasible to avoid it by revising the highway design and ROW width or by adjusting the alignment away from the structure without creating more severe impacts in another area.

No structures will require removal~~relocation~~ if Lane Configuration A is constructed on the existing alignment, whereas Lane Configurations B, C or D, because of the wider width, will require removal~~relocation~~ of two, 16 and 35 structures, respectively.

Table 7.18-2 summarizes the types of buildings that may or will require removal.

The median value of owner occupied housing for Lake County in 1990 was $61,300. In 1990 median rent paid was approximately $260.[120]

Commercial buildings removed by the proposed action are occupied by small businesses that operate with single occupancy and employ 10 or fewer workers. They are primarily older buildings that are moderate and low cost commercial buildings.

Population growth has increased demand for housing, market value of housing units and cost for rental housing. Moderate and low cost housing is not readily available throughout the area.

Section 7.4.1.3 presents information about Environmental Justice Executive Order 12898 and Title VI of the Civil Rights Act of 1964.

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[120] U.S. Department of Commerce, Bureau of the Census. 1990 Census of Population and Housing. Summary Population and Housing Characteristics and Summary Social, Economic and Housing Characteristics, Montana. 1990.

Table 7.18-1 ~~Removal of Structures~~~~Relocations~~ - Continued

Milepost	Side	Description	Lane Configuration			
			A	B	C	D
Arlee Alignment 2						
17.2	East	Building	N	N	N	M
Arlee Alignment 3						
18.2	East	Building (Fish Hatchery/Out Building)	N	M	M	W
Arlee Alignment 4						
15.6	East	Residence	N	M	M	W
17.0	East	Building	W	W	W	W
Ronan Alignment 2						
46.3	East	Business (Warehouse)	M	NA	NA	NA
47.1	On CL	Business Office (CSKT)	W	NA	NA	NA
47.1	On CL	Business Office (CSKT)	W	NA	NA	NA
47.1	On CL	Business Office (CSKT)	W	NA	NA	NA
47.1	On CL	Business Office (CSKT)	W	NA	NA	NA
47.2	On CL	Business	W	NA	NA	NA
Ronan Alignment 3						
47.1	East	Building	W	W	W	W
47.1	East	Building	W	W	W	W
47.2	East	Residence	M	W	W	W
47.3	East	Residence	M	W	W	W
Ronan Alignment 4						
46.7	East	Building (Ball Park)	M	M	W	W
46.9	West	Buildings (4) (Mink Farm)	M	W	W	W

W - Will require ~~removal~~~~relocation~~. **M** - May require ~~removal~~~~relocation~~. **N** - Will not require ~~removal~~~~relocation~~. **NA** - Not applicable because this lane configuration is not under consideration in this area. **CL** - Center Line.

(Continued)

Table 7.18-1 ~~Removal of Structures~~~~Relocations~~ - Continued

Milepost	Side	Description	Lane Configuration				
			A	B	C	D	**MDT Preferred Alternative**
Ronan Alignment 4 - Continued							
47.3	East	Power Substation	W	W	W	W	--
47.3	East	Building (Lumber)	W	W	W	W	--
47.3	East	Building (Lumber)	M	W	W	W	--
47.4	East	Building	M	W	W	W	--
47.8	East	Building	W	W	W	W	--
Polson Alignment 2							
59.7	North	Building (3), Residence (3)	N	M	N	M	--
58.1	South	Residence (2)	N	W	N	W	--
60.4	East	Residence, Building	N	W	N	W	--
60.9	West	Residence (3), Building (5)	N	W	N	W	--
Polson Alignment 3*							
56.7	North	Building (3), Residence (3)	N	M	N	M	M
58.1	South	Residence (2)	N	W	N	W	W
60.9	West	Residence	N	W	N	W	W
63.1	East	Building	N	M	N	M	M

Morrison-Maierle. 1993.
W - Will require ~~removal~~~~relocation~~. **M** - May require ~~removal~~~~relocation~~. **N** - Will not require ~~removal~~~~relocation~~.
NA - Not applicable because this lane configuration is not under consideration in this area.
*Polson Alignment 3 is MDT preferred alternative.

Mitigation

Wherever practical and feasible, and where it can be done without causing more severe impacts elsewhere, adjust the highway alignment away from the structure to avoid the structure.

Wherever practical and feasible, and where it can be done without compromising highway safety, revise fill slopes and ROW width to avoid the structure.

In areas where removals~~relocations~~ may be required, construct the narrowest highway section that will still accommodate existing and projected traffic volumes.

MDT has a relocation assistance program whereby supplemental housing payments, moving costs, advisory assistance and other services are offered to individuals and households displaced by a highway construction project. The payments for relocation are offered in addition to the amount of just compensation for ROW requirements. The disposition of the buildings to be relocated will be negotiated with the owners -- they may be moved and reused, demolished and disposed of, sold to other parties or remain the property of the owners to do with as they see fit.

Federal highways are subject to provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended).[121]

The Intermodal Surface Transportation Efficiency Act (ISTEA), H.R. 2950, includes all references to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. They require compliance with Title VI of the Civil Rights Act of 1960, H. R. 2950-34, Section 1017 Acquisition of Rights-of-Way. Relocation resources are available for all displaced residential and commercial buildings without discrimination.

MDT policy is no person will move from their dwelling unit until there is available a comparable replacement dwelling unit. The replacement dwelling unit must be safe, decent, sanitary and open to persons regardless of race, religion or national origin.

Generally, persons residing in either conventional dwellings or mobile homes will be eligible for relocation payments. They will be eligible to receive referrals of available replacement properties, assistance in filing claims and other reasonable assistance necessary to assure successful relocation. Comparability primarily will be based on functional rather than physical similarity. Occupants of residential and commercial buildings are entitled to receive reasonable and necessary moving costs and related expenses in relocating their personal property, in accordance with established procedural requirements of MDT.

7.18.3. Arlee, Ronan and Polson Alignments

Table 6.18-1 shows existing buildings located within 200 feet of alignments in Arlee, Ronan and Polson. These structures may be affected by highway traffic operation and resulting safety, air quality, noise, visual and other highway related impacts as described in related sections of this document. Table 7.18-1 lists structures that will or may require removal ~~relocation~~.

[121]The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 is Public Law (P. L.) 91-646. P. L. 100-17, the Surface Transportation Act of 1987, amended certain provisions of P.L. 91-646.

Table 7.18-1 Removal of Structures~~Relocations~~ ~~(This table has been changed in the final EIS)~~

Milepost	Side	Description	Lane Configuration				
			A*	B	C	D	**MDT Preferred Alternative**
Existing Alignment							
6.8	West	Community Center	N	N	N	W	N
6.9	West	Residence	N	N	M	W	M
7.0	West	MDT Maintenance Building	N	N	M	W	M
7.8	East	Residence	N	M	W	W	M
9.6	East	Garage	N	M	M	W	M
13.3	West	Residence	N	M	M	W	M
13.3	West	Building	N	N	N	W	N
14.0	East	Residence	N	N	N	W	N
15.0	East	Abandoned Residence	N	N	N	W	N
15.4	East	Motel/Residence	N	M	W	W	M
16.1	East	Residence	N	N	M	M	N
16.5	East	Residence	N	N	N	M	N
16.7	East	Power Substation	N	N	N	M	N
16.9	East	Residence	N	N	N	M	N
16.9	East	Residence	N	N	N	M	N
17.0	East	Residence	N	N	M	W	M
17.5	East	Residence	N	M	W	W	W
17.6	West	Vacant Building	N	M	W	NA	W
17.6	West	Retail Business	N	M	W	NA	W
17.6	West	Retail Business	N	M	W	NA	W
17.6	East	Canopy, Retail Business	N	M	W	NA	W

W - Will require removal~~relocation~~. M - May require removal~~relocation~~. N - Will not require removal~~relocation~~.
NA - Not applicable because this lane configuration is not under consideration in this area.
*Lane Configuration A is the CSKT preferred alternative.

(Continued)

Table 7.18-1 ~~Removal of Structures~~~~Relocations~~ - Continued

Milepost	Side	Description	Lane Configuration				
			A*	B	C	D	MDT Preferred Alternative
17.7	East	Retail Business	N	N	M	NA	M
17.8	West	Gas Pump Canopy	N	N	M	NA	M
17.8	East	Residence	N	M	M	NA	M
17.9	East	Residence	N	M	M	NA	M
18.0	East	Residence	N	M	M	W	M
19.0	East	Residence	N	N	M	W	M
19.1	East	Residence & Garage	N	N	W	W	W
20.0	East	Business	N	N	N	W	N
23.8	East	Business	N	N	N	W	N
30.4	West	Residence	M	W	W	W	W
31.7	East	Building	N	N	N	W	N
32.6	West	Business	N	N	M	W	N
32.6	East	Business	N	N	N	W	N
33.0	East	Business	N	N	N	W	N
35.0	East	Residence	N	N	M	W	M
35.0	West	Residence	M	M	W	W	W
36.5	West	Residence	N	N	M	W	N
37.0	East	Building	M	W	W	W	W
37.0	East	Building	N	M	M	W	M
37.1	East	Business	N	N	M	W	M
37.1	East	Building	N	N	M	W	M
37.5	East	Business (Lumber)	N	M	M	M	M

W - Will require ~~removal~~~~relocation~~. M - May require ~~removal~~~~relocation~~. N - Will not require ~~removal~~~~relocation~~.
NA - Not applicable because this lane configuration is not under consideration in this area.
*Lane Configuration A is the CSKT preferred alternative.

(Continued)

Table 7.18-1 Removal~~Relocations~~ - Continued

Milepost	Side	Description	Lane Configuration				
			A*	B	C	D	MDT Preferred Alternative
37.5	East	Business (Lumber)	N	M	M	M	M
46.8	West	Business	N	N	M	NA	M
46.9	West	Business	N	M	M	NA	M
46.9	West	Business	N	N	M	NA	M
46.9	East	Business	N	N	M	NA	M
51.8	East	Gas Pump Canopy (by Frontage Road)	N	M	M	W	M
52.5	West	Residence	N	M	W	W	W
54.9	East	Building	N	N	M	M	M
55.5	West	Building	N	N	N	W	N
55.5	East	Phone Substation	N	M	W	W	W
59.3	South	Residence	N	N	M	M	N
59.3	South	Residence	N	N	M	M	N
59.3	South	Building	N	N	M	M	N
59.3	North	Building	N	N	M	M	N
59.4	South	Building	N	N	M	M	N
60.4	South	Building	N	N	W	W	N
60.4	South	Building	N	N	W	W	N
60.6	South	Building	N	N	W	W	N
61.5	North	Building	N	M	M	M	N
62.1	North	Residence	N	M	M	M	N
Total buildings that will require removal~~relocation~~ along existing alignment			0	2	16	35	11
Total buildings that may require removal~~relocation~~ along existing alignment			3	22	33	11	25

W - Will require removal~~relocation~~. **M** - May require removal~~relocation~~. **N** - Will not require removal~~relocation~~.
NA - Not applicable because this lane configuration is not under consideration in this area.
*Lane Configuration A is the CSKT preferred alternative.

Table 7.18-2 Summary of Removal of Structures: Existing Alignment and Polson Alignment 3
This is a new table in the final EIS.

Existing Alignment										
Type of Property	Alternatives									
	Lane Configurations								Preferred Alternative	
	A*		B		C		D			
	M	W	M	W	M	W	M	W	M	W
Residential	2	--	9	1	13	6	7	15	9	5
Conventional	2	--	8	1	13	5	7	14	8	5
Mobile Homes	--	--	1	--	--	1	--	1	1	--
Commerical	--	--	8	--	11	4	2	8	11	3
Public	--	--	--	--	1	--	--	1	1	--
Other	1	--	5	1	8	6	6	11	4	3
Total of buildings that will require removal		--		2		16		35		11
Total of buildings that may require removal	3		22		33		15		25	
Polson Alignment 3										
	Lane Configurations									
	A		B		C		D		MDT Preferred Alternative	
	M	W	M	W	M	W	M	W	M	W
Total of buildings that will require removal		--		3		NA		3		3
Total of buildings that may require removal	--		7		NA		7		7	

Morrison-Maierle and Carter Burgess, 1992.
*Lane Configuration A is the CSKT preferred alternative for the existing alignment. Polson Alignment 3 is the MDT preferred alternative. Polson Alignment 3 is not the CSKT preferred alternative.
W - Will require removal. M - May require removal. N - Will not require removal. NA - Not applicable because this lane configuration is not under consideration in this area.

7.19. ENERGY AND COMMITMENT OF RESOURCES

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

7.19.1. No Action

No Action will not improve highway operation and efficiency, but it will require no commitment of resources. As traffic volume increases, LOS will deteriorate and, as a result, efficiency of vehicles operating on the facility will decrease and energy use will increase.

7.19.2. Existing Alignment (Except Arlee, Ronan and Polson)

Construction of Lane Configurations B, C and D on the existing alignment will substantially improve traffic operations and efficiency by providing better alignments, more traffic lanes, better LOS and more roadway capacity. This improvement in efficiency and traffic operations will result in fuel savings and a decrease in vehicle wear. The long-term effect will, therefore, be a decrease in energy use.

Construction of Lane Configuration A on the existing alignment will provide better alignments, but will not provide additional traffic lanes (except in a few areas where additional passing lanes will be added) and will not substantially improve LOS or capacity. There will be only minor improvement in traffic operations and efficiency with corresponding minor improvement in fuel savings, decrease in vehicle wear and decrease in energy use.

Implementation of the proposed action involves a commitment of a range of natural, physical, human and fiscal resources. The approximate area of land to be converted to highway ROW with each of the alignment and lane configuration alternatives is described in Section 7.2 and summarized on Tables 7.2-1 through 7.2-45. Lane Configuration A will convert the smallest area of land to highway ROW, while Lane Configuration D will require the largest area. Land used in the construction of the facility is considered an irreversible commitment during the time period the land is used for a highway. However, if a greater need arises for use of the land or if the highway is no longer needed, the land can be converted to another use. At present, there is no reason to believe such a conversion will ever be necessary or desirable.

Considerable amounts of fossil fuels, labor and highway construction materials such as cement, aggregate and bituminous material will be expended. Approximate quantities of major construction materials required for each segment and lane configuration are summarized on Table 7.20-2 -- Lane Configuration A will require the smallest quantities, while Lane Configuration D will require the largest. Additionally, large amounts of labor and natural resources will be used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply and their use will not have an adverse effect upon continued availability of these resources.

The commitment of these resources is based on the concept that residents in the immediate area, state and region will benefit by the improved quality of the transportation system. These benefits will consist of improved accessibility and safety, savings in time and greater availability of services which are anticipated to outweigh the commitment of these resources.

7.19.3. Arlee, Ronan and Polson Alignments

As compared with Alignment 1 (existing alignment), construction of any of the lane configurations on Alignments 2, 3 or 4 in Arlee, Alignments 3 or 4 in Ronan or Alignments 2 or 3 in Polson will provide a substantial improvement in operation and efficiency because vehicles will generally be able to maintain uniform highway speeds through the area and will be far less likely to be required to decelerate, stop or accelerate. Vehicles on these alignments will be affected by fewer driveways and intersections and related crossings of vehicles and pedestrians. This further improvement in efficiency and traffic operations will result in additional fuel savings and a further decrease in vehicle wear. Alignment 2, the one-way couplet, in Ronan will provide only minor improvement in traffic operation and efficiency over the existing alignment.

As indicated on Tables 7.2-1 through 7.2-4 and 7.20-2, construction of any of the lane configurations on Alignments 2, 3 or 4 in Arlee; 2, 3 or 4 in Ronan or 2 or 3 in Polson will require conversion of larger areas of land to highway ROW. It also will require larger quantities of construction materials than on Alignment 1 in these areas.

7.19.4. Transportation Demand Management

TDM measures such as transferring truck traffic to rail, increasing the use of public transit, promoting increased use of non-motorized travel such as bicycling and increasing the use of carpooling will serve to reduce energy consumption. As indicated in Section 5.3.3 of this document, any highway improvements should be designed to: 1) not reduce or adversely affect TDM activities already occurring and 2) accommodate and promote increased use of TDM.

Encouraging traffic to travel alternate routes such as MT 83 through the Seeley-Swan area will serve to increase energy consumption because vehicles will travel longer distances.

7.20. CONSTRUCTION

Alternatives for alignments, lane configurations and design options are described in detail in Section 5.1. The MDT Preferred Alternative and the CSKT Preferred Alternative, which consist of combinations of alignments, lane configurations and design options, are described in detail in Sections 5.3 and 5.4.

7.20.1. No Action

There will be no construction related impacts or costs with No Action.

7.20.2. Existing Alignment (Except Arlee, Ronan and Polson)

Construction related activities, with any of the lane configurations, will result in some short-term adverse impacts which cannot be avoided. These impacts will be temporary and should last only for the duration of construction activities:

- Emissions from asphalt plants and crushers (Section 7.7)
- Dust from construction equipment activities (Section 7.7)
- Increased noise levels from construction equipment (Section 7.8)
- Potential for erosion from fresh cut and fill slopes (Section 7.9)
- Increase in water turbidity in streams from construction activities (Section 7.9)
- Inconvenience to highway users resulting from delay, detours and temporary surfacing as described in the following sections
- Reduced access to businesses resulting from delay and detours of traffic

It is anticipated that construction will be completed under six or more separate construction contracts. The first contract (or contracts) is expected to begin no earlier than 1999~~1996~~ with the remainder of the contracts beginning over the next five- to-six years. No priority or schedule has been established indicating which portions will be constructed first or in what order succeeding contracts will begin. All construction schedules are highly dependent on availability of future funding.

It is estimated that each construction contract will require two construction seasons to complete.

If any of the lane configurations are implemented on the existing alignment, construction will be one the following two types:

- <u>Widen and Overlay</u>. With this type of construction, the existing highway roadbed will be retained and will be widened, generally on both sides but sometimes only on one side. Roadway slopes will be flattened on both sides of the highway to meet current safety standards, even when the highway is widened on only one side. The entire roadway will then receive an asphalt pavement overlay. This type of construction is planned in areas where the existing horizontal and vertical alignments adequately meet design standards; where the existing roadbed is in satisfactory condition; and where widening the highway in its current location will not severely impact environmental resources.

- <u>Complete Reconstruction</u>. With this type of construction, the existing highway roadbed will be removed and a new highway will be constructed. This type of construction will be required in areas where the existing horizontal and vertical alignments must be improved; where the existing roadbed is in unsatisfactory condition; in areas where the alignment of the highway must be adjusted to avoid severe environmental impacts; or if alternate alignments are selected at Arlee, Ronan or Polson.

Approximate lengths of each type of construction, along the existing alignment, are summarized on Table 7.20-1. Construction on all alternate alignments will include complete reconstruction.

Traffic will be maintained on the existing alignment with any of the lane configurations during construction. Few, if any detours will be required. Most of the construction will, of necessity, occur during summer months which coincide with periods of highest traffic volume. Substantial inconvenience and some delay will occur. A traffic control plan will be completed to maximize safety and minimize inconvenience to motorists. The plan will designate how traffic will be maintained through construction areas. (Section 6.1.4)

In most areas to be widened and overlaid, traffic will be maintained on the existing two-lane highway, while excavation, construction of gravel base courses and construction of the first layer of asphalt pavement are constructed on the outside edges. Traffic will then be maintained on one side of the widened highway, while the opposite side receives the final asphalt overlay.

The most serious periods of inconvenience and delay will occur with Lane Configuration A during the time the final asphalt overlay is constructed because only one-way traffic can be maintained, while still allowing room for construction equipment and crews to work on the remainder of the 40-foot total width. As a result, flagging and pilot cars will be used to allow one direction of travel to go through the area while the other waits. Lane Configurations B, C and D will result in less inconvenience and delay because they are wide enough (at least 28 feet are required outside construction work areas) to allow two-way traffic on one side of the highway, while the asphalt overlay is constructed on the other.

In areas to be completely reconstructed, inconvenience and delay will be greater. It is planned that, as much as possible, excavation, embankment, gravel base course and asphalt pavement will be constructed outside the existing roadway without disturbing it while traffic is maintained on it. As the existing roadway is removed and the new subgrade and gravel base courses are constructed, it is planned that traffic will generally be maintained on one side of the construction area while work continues on the opposite side. During most of this time, traffic will be on unsurfaced or gravel surfaced areas and watering or other methods of dust control will be required. Traffic speeds in these areas will need to be reduced, possibly by using pilot cars, to ensure that safety will not be reduced and to avoid damage to vehicles by flying gravel particles. Maintenance of traffic in this method will be more difficult with Lane Configuration A because of its narrower width -- one-way traffic with resulting increased delay will often be required. With the wider roadways of Lane Configurations B, C and D, it is expected that two-way traffic can be maintained most of the time and delay will be substantially less.

Because of inadequate width, poor condition or unsatisfactory vertical/horizontal alignments, it is planned that all existing bridges will be reconstructed with any of the lane configurations. At the railroad crossing at Finley Creek and at the Jocko River bridge, it is anticipated that traffic will be maintained on the existing bridge while the new bridge (with Lane Configuration A) or one-half of the new bridge (with Lane Configurations B, C and D) is constructed. Traffic will then be shifted to the new structure while remaining bridge work is completed. Traffic will be slowed during the construction period but little additional delay or inconvenience are expected.

Because of age, poor condition, inadequate capacity and poor location, it is expected that most existing culverts will be replaced. They will also be extended to accommodate the width of the new roadway. In these areas, part of the culverts will be constructed while maintaining traffic on the existing roadway then, traffic will be shifted to the new roadway over the new culvert while the remainder of the culvert is constructed. In some locations, alignment

Table 7.20-1 Summary of Construction Types

Segment	Description	Miles	
		Widen and Overlay	Complete Reconstruction
A	Evaro to Arlee	7.1	1.4
B1	Arlee - Existing Alignment	2.2	4.8
C	Arlee to Ravalli Canyon	2.5	0.0
D	Ravalli Canyon to Ravalli	0.0	2.0
E	Ravalli	0.0	0.9
F	Ravalli Hill	2.0	1.7
G	St. Ignatius	1.8	0.6
H	St. Ignatius to Highway 212	6.6	2.0
I	Highway 212 to Ronan	3.1	0.0
J1	Ronan - Existing Alignment	3.5	0.0
K	Ronan to Pablo	2.1	0.0
L	Pablo	3.9	0.0
M	Pablo to Caffrey Road	1.8	0.0
N	Caffrey Road to MT 35 - Existing Alignment	1.0	1.5
O	Polson - Existing Alignment	2.0	0.0
P	Polson North - Existing Alignment	1.2	0.6
Totals		40.8	15.5

Morrison-Maierle. 1993.

and space available may require the construction of temporary culverts and short detour roads around the construction area.

It is anticipated that most delay and inconvenience will occur during one construction season. Most excavation, embankment, pipe culvert installation, and possibly asphalt surfacing will be constructed during the first construction season. These are the major items that affect highway traffic and will cause the most delay.

Delays of up to 15 minutes will occur frequently, particularly with Lane Configuration A, during this first year to allow one-way traffic through narrow construction areas and to allow clearance and passage of trucks and other construction equipment. Few longer delays are anticipated and will not be allowed except where necessary and only when requested several days in advance by the construction contractor. When these extended delays are anticipated, they will be advertised in advance using the local news media. They will be scheduled to avoid high traffic use periods such as weekends; morning and evening periods when people are traveling to and from work and school; or holidays such as Independence Day or Labor Day.

During the second season, it is anticipated that asphalt pavement (if not completed during the first season), seal coats, signing, striping, re-topsoiling and permanent seeding will be completed. These items will cause only brief, if any, interruptions in the flow of traffic.

No specific borrow sites have been identified for fill materials, gravel base courses and asphalt concrete aggregate. As final design is completed for each of the construction projects, these borrow sites will be identified and evaluated. Borrow material removal will be subject to applicable rules and regulations of the Montana Open Cut Mining Act -- a mine reclamation plan will be required. An erosion control plan, as described in Section 7.9 will also be required and will be developed by MDT. Table 7.20-2 summarizes gravel, plant mix and borrow quantities required for each section of the roadway.

Estimated construction costs for each segment for each of the alignments and lane configurations are summarized on Table 7.20-3.

Mitigation

Mitigation of adverse impacts that may result from air quality emissions related to asphalt plants and crushers and dust and other emissions from construction equipment on the roadway are discussed in Section 7.7.

Construction activities near communities or other noise sensitive areas will be allowed only during daylight hours to avoid disturbance at night.

An erosion control plan will be developed to avoid impacts to streams and other features during and after construction as outlined and described in Section 7.9. The erosion control plan will be prepared, not only for construction areas, but also for any borrow sources and gravel pits.

Inconvenience and delay to travelers on the highway will be minimized, to the extent practical, by developing and following a carefully planned traffic plan using methods describe above.

7.20.3. Arlee, Ronan and Polson Alignments

Construction related impacts are expected to be severe if Alignment 1 (the existing alignment) is followed through Arlee, Ronan and Polson. Air and noise pollution may occur in areas with a concentration of homes, businesses and other sensitive receptors. Maintenance of traffic and traffic control are expected to be much more difficult, particularly with Lane Configurations B and C (Lane Configuration D is not considered in these areas) because of the limited space available and the many intersecting streets and driveways and related crossing vehicles and pedestrians. Impacts on existing businesses will be substantial because, during particularly the first construction season, when excavation to subgrade occurs (to a depth of two feet or more beneath the existing roadway) and when gravel base courses are constructed, access to businesses located along the highway will be difficult, inconvenient and uncomfortable. It is expected that many potential customers will go elsewhere. Detours to parallel streets or roads may be considered through these communities, but is likely that even greater impacts may occur due to heavy volume of detoured highway traffic being diverted through residential, and normally quiet areas.

Table 7.20-2 Summary of Major Construction Quantities

Segment	Description	Lane Configuration A[1]			Lane Configuration B			Lane Configuration C			Lane Configuration D			MDT Preferred Alternative		
		Cubic Yards			Cubic Yards			Cubic Yards			Cubic Yards			Cubic Yards		
		Excav.	Asphalt Pav.	Gravel Base Courses	Excav.	Asphalt Pav.	Gravel Base Courses	Excav.	Asphalt Pav.	Gravel Base Courses	Excav.	Asphalt Pav.	Gravel Base Courses	Excav.	Asphalt Pav.	Gravel Base Course
A	Evaro to Arlee	350,000	10,850	98,020	496,400	31,990	236,900	584,000	38,000	281,290	817,600	32,820	317,840	567,940	36,050	269,879
B1*	Arlee - Existing Align.	157,000	15,590	144,250	222,400	29,430	255,050	261,600	35,050	303,230	366,200	32,180	305,330	261,600	55,050	303,230
B2*	Arlee - West Align.	147,600	15,860	153,820	209,200	29,960	270,860	246,000	35,590	321,620	344,400	32,650	322,780	–	–	–
B3*	Arlee East Align.	150,000	16,140	156,600	212,500	30,410	275,320	250,000	36,130	326,910	350,000	33,160	327,840	–	–	–
B4*	Arlee - Jocko Valley Align.	504,300	20,880	206,310	714,500	33,450	329,740	840,500	39,740	391,530	1,176,700	37,520	374,290	–	–	–
C	Arlee to Ravalli Canyon	34,500	2,450	21,020	48,900	9,080	61,870	57,500	10,790	73,460	80,500	9,110	87,540	50,362	9,370	63,840
D	Ravalli Canyon to Ravalli	159,400	5,730	56,600	215,400	9,180	90,460	290,800	10,900	107,410	409,300	10,290	102,680	215,400	9,180	90,460
E	Ravalli	24,800	2,400	14,860	37,200	3,720	23,090	41,300	4,530	27,910	61,900	4,320	26,840	41,300	4,530	27,910
F	Ravalli Hill	95,000	6,520	61,850	134,600	14,530	121,290	158,300	17,260	144,010	221,600	15,440	151,420	135,311	14,612	121,871
G	St. Ignatius	73,100	3,420	31,490	103,600	9,090	70,190	121,800	10,800	83,340	170,600	9,440	91,840	103,600	9,090	70,190
H	St. Ignatius to MTS 212	208,700	12,310	112,890	295,600	33,730	257,290	347,700	40,070	305,500	486,800	34,900	339,130	302,894	34,618	264,040
I	MTS 212 to Ronan	87,900	3,020	25,850	124,600	11,180	76,100	146,500	13,270	90,360	205,100	11,210	107,690	130,075	11,703	79,665
J1*	Ronan - Existing Align.	48,600	6,060	16,680	130,000	13,500	56,620	151,100	16,290	76,750	211,500	14,630	96,210	151,100	16,290	76,750
J2*	Ronan - One-Way Couplet	72,600	8,040	56,680	102,900	14,620	100,200	121,000	17,630	120,190	169,400	16,330	122,150	–	–	–
J3*	Ronan - West Align.	99,200	7,880	75,030	140,500	14,650	131,030	152,500	18,260	155,670	231,400	16,020	155,710	–	–	–
J4*	Ronan - West Align.	108,600	10,800	105,750	153,800	17,290	168,950	180,900	20,550	200,660	253,300	18,400	190,350	–	–	–
K	Ronan to Pablo	11,200	2,120	18,180	15,800	7,860	53,520	18,600	9,330	63,550	26,000	7,880	75,730	19,500	8,227	56,028
L	Pablo	87,600	4,960	35,970	124,100	14,580	93,850	146,000	17,430	111,940	204,200	15,090	129,850	140,306	16,689	107,236
M	Pablo to Caffrey Road	28,800	1,750	15,010	40,800	6,490	44,190	48,000	7,710	52,470	67,200	6,510	62,530	44,400	7,100	48,330
N-O-P1	Polson Alignment 1	190,000	13,500	117,000	278,000	25,800	209,000	317,000	31,000	285,000	472,000	28,400	242,000	236,900	19,980	176,600
N-O-P2	Polson Alignment 2	355,000	13,500	130,000	456,000	24,600	226,000	501,000	29,200	268,000	757,000	27,000	286,000	–	–	–
N-O-P3	Polson Alignment 3	342,000	17,200	169,000	473,000	29,700	281,000	508,000	35,200	334,000	767,000	32,800	352,000	1,207,000	80,100	716,000
	TOTAL*	1,556,600	90,680	769,670	2,267,400	220,160	1,649,420	2,690,200	262,430	2,006,220	3,800,500	232,220	2,136,630	3,607,688	332,589	2,472,029

Morrison-Maierle, 1993. * On Existing Alignment throughout (Alignment 1 in Arlee, Ronan and Polson). ** In Arlee and Ronan, in order to compare construction quantities, portions of adjacent segments are included.
[1]Lane Configuration A is the CSKT preferred alternative for the existing alignment. Polson Alignment 3 is the MDT preferred alternative. Polson Alignment 3 is not the CSKT preferred alternative.

Table 7.20-3 Summary of Construction Costs

Segment	Description	Lane Configuration ($1,000)				MDT Preferred Alternative
		A[1]	B	C	D	
A	Evaro to Arlee	5,234	9,204	10,591	11,530	9,394
B1*	Arlee - Existing Align.	5,540	8,391	9,696	9,811	9,696
B2*	Arlee - West Align.	5,042	7,999	9,337	9,418	—
B3*	Arlee - East Align.	5,148	8,128	9,479	9,558	—
B4*	Arlee - Jocko Valley Align.	8,279	12,466	14,718	15,060	—
C	Arlee to Ravalli Canyon	1,274	2,219	2,567	2,727	2,278
D	Ravalli Canyon to Ravalli	1,827	2,635	3,161	3,381	2,635
E	Ravalli	1,084	1,348	1,505	1,535	1,505
F	Ravalli Hill	2,364	3,418	3,950	4,178	3,434
G	St. Ignatius	1,231	2,220	2,557	2,810	2,220
H	St. Ignatius to Highway 212	5,199	9,014	10,476	10,940	9,219
I	Highway 212 to Ronan	1,259	2,532	2,915	3,251	2,628
J1*	Ronan - Existing Align.	2,130	4,481	5,298	5,179	5,298
J2*	Ronan - One-Way Couplet	3,527	4,378	4,657	4,662	—
J3*	Ronan - West Align.	2,907	4,214	4,853	4,981	—
J4*	Ronan - West Align.	3,346	4,831	5,600	5,658	—
K	Ronan to Pablo	700	1,502	1,726	1,858	1,558
L	Pablo	2,322	3,792	4,294	4,633	4,163
M	Pablo to Caffrey Road	649	1,357	1,561	1,706	1,459
N-O-P1	Polson Align. 1	7,040	19,600	23,700	15,500	13,294
N-O-P2	Polson Align. 2	9,700	15,500	18,800	18,400	—
N-O-P3	Polson Align. 3	9,900	15,100	18,500	17,600	15,100
TOTAL*		37,853	71,713	83,997	79,039	83,881

Morrison-Maierle, 1993.
*On Existing Alignment throughout (Alignment 1 in Arlee and Ronan).
**In Arlee and Ronan, in order to compare construction costs of alignment alternatives, portions of adjacent segments are included.
[1]Lane Configuration A is the CSKT preferred alternative for the existing alignment. Polson Alignment 3 is the MDT preferred alternative. Polson Alignment 3 is not the CSKT preferred alternative.

With Alignment 2, the one-way couplet in Ronan, the new southbound roadway one block west of the existing alignment will be constructed first, while highway traffic remains on the existing highway. Businesses and residences located along the southbound route will receive impacts similar to those described above for Alignment 1 and Lane Configuration A except that fewer businesses will be affected and alternative access to most residences could be provided. When the southbound roadway is completed, US 93 traffic will be placed on it while the existing alignment is reconstructed. The construction for the two-lane roadway required for the northbound lanes will be minor and will involve only the construction of concrete curb and gutter and sidewalk, minor improvement to the existing pavement and an asphalt overlay.

If Alignment 2, 3 or 4 is constructed in Arlee, if Alignment 3 or 4 is constructed in Ronan, or if Alignment 2 or 3 is constructed in Polson, noise and air quality impacts may still occur but will be less severe because there are fewer homes and businesses located close to them. Maintenance of traffic will be much easier because traffic will be maintained on the existing roadway throughout construction and will not be substantially affected by highway construction.

Major construction material quantities and construction costs are summarized on Tables 7.20-2 and 7.20-3.

7.20.3.1. Economic Impacts of Project Construction

Project construction will have positive impacts on the Lake County economy by directly creating employment and earnings for area residents. The current MOA between MDT and CSKT provides that 80% of laborer jobs and 50% of truck driver and operator jobs be awarded to tribal members for highway construction projects on the Flathead Indian Reservation. The agreement insures that a high percentage of construction workers will be hired from the Lake County labor pool. Some Lake County residents who are not tribal members also will be hired by contractors. Most out-of-county workers are expected to commute from Missoula or Flathead County.[122]

To provide a representative estimate of economic impact associated with construction, employment and earnings are based on the construction requirements of Lane Configuration B, a four-lane highway. Comparisons are then provided for Lane Configurations A, C and D.[123]

Over the period of construction, Alignment 1 (existing alignment), with Lane Configuration B (four-lane highway) will result in total direct employment of 520 construction workers, measured in person years. Of the total construction workers, 302 (58%) will be from Lake County; there will be 269 tribal construction workers, which will be 52% of the total and 89% of Lake County construction workers. Annual average employment will be 65 total construction workers, of which 38 will be from Lake County and 34 will be tribal members. In addition to direct employment, construction will generate 241 indirect jobs in Lake County, for total direct and indirect employment of 543 jobs over the period of construction.[124]

Total direct earnings for construction workers will be $15 million, of which $8.4 million (56%) will be for Lake County workers. Workers who are tribal members will have earnings of $7.6 million, which is 51% of total construction worker earnings. In addition to direct earnings, construction will generate $4 million in indirect earnings in Lake County, for total direct and indirect earnings of $12.4 million over the period of construction. Annual average direct and indirect earnings for Lake County will be $1.6 million.[125]

Compared with the existing alignments at Arlee, Ronan and Polson, the alternate highway alignments that will have the longest distance of new highway construction around the communities will result in higher levels of employment

[122]Jim Boyer. U.S. Highway 93 Economic Impact Analysis Technical Report. 1993.
[123]Ibid.
[124]Ibid.
[125]Jim Boyer. U.S. Highway 93 Economic Impact Analysis Technical Report. 1993.

and earnings ranging from 12 to 31%. Compared with Lane Configuration B, Configuration A will result in 40% less employment and earnings. Configurations C and D will increase employment and earnings by 17 and 22%, respectively, compared with Configuration B.[126]

Contractor and construction worker expenditures in Lake County will further benefit the local economy. Contractor purchases are expected to include concrete, gravel, fuel, and miscellaneous tools and supplies. Expenditures by Lake County construction workers will be similar to expenditures by other county residents. Purchases by non-local workers will be mainly for food and beverages and gasoline and convenience store goods. Local purchases will increase sales by Lake County businesses and create additional jobs and earnings for county residents.

Assuming Lake County residents are hired to fill secondary jobs induced by local contractor and construction worker purchases, the county unemployment will be reduced by about 0.6% for the full period of construction.

Mitigation

Potential air quality, noise, erosion and water quality impacts will be mitigated as described in Section 7.20.2.

If roadway construction occurs through Arlee, Ronan or Polson on the existing alignment, a detailed and well organized traffic control plan will be particularly important. The plan must be developed and coordinated with local business, CSKT and local governments to ensure that, to the extent possible, needs of the community are met and that delay and inconvenience are no more than necessary and that safety is not compromised. Advance notice of construction activities and weekly updates of construction activities, using local news media, will be useful.

[126] Ibid.

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8. LIST OF PREPARERS

The Federal Highway Administration (FHWA) in cooperation with the Montana Department of Transportation (MDT) is responsible for the preparation of this ~~draft~~final environmental impact statement (EIS). Table 8-1 lists representatives of these two agencies, and their education and experience. Morrison-Maierle, a Helena, Montana based engineering firm, under contract to MDT, prepared this document. Carter Burgess, a Denver, Colorado based engineering firm and a subcontractor to Morrison-Maierle, completed studies and evaluations related to the Polson, Montana area. Tables 8-2, 8-3 and 8-4 list representatives of Morrison-Maierle, Carter Burgess, and the Confederated Salish and Kootenai Tribes, their project responsibility, education and experience.

Table 8-1 List of Preparers, Agencies

Name, Title and Project Responsibility	Education	Experience
MONTANA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS:		
Joel Marshik, Manager Environmental Services, Environmental and Hazardous Waste Bureau, MDT	B.S., Civil Engineering B.S., Biology M.F., Forestry	~~Twenty-four~~Twenty-eight years experience in U.S. Forest Service engineering, road design and water quality
Gordon Stockstad, Supervisor, Resources Section, Environmental and Hazardous Waste Bureau, MDT EIS Reviewer	B.S., Industrial Arts Education	~~Twenty-four~~Twenty-eight years experience in Traffic Engineering, Highway Design and Environmental Analysis and Coordination
Thomas J. Barnard, Administrator, Highway Division, Montana Department of Transportation	B.S., Civil Engineering, Professional Engineer	~~Twenty-seven~~Thirty-one years experience in highway design, construction and administration
Edrie L. Vinson, Past Chief, Environmental and Hazardous Waste Bureau, MDT Project Coordinator	B.A. and M.A., History and Archaeology	~~Eighteen~~Twenty-two years of experience in Environmental Management and Cultural Resource Preservation.
U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION		
Dale W. Paulson, Environmental and Project Development Engineer, FHWA Project Coordinator	B.S., Civil Engineering, Professional Engineer	~~Nine~~Thirteen years of experience in environmental coordination.

Table 8-2 List of Preparers, Morrison-Maierle

Name and Project Responsibility	Education	Experience
Brad Peterson, Project Manager	B.S. Civil Engineering Professional Engineer	~~Eighteen~~Twenty-two years of experience in highway planning, engineering, design and environmental evaluation.
John Hodnik, Assistant Project Manager	B.A. Political Science/Economics	~~Fifteen~~Nineteen years of experience in social, economic and land use planning.
Ginger Thomas, Consultant-Tribal Liaison	M.S., Wildlife Biology; B.A. Geography	~~Ten~~Fourteen years of experience in fisheries biology.
Gerald Graham, Preliminary Highway Design	Two-Year Degree, Civil Engineering Technology	~~Thirty-five~~Thirty-nine years of experience in planning and design of highways and streets.
Matt Delich, Traffic Operations	B.S. & M.S., Civil Engineering; Professional Engineer	~~Twenty-five~~Twenty-nine years of experience in traffic engineering and transportation planning.
Margaret Hofacker, GeoResearch, Inc., Air Quality	M.S., Environmental Engineering; B.S., Chemical Engineering	~~Three~~Seven years of experience in environmental engineering.
Tim Krause, Shapiro & Associates, Inc., Noise	B.S., Environmental Science; M.S. Environmental Systems Engineering; J.D.	~~Twelve~~Sixteen years of experience in preparing and reviewing environmental assessments and impact statements.
Mark Franchi, Floodplains	B.S., Civil Engineering	~~Four~~Eight years of experience in water resources.
Ray Breuninger, Wildlife and Wetland Coordination	Ph.D., Geology	~~Sixteen~~Twenty years of experience in environmental evaluation and assessment.
Joe Elliott, Threatened & Endangered Species	B.S., Biology and Chemistry; Ph.D., Botany	~~Twenty-one~~Twenty-five years of experience as an ecological consultant.
Janene Caywood, Historical Research Associates, Inc., Cultural Resources	B.S. & M.A., Anthropology	~~Thirteen~~Seventeen years of experience on cultural resource projects.
Daphne Digrindakis, Chen-Northern, Inc., Hazardous Materials	B.A., Geology	~~Ten~~Fourteen years of experience as an environmental scientist and reclamation specialist.

Table 8-2 List of Preparers, Morrison-Maierle (continued)

Name and Project Responsibility	Education	Experience
Sandra Fischer, Fischer & Associates, Visual Quality	B.S., Landscape Architecture; M.A., Art	~~Eighteen~~Twenty-two years of experience in landscape aesthetics.

Table 8-3 List of Preparers, Carter Burgess

Name and Project Responsibility	Education	Experience
Jeanette Lostracco Polson Project Manager	B.A., Geography; Master of Business Administration	~~Thirteen~~Seventeen years of experience in environmental analysis.
Gina McAfee, Assistant Project Manager	B.S., Landscape Architecture	~~Sixteen~~Twenty years of experience in environmental analysis.
Nancy Bauer Polson Transportation Planner	B.A., Social Ecology; M.A., Urban and Regional Planning	~~Fourteen~~Eighteen years of experience in transportation planning.
Joe Hart Transportation Analysis	M.S., University of Colorado; Montana Registered Professional Engineer	~~Sixteen~~Twenty years of experience in conceptual design, traffic engineering, transportation planning and transit analysis.
Nanette Neelan Traffic Operations and Conceptual Highway Design	B.S., Civil Engineering, Registered Professional Engineer	~~Twelve~~Sixteen years of experience in traffic highway planning, engineering and design.
Lee Cryer Noise and Air Quality	B.S., Economics; M.A., Regional Science	~~Six~~Ten years of experience in transportation planning.
Lisa Holewinski Visual Analysis	B.S., Ornamental Horticulture; Masters Landscape Architecture	~~Five~~Nine years of experience in planning and design of streetscape, parks and trails.
Jan McKee Greystone, Wetlands	B.S., Botany; M.S., Plant Ecology	~~Eight~~Twelve years of experience in vegetation and wetland evaluation, and impact analysis.
Mike Bonar Greystone, Wildlife	B.S., Environmental Biology	~~Five~~Nine years of experience in wildlife and threatened/endangered evaluation and impact analysis.
Jim Boyer Social and Economics	B.A., History; B.A.A., Marketing; M.S., Planning and Economics	~~Eighteen~~Twenty-two years of experience in socio-economic analysis in Montana.

Table 8-3 List of Preparers, Carter Burgess (continued)

Name and Project Responsibility	Education	Experience
Nick Kaufman WGM Group, Land Use	B.A., Economics; M.S., Rural, Town and Regional	~~Fifteen~~Nineteen years of experience in planning.
Lynn Fredlund GCM, Cultural	Ph.D., Archaeology; M.A., Anthropology; B.S., Anthropology	~~Twenty~~Twenty-four years of experience in cultural resource inventories and assessments.
Scott Richman	Bachelors, Environmental Design	~~Two~~Six years of experience in planning.

Table 8-4 List of Preparers, Confederated Salish and Kootenai Tribes

Name and Project Responsibility	Education	Experience
Dale Becker	B.S., M.S. Wildlife Biology	~~Four~~Six years of experience as a Wildlife Project Manager/Tribes.
Sue Ball	B.S., M.S. Wildlife Biology	Six years of experience as a Tribal Wildlife Biologist

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9. CIRCULATION OF THE FINAL~~DRAFT~~ ENVIRONMENTAL IMPACT STATEMENT

Copies of this ~~draft~~final environmental impact statement (EIS) are being furnished to federal agencies that have jurisdiction by law or special expertise with respect to any environmental impact involved and any appropriate federal, state, tribal or local agency authorized to develop and enforce environmental standards. This document is also being furnished to any person, organization or agency that has requested a copy of the entire document.

These entities include:

- Members, and the agencies or organizations they represent, of the Project Interdisciplinary Team as described in Chapter 10.

- Members, and the agencies or organizations they represent, of the community teams for Arlee, Ronan, Pablo and Polson as described in Chapter 10.

MASTER LIST
EVARO TO POLSON, NH, F 5-1(9)6
REVISED 6/6/96 Moiene

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x	U.S. Dept. of Transportation	Federal Highway Administration	Dale Paulson	301 S Park, Drawer 10056	Helena	MT	59626
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x	John Stromnes	Missoulian		500 South Higgins	Missoula	MT	59807
x	University of Montana	Environmental Library		758 Eddy Avenue	Missoula	MT	59801
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x	Ronan City Library			203 Main SW	Ronan	MT	59864
x	Ronan Telephone Co.	Mr. Jay Preston		Drawer 2	Ronan	MT	59864
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x	Flathead Cultural Committee			P.O. Box 418	St. Ignatius	MT	59865
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x	Honorable Ken W. Hurt	Mayor, Town of St. Ignatius		P.O. Box 103	St. Ignatius	MT	59865
x	Jeanine Allard			P.O. Box 460	St. Ignatius	MT	59865
x	Sandra & William Munoz		P.O. Box 370	12023 Watson	St. Ignatius	MT	59865
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x	St. Ignatius Public Library				St. Ignatius	MT	59865
x	Tim Biggs	History Department	St. Ignatius High School		St. Ignatius	MT	59865
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x	Dick Dyer		Foresgren Associates	15 Madison Ave	W. Yellowstone	MT	59758
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x	Federal Railroad Administration	Office of Economic Analysis	RRP-32	400 Seventh Street, SW	Washington	DC	20590
x	U.S. Dept. of Interior	Director	Office of Environmental Affair	1849 C Street, NW	Washington	DC	20240
x	Roy Duff	Highway Commissioner		P.O. Box 185	Whitefish	MT	59937
x	John Stromnes	The Missoulian		P.O. Box 8029	Missoula	MT	59807
x	*Coalition for Canyon Preserv.	Sharlon Willows		Box 422	Hungry Horse	MT	59919
x	Ken Howlett			Box 392	Polson	MT	59860

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10. COMMENTS, COORDINATION AND ISSUES

10.1. COORDINATION

10.1.1. Prior Environmental Assessments (EAs)

The proposed action was originally planned for development in several sections, as summarized on Table 10.1-1.

Four sections were planned for development in 1989-90 by the Montana Department of Transportation (MDT) and the Federal Highway Administration (FHWA) including:

Evaro-Dirty Corner, 8.7 miles;
Dirty Corner-Ravalli, 12.4 miles;
Ravalli-North, 8.1 miles; and
Ronan-Polson, 11.2 miles.

Public coordination efforts were initiated and documented for each of these four projects -- a Notice of Intent was issued on 15 February 1989 for the Dirty Corner-Ravalli Project, 06 July 1989 for the Evaro-Dirty Corner and Ravalli-North projects and 16 January 1990 for the Ronan-Polson project. The notice was sent to tribal, federal, state and local agencies and affected private individuals and organizations. Several public scoping meetings were held and location and design public hearings were conducted for the Evaro-Dirty Corner, Dirty Corner-Ravalli and Ravalli-North projects. During this process and at the request of the Confederated Salish and Kootenai Tribes (CSKT), it was determined by FHWA in cooperation with MDT that a single environmental impact statement (EIS) should be prepared.

At the time of the decision to prepare an EIS, it was also decided by MDT and FHWA that the entire length of US 93, from Evaro to Polson should be included in the EIS analysis and documentation. For that reason the 12.3 mile-long Ronan-South section was added. In 1992, based on information received from public scoping meetings and preliminary environmental evaluations, it was determined by FHWA and MDT at the request of CSKT that the 3.8 mile-long section of US 93 through the city of Polson should also be included with the EIS.

10.1.2. U.S. Highway 93 Environmental Impact Statement (EIS)

On 08 August 1991, a Notice of Intent was prepared and mailed to federal, state and local agencies, and interested private organizations and citizens. The notice explained the scope and purpose of the proposed action, indicated that an EIS was being prepared and requested written comments.

On 04 September 1991, a meeting was held at the tribal complex in Pablo with representatives of MDT and CSKT to discuss upcoming public scoping meetings and how to best involve and solicit comments from the public.

An Interdisciplinary Team (ID Team) including representatives from tribal, federal, state and local agencies, and private organizations was established to provide a forum for members to discuss key issues and comments relating to their respective agency. The representative of each agency is listed on Table 10.1-2.

The purpose of the ID Team has been to discuss and provide recommendations on key issues, attend public scoping meetings and record comments, to present and review various studies, to review sections of the draft EIS and final EIS to ensure that each agency's concerns and recommendations are identified and addressed, and to develop recommendations for a preferred alternative ~~an "ID Team preferred alternative"~~ for the proposed action.

ID Team meetings ~~have been~~were held approximately every two to three months during~~since~~ the development of the draft EIS ~~began~~.

For Arlee, Ronan, Pablo and Polson, individual community teams were established to provide a forum for representatives of the community at large, including local government, businesses, and schools, to review alternatives for highway improvement and make recommendations specific to each community. A list of each community team is included in Tables 10.1-3 and 10.1-4. Each community team held meetings as shown in Table 10.1-5.

Table 10-1-1 Prior Projects

Project Number	Project Name	From Milepost	To Milepost
F5-2(8)6	Evaro-Dirty Corner	6.3	15.0
F5-2(34)15	Dirty Corner-Ravalli	15.0	27.4
F5-2(38)27	Ravalli-North	27.4	35.5
F5-2( )36	Ronan-South	35.5	47.8
F5-2(33)48	Ronan-Polson	47.8	59.0
NH 5-2(46)59	Polson	59.0	62.8

Table 10.1-2 Interdisciplinary Team

Interdisciplinary Team Members		
Joel Marshik, Manager Environmental Services Environmental and Hazardous Waste Bureau Montana Department of Transportation 2701 Prospect Avenue Helena, MT 59620	Derwyn Halvorson, Branch Chief Agency Roads Department Flathead Agency Bureau of Indian Affairs P.O. Box A Pablo, MT 59855	Kim Aipperspach Ronan City Council 440 7th Avenue NW Ronan, MT 59864
Dale W. Paulson Environmental and Project Development Engineer Federal Highway Administration 301 S. Park Street, Drawer 10056 Helena, MT 59626-0056	Chane Salois Irrigation Manager Flathead Irrigation Project Bureau of Reclamation P.O. Box G St. Ignatius, MT 59865	Dave Stipe Lake County Commissioner 106 4th Avenue E. Polson, MT 59860
Indian Programs Coordinator Region VIII, Montana Office Environmental Protection Agency Federal Building, 301 S. Park, Drawer 10096 Helena, MT 59626-0096	Department of Health and Human Services Public Health Service P.O. Box 280 St. Ignatius, MT 59865	Horace Brown Missoula County Surveyor Missoula County Courthouse Missoula, MT 59802
Howard Kutzer Rocky Mountain, Denver U.S. Department of Housing and Urban Development First Interstate Tower 633 17th Street Denver, CO 80888	Carol Gleichman Advisory Council on Historic Preservation 730 Sims Street #401 Golden, CO 80401	Kyle Karstens Polson City Council 1312 9th Street East Polson, MT 59860
Kevin Shelley Fish and Wildlife Enhancement Kalispell Suboffice U.S. Fish and Wildlife Service 780 Creston Hatchery Road Kalispell, MT 59901	Ginger Thomas Tribal Consultant Liaison Confederated Salish and Kootenai Tribes 502 Livingston Avenue Missoula, MT 59801	Tony Hoyt, Representative Flathead Resource Organization c/o Hummingbird Toys and Treats Box 281 Arlee, MT 59821
U.S. Army Corps of Engineers, Omaha District 215 N. 17th Street Omaha, NB 68102-4978	John Lindahl Soil Scientist U.S. Natural Resources Conservation Service 514 S. 23rd Avenue Bozeman, MT 59715	

Table 10.1-3 Community Teams

Arlee Community Team	Ronan Community Team	Pablo Community Team
Charlene Petet P.O. Box 354 Arlee, MT 59821	Kim Aipperspach Ronan City Council 440 7th Avenue NW Ronan, MT 59864	Jerry Slater Salish Kootenai College P.O. Box 117 Pablo, MT 59855
Tony Hoyt P.O. Box 281 Arlee, MT 59821	Jay Preston 717 2nd Place SW Ronan, MT 59864	Bryan Hall P.O. Box 277 Pablo, MT 59855
Gayle Crane, Superintendent School Dist No. 8 Box 37 Arlee, MT 59821	Gordon Granley 2200 Terrace Lake Road Ronan, MT 59864	Chane Salois, Irrigation Mgr. Flathead Irrigation Project, Bureau of Reclamation, P.O. Box G Pablo, MT 59855
Louie Adams CSKT Council Member P.O. Box 278 Pablo, MT 59855	Robert Halgren Superintendent: School District No. 30 532 4th Avenue SW Ronan, MT 59864	Larry Anderson, Principal Two Eagle River School P.O. Box 362 Pablo, MT 59855
Hank Baylor CSKT Council Member P.O. Box 278 Pablo, MT 59855	John Lozeau P.O. Box 278 Pablo, MT 59855	Lloyd Irvine CSKT Council Member P.O. Box 278 Pablo, MT 59855
Dave Stipe Lake County Commissioner 106 4th Avenue East Polson, MT 59860	Dave Stipe Lake County Commissioner 106 4th Avenue East Polson, MT 59860	Gerald Newgard Lake County Commissioner 106 4th Avenue East Polson, MT 59860
Aileen Meyer P.O. Box 283 Arlee, MT 59821		

Table 10.1-4 Polson Community Team

Polson Community Team		
Kyle Karstens Polson City Council 1312 9th Street East Polson, MT 59860	George Mahoney P.O. Box 1127 Polson, MT 59860	Jerry Sorenson Land Services 106 4th Avenue East Polson, MT 59860
Bob Fulton City Engineer 217 Main Street Polson,MT 59860	Pat Lefthand CSKT Council Member P.O. Box 278 Pablo, MT 59855	Bill Coffee Community Development P.O. Box 1506 Polson, MT 59860
Rich Forbis Chamber of Commerce 510 20th Avenue West Polson, MT 59860	Michael Lies City Council P.O. Box 1689 Polson, MT 59860	Fred Bente Montana Dept. of Trans. 2701 Prospect Avenue Helena, MT 59601
Jim Weaver Montana Dept. of Trans. P.O. Box 7039 Missoula, MT 59807	Don Smith School Dist. #23 414 6th Avenue West Polson, MT 59860	Ginger Thomas Tribal Consultant Liaison 502 Livingston Avenue Missoula, MT 59801

Table 10.1-5 Community Team Meetings

Town	Place	Date	Time	Purpose
Arlee	CSKT's Alcohol and Substance Abuse Program Office	20 October 1992	3:00 to 5:00pm	Discuss alternatives, design options and issues related to proposed improvement to U.S. Highway 93 through the Arlee area.
	CSKT's Alcohol and Substance Abuse Program Office	04 November 1992	3:00 to 5:00pm	Discuss alternatives, design options and issues related to proposed improvement to U.S. Highway 93 through the Arlee area.
	CSKT's Alcohol and Substance Abuse Program Office	13 January 1993	3:00 to 5:00pm	Discuss alternatives, design options and issues related to proposed improvement to U.S. Highway 93 through the Arlee area.
	CSKT's Alcohol and Substance Abuse Program Office	02 June 1993	3:00 to 5:00pm	Discuss proposal by CSKT concerning special mitigation measures for business impacts.
Ronan	Ronan City Hall	20 October 1992	7:00 to 9:00pm	Discuss alternatives, design options and issues related to proposed improvement to U.S. Highway 93 through the Ronan area.
	Ronan City Hall	04 November 1992	7:00 to 9:00pm	Discuss alternatives, design options and issues related to proposed improvement to U.S. Highway 93 through the Ronan area.
	Ronan City Hall	13 January 1993	7:00pm	Discuss alternatives, design options and issues related to proposed improvement to U.S. Highway 93 through the Ronan area.
Pablo	BIA East/West Conference Rooms	20 October 1992	7:00 to 9:00pm	Discuss alternatives, design options and issues related to proposed improvement to U.S. Highway 93 through the Pablo area.
	BIA East/West Conference Rooms	04 November 1992	7:00 to 9:00pm	Discuss alternatives, design options and issues related to proposed improvement to U.S. Highway 93 through the Pablo area.
	BIA West Conference Rooms	07 January 1993	6:00 to 8:30pm	Discuss the alternatives and issues related to proposed improvement to U.S. Highway 93 through the Pablo area.
Polson	Polson City Library	10 November 1992	7:00pm	Study background; sub-ID Team roles and responsibilities; EIS process/methodology; Public Involvement Program; selection of initial alternatives; and schedule.
	Polson City Library	02 December 1992	7:00pm	Reviewed Alternatives 1 through 6. Discussed issues map. Refined alternative routes, combining several.
	Lake County Courthouse	19 January 1993	7:00pm	Present and discuss alternatives A through H; review community planning issues; determine alternatives that will be advanced in the study.
	Lake County Courthouse	03 February 1993	7:00pm	Present and discuss alternatives; reduce number to a more manageable set to present at Scoping Meeting.
	Lake County Courthouse	05 August 1993	7:00pm	Community team recommended Alternative 3 as the preferred alternative.

An organized public scoping process has been conducted to encourage and provide an opportunity for public comment on the proposed action. Meetings have been held as shown on Table 10.1-6. A notice for each meeting was generally advertised one to two weeks prior to each meeting in newspapers in or near the area of the proposed action, including the Missoulian, Lake County Leader, Char-Koosta News and the Daily Interlake. Written notice of each meeting was also sent to all individuals and agencies who requested to be on the mailing list.

Each meeting has included a brief presentation explaining the history of the proposed action to-date, the environmental review process, the purpose of each meeting and planned future activities. Public comment has been requested and recorded by members of the ID Team and community teams on special forms. Displays have been available at each meeting and have consisted of maps showing alignments under consideration, drawings showing lane configurations under consideration and large scale aerial photographs. At some of the meetings, informational handouts have been provided. At all meetings, individuals have been encouraged to write their name and address on forms provided and they have been added to the mailing list. At all meetings, forms have been provided for submitting written comments.

The focus of the first three series of meetings was on the area in general, while meeting series four and five, and the three Polson meetings were on the specific community.

Other meetings have been held with public and private organizations interested in the proposed action including:

03 February 1992, meeting with the Kootenai and Salish culture committees at 11:00 am at the Longhouse in St. Ignatius

04 February 1992, meeting with the CSKT Tribal Council at 1:00 pm, tribal council chamber, in Pablo

04 May 1992, meeting of the members of the CSKT tribal staff at 10:00 am, in Pablo

26 August 1992, meeting of the members of the CSKT tribal staff (three meeting segments) held at the Lands Department, in Pablo

29 October 1992, ID Team meeting

13 November 1992, CSKT Tribal Council

21 January 1993, Polson Kiwanis Club meeting held at the Diamond Horseshoe Restaurant, in Polson

12 January 1993, Polson Rotary Club meeting held at the Pondera Restaurant, in Polson

02 February 1993, Polson/U.S. Highway 93 presentation to the CSKT Tribal Council, in Pablo

02 February 1993, St. Ignatius City Council meeting at 7:00 pm in city hall

03 February 1993, Polson Chamber of Commerce meeting at noon

22 February 1993, Polson City Council in Polson

02 March 1993, St. Ignatius City Council meeting at 7:00 pm in city hall

August 1993, CSKT Tribal Council, in Pablo

01 November 1993, Polson City Council in Polson

02 November 1993, Lake County Commissioners in Polson

14 November 1993, Polson/US 93 presentation to the CSKT Tribal Council in Pablo

11 January 1994, CSKT Tribal Council, in Pablo

28 January 1994, Salish-Kootenai College, television show, in Pablo

Table 10.1-6 Scoping Meetings

Meeting Series	Town	Place	Date	Time	Purpose
1	Arlee	Arlee Elementary School Cafeteria	03 October 1991	2:00 to 4:30 pm	To receive information from the public on issues that should be addressed in the EIS.
	Ronan	Ronan High School Gym	03 October 1991	7:00 to 9:30 pm	To receive information from the public on issues that should be addressed in the EIS.
	Pablo	CSKT Tribal Council chamber	21 November 1991	7:00 to 9:30 pm	To receive information from the public on issues that should be addressed in the EIS.
2	St. Ignatius	St. Ignatius Community Center	03 February 1992	2:00 pm	To receive information from the public on alternatives that should be addressed in the EIS.
	Polson[1]	Polson City Library	03 February 1992	7:00 pm	To receive information from the public on alternatives that should be addressed in the EIS.
3	St. Ignatius	St. Ignatius Community Center	04 June 1992	2:00 to 5:00 pm	Present findings of preliminary environmental studies and to receive additional information.
	Pablo	BIA West Conference Room, in Pablo	04 June 1992	7:00 to 10:00 pm	Present findings of preliminary environmental studies and to receive additional information.
4	Arlee	Tribal Community Center	28 September 1992	1:00 to 3:00 pm	To receive comment related to alternatives under consideration in the Arlee area.
	Ronan	Ronan High School Gym	29 September 1992	7:00 pm	To receive comment related to alternatives under consideration in the Ronan area.
	Pablo	CSKT Tribal Council Chamber	28 September 1992	7:00 pm	To receive comment related to alternatives under consideration in the Pablo area.
5	Arlee	Arlee High School lunchroom	02 December 1992	7:00 pm	To receive comment related to alternatives under consideration in the Arlee area.
	Ronan	Ronan High School Gym	01 December 1992	7:00 pm	To receive comment related to alternatives under consideration in the Ronan area.
	Pablo	BIA Conference Rooms,in Pablo	02 December 1992	1:00 to 3:00 pm	To receive comment related to alternatives under consideration in the Pablo area.
1[2]	Polson	Polson Elks Lodge	19 November 1992	7:00 pm	Introduce study and participants; its primary purpose and to receive public comments about Polson's traffic conditions and potential improvement.
2[2]	Polson	Lake County Courthouse Conference Room	15 December 1992	7:00 pm	Present a summary of concerns and comments raised at the first meeting; review more data and alignment alternatives.
3[2]	Polson	Elk's Lodge	16 February 1993	6:00 to 9:00 pm	Present summary of comments received at previous meetings and alternatives under consideration to be analyzed.

[1]Open forum held in Polson with focus on Project Area. [2]Specific Polson community team meetings.

On 09 December 1992, the ID Team; on 17 December 1992, CSKT staff and council members; and on 11 January 1994, CSKT council members and the ID Team; went on bus tours of the area of the proposed action. The focus of each tour was on wildlife and wetland impacts, and on alternate alignments in Arlee, Ronan, Pablo and Polson. Participants provided comments that combined recommendations, observations, and questions. (Public Comments, Book 2)

On 13 January 1993, the Flathead Resource Organization (FRO) prepared a proposal that offers design alternatives for the proposed action. The FRO Plan is based on improving safety, reducing traffic, and preserving local communities and the environment by improving the existing two-lane highway with specific design options, law enforcement, elimination of multi-trailer semis and development of mass transit, all of which are outlined, in detail, in their proposal. (Public Comments, Book 2)

10.1.3. Coordination of Response to Comments on the Draft EIS

A series of meetings was held between July 1995 and January 1996 to coordinate responses to comments on the draft EIS. The meetings were held at various locations on the Flathead Indian Reservation to discuss analysis of issues that will have changes in the final EIS. Table 10.1-7 presents a list of the meetings that were held to coordinate responses to comments on the draft EIS for the final EIS.

Table 10.1-7 Meetings Held To Coordinate Changes In The Draft EIS For The Final EIS
This table has been added to the final EIS.

Meetings Held To Coordinate Changes In The Draft EIS For The Final EIS			
DATE OF MEETING	LOCATION	PURPOSE OF MEETING	RESULT OF MEETING
27 April, 1995	Polson, MT	Discuss Ninepipe, wetlands and stream crossing issues.	Determined more coordination will be necessary for these items.
28 April, 1995	Pablo, MT	Discuss special management strategy for Evaro wildlife corridor.	Determined cooperating agencies are satisfied with jurisdictional preservation of habitat. Determined there is concern about design of wildlife underpasses.
28 June, 1995	Morrison-Maierle Inc. Helena, MT	Coordinate with Environmental Protection Agency (EPA).	Determined planned responses to comments will satisfy EPA concerns.
12 July, 1995	Arlee, MT	Discuss Evaro wildlife crossing.	Determined a wildlife overpass will be better than a wildlife underpass.
4 August, 1995	Pablo, MT	Discuss wildlife overpass structure and stream crossings.	Determined need for other meetings to respond to tribal comments.
17 August, 1995	Pablo, MT	Discuss comments on traffic analysis.	Decided to update traffic information from 1991 to 1994 and design year from 2015 to 2020.
17 August, 1995	Pablo, MT	Discuss comments of culture committees and tribal education program.	Determined need for additional meetings with culture committees.
29 August, 1995	Pablo, MT	Discuss coordination of responses to tribal comments and coordination with tribal council.	Decided to prepare issues summaries for tribal council as a basis for identification of a preferred alternative.
30 August, 1995	Pablo, MT	Discuss Ninepipe, wetlands and stream crossing issues.	Determined more information is needed for design of highway through Ninepipe area.
31 August, 1995	Pablo, MT	Discuss population growth and review method for estimating commuter-related population growth.	Decided to continue working on an estimate of commuter related population growth.
11 September, 1995	Polson, MT	Discuss school bus routes with superintendents of public schools.	Determined need to coordinate design of highway with school officials.
18 September, 1995	Pablo, MT and Ninepipe National Wildlife Refuge	Discuss design of highway through Ninepipe area.	Continue to develop information for the Ninepipe area.

Meetings Held To Coordinate Changes In The Draft EIS For The Final EIS			
DATE OF MEETING	LOCATION	PURPOSE OF MEETING	RESULT OF MEETING
19 September, 1995	Pablo, MT	Discuss revised traffic analysis.	Determined two-lane highway doesn't have adequate capacity and can't reduce traffic for desirable level-of-service.
20 September, 1995	Pablo, MT	Discuss method to estimate commuter-related population growth.	Continue to work on commuter-related population growth.
25 September, 1995	Pablo, MT	Discuss concerns of highway accelerating change and affecting traditional values.	Determined impacts will occur over next 20 years and safety must be important consideration.
16 October, 1995	Helena, MT	Review draft copies of issues summaries.	Continue to work on issues summaries.
16 November, 1995	Pablo, MT	Discuss mitigation of impacts to wetlands.	Decided to develop a wetlands mitigation plan before completion of final EIS.
17 November, 1995	Pablo, MT	Discuss revised analysis of air quality.	Determined method of analysis is acceptable and need to continue to coordinate information.
11-15 December, 1995	Pablo, MT	Conduct field reconnaissance of properties to be developed as replacement wetlands.	Use information for the wetlands mitigation plan.

10.2. COMMENTS

Comments were received from 455 individuals, businesses and private organizations during the public scoping process. Refer to the list of meetings in Section 10.1. The comments consist of written comments, letters and comments transcribed during scoping meetings. Table 10.2-1 shows the total comments on 18 issues by meeting series. Safety was a major focus of the comments and was associated with each of these issues.

10.3. ISSUES

The following is a list of issues that have been presented by participants in the public scoping process. The issues are generally listed under the headings corresponding to the section in the ~~draft~~final environmental impact statement (EIS) where they are discussed.

ALTERNATIVES UNDER CONSIDERATION (Chapter 5)

Public comments expressed interest in a set of alternatives that would consider whether it will be necessary to widen the highway to four lanes to provide adequate highway capacity and desirable level-of-service (LOS). Comments identified a range of transportation options to consider in the analysis of increasing traffic volume and the effect of highway improvement and transportation demand management (TDM) measures on highway capacity and LOS. It has been noted that traffic volumes and transportation needs during the five-month peak summer season (May through September) are greater than during the seven-month off-peak season.

Comments about highway improvement included consideration of two-lane, four-lane and divided four-lane configurations. Passing lanes, continuous two-way left-turn center medians, left-turn bays, alternate alignments around communities, one-way couplets, truck routes and design options such as access control and frontage roads have been suggested by the public. Other important highway design options mentioned by the public include improved approaches to the highway, improved intersections and turnouts for school buses and mail delivery.

Strong public opposition has been expressed for any alignment alternatives that divert traffic away from or around the community of Arlee and the city of Ronan.

Interest has been expressed in transportation demand management (TDM), which includes alternate highway routes and mass transit, conversion of truck to rail freight and various ridesharing strategies for traffic that regularly uses the highway.

Public comments identified U.S. Highway 93 in the Evaro-Polson area as a part of a regional transportation system centered on the highway and extending from the Idaho stateline northward through the Bitterroot, Missoula, Jocko, Mission and Flathead valleys to the Canadian border.

Table 10.2-1 Total Comments By Scoping Meeting Series

Information From Public Scoping Meetings:	Meeting Series #5 Community Focus			Meeting Series #4 Community Focus			Meeting Series #3 Project Area Focus			Meeting Series #2 Project Area Focus			Meeting Series #1 Project Area Focus			TOTAL OF ALL COMMENTS RECEIVED		
Open-ended discussion, so each comment does not mention every issue.	TOTAL COMMENTS			TOTAL COMMENTS			TOTAL COMMENTS			TOTAL COMMENTS			TOTAL COMMENTS			TOTAL COMMENTS		
	Fa	Op	WC	Fa	Op	WC	Fa	Op	WC	Fa	Op	WC	Fa	Op	WC	Fa	Op	WC
Existing Alignment-PSA	0	0	0	0	0	0	3	0	0	35	0	0	15	0	0	53	0	0
Existing Alignment-Towns	51	0	2	62	0	2	5	4	0	33	6	1	45	16	1	196	26	6
Alternate Alignment-PSA	0	0	0	0	0	0	2	1	0	1	3	1	4	1	0	7	5	1
Alternate Alignment-Town	4	22	6	7	19	2	2	2	0	23	5	2	20	9	0	56	57	10
Truck Route-Towns	1	0	1	4	1	1	1	0	0	4	0	0	3	0	0	13	1	2
One-Way Couplet	2	4	2	0	2	2	0	0	0	1	0	1	0	0	0	3	6	5
Widen Highway to 4-lanes	1	6	0	20	0	0	8	1	0	44	2	0	38	3	0	111	12	0
Improve Existing 2-lanes	12	0	0	3	0	0	1	0	0	11	0	0	14	0	0	41	0	0
More enforcement of speed limit	1	0	0	2	0	0	1	0	0	5	0	0	0	0	0	9	0	0
Lower speed limit	2	0	0	2	0	0	1	0	0	3	0	0	7	0	0	15	0	0
Access control	2	0	1	1	0	2	0	0	0	6	0	0	7	0	0	16	0	3
Continuous Left Turn Lane	2	1	0	2	5	4	1	2	1	9	11	0	5	10	0	19	29	5
More traffic signals/ controls	19	1	0	17	0	1	2	1	0	6	0	0	14	0	0	58	2	1
More pedestrian access	7	0	1	18	0	1	4	0	0	10	0	0	22	0	0	61	0	2
More bicycle access	5	0	0	5	0	0	3	0	0	3	0	0	12	0	0	27	0	0
Develop more rail freight	4	0	0	0	0	0	0	0	0	5	0	0	0	0	0	9	0	0
Develop more mass transit	2	0	0	0	0	0	0	0	0	3	0	0	0	0	0	5	0	0
Develop more HOV travel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total # Comments Forms	82			86			33			115			139			455		
Total attendance at mtg.	133			112			59			106			118			528		

Fa = Favor; Op = Oppose; WC = Would Consider --- PSA = Project Service Area --- HOV = High occupancy vehicle. SOURCE: Morrison-Maierle. 1990-1993.

There is interest in transit strategies and programs available with the Intermodal Surface Transportation Efficiency Act (ISTEA).

TRAFFIC OPERATION AND SAFETY (Sections 6.1 and 7.1)

Increased speed with a four-lane highway is a concern for improving safety and reducing accidents in communities and outside communities.

In communities, local residents identify traffic signals as a method to reduce speed, improve safety and increase access. Communities indicate that traffic traveling at highway speed is a barrier that restricts access for vehicles, pedestrians and bicyclists. There also is concern that widening the highway to four lanes will cause delay for traffic crossing the highway in communities. Public comments associated increased speed with the potential for increased accident rates on the highway outside communities.

Communities are concerned about comparing beneficial and adverse effects of diverting through traffic away from the existing alignment to alternate alignments. Alternate alignments will improve safety and access, but traffic is reduced for highway-oriented business. Alternate alignments contrast the safety and convenience of the traveling public outside communities with businesses that currently serve the traveling public in communities.

Throughout all of the public scoping meetings, by almost a three-to-one margin, public comments favored improving the highway with four-lanes rather than two-lanes.

LAND USE (Sections 6.2 and 7.2)

Public comments expressed concern about conversion of productive land to highway right-of-way (ROW). The value of a highway system that efficiently and safely provides transportation needs to be balanced with the value of land needed for the highway. Agricultural concerns identified effects on existing irrigation facilities, water rights and livestock crossings.

Governmental agencies with jurisdictional authority for land use planning and regulation are interested in integrating the land use planning process with access control and highway design and development.

Access control is seen as an aid for protecting existing businesses, controlling commercial strip development and residential sprawl, improving safety at approaches to the highway and for preserving access to county roads and maintaining value of private property. Land use also is an issue for establishing land use planning and regulation and coordinating jurisdictional authority among the tribal, county and municipal governments.

Land use also is of interest for highway signing and billboard controls that would balance rights of private property with the common desire to preserve the area's scenic values and natural setting.

Land concerns have also been expressed related to increased demand for use of recreation sites and wildlife habitat, as well as prime farmland and residential, commercial and industrial development.

SOCIAL (Sections 6.4 and 7.4)

Social concerns involve two types of population growth: 1) Ongoing growth that includes retirees, new residents who live and work in the area and temporary residents who maintain residences for seasonal occupancy; 2) population growth due to commuters who move to the area to live, but travel to work in the Missoula and Kalispell areas. If highway improvement results in more population growth, Native American social organization and the rural lifestyle would be influenced by the larger population. Public comments inquired whether highway improvement will accelerate or shift patterns of population growth, with increased demand on schools and other facilities/services.

ECONOMICS (Sections 6.5 and 7.5)

There is concern about the effects of increasing traffic and congestion on businesses that are located on or near the highway. Existing highway-related businesses will be less visible to through traffic with alternate alignments. If local sales decrease because of a shift in traffic, there will be losses of employment and earnings.

Availability of access to businesses and parking with increasing traffic and congestion also are considerations that are identified for businesses.

The highway will improve access from the area of the proposed action to Missoula and Kalispell, the region's major trade centers. With improved convenience and safety in travel, local businesses will be increasingly vulnerable to the concentration of retail trade and services in the larger communities.

PEDESTRIANS AND BICYCLISTS (Section 6.6 and 7.6)

Outside communities, public comments addressed whether separate bicycle, pedestrian and equestrian paths could be built parallel to the highway, rather than utilizing wider highway shoulders.

Signing, speed control, traffic signals, improving sidewalks and building pedestrian underpasses and overpasses also have been identified as methods to consider to improve access for pedestrians and bicyclists.

AIR QUALITY (Sections 6.7 and 7.7)

Environmental groups and CSKT expressed a need for a study of long-term impacts of air quality due to increased vehicle emissions caused by increasing traffic. It is a concern that an improved highway will increase traffic above recent rates of growth, rather than just providing adequate capacity and desirable LOS. There also is concern about the effects of using sand for maintenance during winter months, which causes airborne particulate matter, especially during the spring.

NOISE (Section 6.8 and 7.8)

Public comments indicated a concern that shifting traffic to rural areas will expose residential areas, cultural resources and recreation sites to increased noise.

WATER QUALITY (Sections 6.9 and 7.9)

There is concern that appropriate pollution control measures be used to assure protection of water quality, aquatic habitat and riparian areas. Increased development resulting from highway improvement is a concern for the capacity of water aquifers, which currently are exposed to high numbers of individual water and sewer systems. A future site for wastewater treatment is located in the area of a possible highway alignment on the northwest edge of Arlee.

Public comments indicated need for flood control and storm drainage, wastewater treatment and individual septic systems near highway development.

Existing and potential future channel changes of Jocko River, other streams (such as Spring and Agency creeks) and irrigation canals are a concern, especially to protect trout spawning from sedimentation and roadside drainage.

Mitigation for natural vegetation should be identified, including revegetation and erosion control.

Bridges over Jocko River and other streams should be constructed in a manner to adequately span the river and minimize channel modifications.

<u>WETLANDS</u> (Sections 6.10 and 7.10)

Highway improvement should replace the loss of wetlands, in accordance with Section 404 of the Clean Water Act.

Complete coordination between CSKT, the U.S. Fish and Wildlife Service (USFWS) and MDT will be important.

<u>FLOODPLAINS AND STREAM CROSSINGS</u> (Sections 6.11 and 7.11)

Bridges over Jocko River and other streams should be constructed in a manner to adequately span the river and minimize channel modifications. Culverts for streams and irrigation channels should be of adequate size to minimize damage from erosion due to floods and storm drainage.

Mitigation for natural vegetation should be identified, including revegetation and erosion control.

<u>FISH AND WILDLIFE</u> (Sections 6.12 and 7.12)

Public comments indicated concern with timing of construction activities to avoid impact on spawning trout, by designing culverts to allow fish passage.

Wildlife (black bear, deer, mountain lion, avocet, arctic swan, whistling swan, other waterfowl and turtles) are concerns for animal migration patterns and wildlife habitat, especially in riparian areas. There is a desire that highway design consider methods of reducing the danger of road kill, both for wildlife and human safety.

An existing problem with duck and turtle mortality is a concern for the highway through the Ninepipe National Wildlife Refuge. Six sensitive species (birds or waterfowl) are a concern, primarily in the vicinity of Kicking Horse and Ninepipe reservoirs.

Areas of special interest include:

- The Evaro area is a migration corridor for large mammals.
- Jocko River, Finley Creek and Spring Creek contain good populations of brown, rainbow and cutthroat trout -- care should be taken to avoid any additional encroachment by the highway.
- Mission and Sabine creeks contain good populations of trout and have high fishery and recreational value -- crossing designs should allow for adequate fish passage.
- "Avocet" pond for bird habitat, including whistling swans, south of the south Valley Creek turnoff
- In relation to wetlands, coverage of state or heritage program listed species is important.

<u>THREATENED OR ENDANGERED SPECIES</u> (Sections 6.13 and 7.13)

Threatened or endangered species are a concern and include grizzly bear, gray wolf, peregrine falcon, and bald eagle.

Preservation of migration routes, particularly for grizzly bear in the Evaro area, and installation of raptor-proof power lines are identified as methods to lessen effects of highway improvement.

CULTURAL RESOURCES (Sections 6.14 and 7.14)

Traditional cultural values and cultural resource sites are identified as concerns for highway improvement. Construction of a new, wider roadway may be a factor in changing the rural character and social organization of the area.

PARKS AND RECREATION (Sections 6.15 and 7.15)

Highway improvement will increase access to recreation in the area and throughout Flathead Valley. There is opportunity to coordinate travel information and manage recreation activities at various sites, including the National Bison Range, Ninepipe National Wildlife Refuge, Flathead Lake and other dispersed sites throughout the area.

HAZARDOUS MATERIALS (Sections 6.16 and 7.16)

Concerns about hazardous materials include:

- Truck traffic and the potential for spills of hazardous materials, especially near schools, in communities and at environmentally sensitive areas.

- Existing underground storage tanks that could be disturbed or concealed by construction.

VISUAL (Sections 6.17 and 7.17)

The development of a wider highway is a concern as a disturbance of the natural setting. Development along the highway, such as billboards and commercial strip development, are included with the highway facility as potential visual impacts.

Scenic/historic turnouts present an opportunity to provide clean, safe areas for viewing scenery. Maintaining existing views and developing new views from the highway is considered to be important for using scenic attractions to support the economy.

RELOCATIONS (Sections 6.18 and 7.18)

There is a concern the wider highway will displace existing businesses and housing and contribute to what is already perceived as a shortage of available residential land.

ENERGY/COMMITMENT OF RESOURCES (Section 7.19)

Public comments expressed interest in developing public transit, rail freight transit, and ridesharing or high occupancy vehicle travel. These items have the potential to limit use of energy and commitment of resources for both the amount of construction required for highway improvement and the amount of travel in individual vehicles. If reasonable and practical, these items will help to preserve adequate highway capacity and desirable LOS.

CONSTRUCTION (Section 7.20)

There is concern that construction along the route be designed and scheduled to minimize disturbance of communities, businesses and other human activities necessary to maintain the rural lifestyle.

Construction should reclaim any borrow areas that are created in the cut and fill operations.

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A. LIST OF ABBREVIATIONS

LIST OF ABBREVIATIONS

30 HV	30th Highest-Hourly Volume
AASHTO	American Association of State and Transportation Officials
ACHP	Advisory Council on Historic Preservation
ADT	Average Daily Traffic
ALCO	CSKT Aquatic Lands Conservation Ordinance
ARM	Administrative Rules of Montana
ATR	Automatic Traffic Recorder
bgs	Below Ground Surface
BIA	U.S. Department of the Interior, Bureau of Indian Affairs
BMP	Best Management Practices
CBD	Central Business District
CDP	Census Designated Place
CEIC	Montana Department of Commerce, Census and Economic Information Center
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CFS	Cubic Feet Per Second
CFT	Code of Federal Regulations
CO	Carbon Monoxide
COE	U.S. Army Corps of Engineers
C2WLTL	Continuous two-way left-turn lane
CSKT	Confederated Salish and Kootenai Tribes
CSP	Corrugated Steel Pipe
CSPA	Corrugated Steel Pipe Arch
CWA	Clean Water Act
dB	Decibels
dBA	A-weighted decibels
DHV	Design-Hourly Volume
EIS	Environmental Impact Statement
EA	Environmental Assessment
EIS	Environmental Impact Statement
FAP	Federal Aid Primary
FAS	Federal Aid Secondary
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHWA	U.S. Department of Transportation, Federal Highway Administration
final EIS	Final Environmental Impact Statement
FPPA	Farmland Policy Protection Act of 1981
FRO	Flathead Resource Organization
HUD	U.S. Department of Housing and Urban Development
ID Team	Interdisciplinary Team
ISC	Industrial Source Complex
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
Leq	Equivalent sound level, or average noise level
Leq(h)	Design hourly volume equivalent sound level
LOS	Level-of-Service
LWCF	Land and Water Conservation Fund
MAAQS	Montana Ambient Air Quality Standards
MAQB	Montana Air Quality Bureau
MAQS	Montana Air Quality Rules

MCA	Montana Code Annotated
MDFWP	Montana Department of Fish, Wildlife and Parks
MDHES	Montana Department of Health and Environmental Sciences
MDHES-WQB	Montana Department of Health and Environmental Sciences - Water Quality Bureau
MDNRC	Montana Department of Natural Resources and Conservation
MDT	Montana Department of Transportation
MHC	Montana Highway Commission
MM	Morrison-Maierle, Inc.
MME	Morrison-Maierle Environmental
MOA	Memorandum of Agreement
MPDES	Montana Pollutant Discharge Elimination System
MPH	Miles Per Hour
MRL	Montana Rail Link Railroad
MSHPO	Montana State Historic Preservation Office
MTS	Montana Secondary Highway
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969, as amended
NFIP	National Flood Insurance Program
NHS	National Highway System
NITS	National Intermodal Transportation System
NO_2	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
Pb	Lead
PM_{10}	Respirable Particulates
PSD	Prevention of Significant Deterioration
ROW	Right-of-Way
RV	Recreational Vehicle
SCS	U.S. Department of Agriculture, Soil Conservation Service
SO_2	Sulfur Dioxide
SPO	CSKT Shoreline Protection Office
SSPPA	Structural Steel Plate Pipe Arch
SWPPP	Storm Water Pollution Prevention Plan
TDM	Transportation Demand Management
TDP	Transit Development Plan
TSD	Technical Support Document
TSM	Transportation System Management
TSP	Total Suspended Particulates
USC	United States Code
USDI	U.S. Department of the Interior
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
VPH	Vehicles per hour measured as service flows with LOS
WPA	Waterfowl Production Areas
MDEQ	Montana Department of Environmental Quality
TranPlan21	Montana Intermodal Statewide Transportation Plan
NRCS	U.S. Natural Resources Conservation Service

B. GLOSSARY

GLOSSARY

30th highest-hourly volume (30 HV):	The 30th highest-hourly volume of traffic used in the design of highway facilities.
A-weighted decibels (dBA):	A numerical expression of the relative loudness of sound.
Accident rate:	A method of measuring accidents based on the number of accidents per million vehicle miles.
Accident severity:	A method of measuring the effects of accidents based on the incidence of injuries, fatalities and costs.
Acre-foot:	Volume of water to cover one acre of land to a depth of one foot.
Accidents per mile	A method of measuring accidents based on the frequency for each mile of highway.
Ambient air:	That portion of the atmosphere, external to buildings, to which the general public has access.
Ambient air quality:	A physical and chemical measure of the concentration of various chemicals in the ambient atmosphere.
American Association of State Highway and Transportation Officials (AASHTO):	A professional organization that provides guidelines and standards forming policies for individual state design practices.
Average daily traffic:	Typical daily traffic volume on a highway.
Class I Area:	Any area which is designated for the most stringent degree of protection from future degradation of air quality. The Clean Air Act designates as mandatory Class I areas each national park over 6,000 acres and each national wilderness area over 5,000 acres.
Class II Area:	Any area cleaner than federal air quality standards which is designated for a moderate degree of protection from future air quality degradation. Moderate increases in new pollution may be permitted in a Class II area.
Criteria pollutant:	A pollutant for which EPA has established a national ambient air quality standard under Section 109 of the Clean Air Act. Present criteria pollutants are: carbon monoxide, hydrocarbons, lead, nitrogen dioxide, ozone, sulfur dioxide and total suspended particulate.
Design-hour volume:	The traffic volume for the design hour, usually a forecast of the relevant peak-hour volume, in vehicles per hour.

Dispersion:	The action of mixing air containing a high concentration of pollutants arising from a pollutant source with the ambient air thereby reducing the ambient pollutant concentration.
Facilities/services:	Public and private infrastructure that provides for needs such as transportation, communications, utilities, safety, health, education and general government.
Fee land:	Land in private ownership.
Gabion wall:	A construction method using cylinders filled with earth or concrete to fortify steeper highway slopes and limit need for right-of-way.
Instream flows:	A minimum streamflow maintained in a channel to support aquatic habitats.
Level-of-service (LOS):	A method to provide a qualitative description for operation of highway traffic.
Migration:	Change of population associated with movement into or out of an area.
Mitigation measure:	Measures to reduce adverse impacts on resources in the environment.
National Highway System:	Federal system with 160,000 miles of surface transportation facilities.
Non-point source:	Activity that contributes pollutants to water and air over a broad area rather than through a point source.
Nonattainment Area:	A geographic area in which the quality of the air is worse than federal air pollution standards.
Noxious weed:	Plant of a kind that is of foreign origin, is new to or not widely prevalent in the United States.
Passerine:	Small or medium sized songbirds having grasping feet with the first toe directed backward. Includes more than half of all birds.
Particulate Matter:	Finely divided solids or liquids. Respirable Particulates are less than 10 microns in diameter.
Point source:	A distinguishable, confined means of discharging a pollutant
Pothole:	A round depression in the land often filled with water.
Riparian areas:	Green zones which often border wetlands, lakes, streams, irrigation canals, reservoirs, potholes, springs and bogs.
Transportation System Management:	Recommendations for various transportation improvements.
Transportation Demand Management:	Measures that might help to reduce traffic demand to preserve or enhance traffic operations with highway improvement.

Trust land:	Land to which the federal government holds title as a trustee for the landowner.
Visually Sensitive Resource Areas:	Areas with special visual characteristics identified based on FHWA visual impact assessments for highway projects. Visual impact assessment considers qualities of vividness, intactness and unity. FHWA-HI-88-054
Watershed:	The total area of land between hilltops or mountain ridges draining into a water system.

C. INDEX

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12. ~~DRAFT~~FINAL SECTION 4(f) EVALUATION

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12. SECTION 4(f) EVALUATION

12.1. GENERAL

Title 49 United States Code (USC) 303 states that "The Secretary may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance only if--

(1) there is no prudent and feasible alternative to using that land; and

(2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use."

It has been determined that use of land is constituted by the following:

1. When land from a Section 4(f) site is acquired for a transportation project or when there is occupancy of the land by easement, lease or other agreement. This type of use is referred to in this document as a direct use of Section 4(f) land.

2. When the proximity of the transportation project creates impacts that substantially impair the capability to perform any of the site's vital functions. This type of use is referred to in this document as a constructive use of Section 4(f) land.

This Section 4(f) evaluation has been prepared to identify Section 4(f) properties; identify and evaluate uses of Section 4(f) land that may be required; discuss avoidance alternatives that have been considered; identify appropriate measures to minimize harm; ~~and~~ document coordination that has occurred; and list conclusions.

Section 12.2 presents a summary of information about the purpose and need and alternatives under consideration for the proposed action. The following items of the environmental impact statement (EIS) are hereby referenced and made a part of this Section 4(f) evaluation:

- A description of the affected environment and identification and evaluation of potential impacts (Chapters 2, 6 and 7).

- A summary of comments and coordination that have been received and conducted for the proposed action (Chapter 10).

12.2. OVERVIEW OF THE PROPOSED ACTION

12.2.1. Purpose and Need for the Proposed Action

The proposed action is needed to improve transportation on U.S. Highway 93 (US 93), which is important to local, regional and nationwide travel. Transportation demand is high and is expected to continue to increase.

The high rate of population growth in the area served by US 93 from Evaro through Polson and throughout western Montana, combined with the growth in tourism, are sources of growth in traffic on US 93.

US 93 in the area of the proposed action, and for its entire length within Montana, is functionally classified as a principal arterial and is part of the National Highway System (NHS) as established by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA).

The highway is part of an extensive system of arterial routes that include: Interstate Highway 90, Montana Highways (MT) 28, 35, 135, and 200 in Lake and Sanders counties; MT 83, which is east of the proposed action, in the Swan Valley of Lake and Missoula counties; and Montana secondaries (MTS)~~Federal Aid Secondary (FAS) routes~~ 211, 212, 382 and 559 in Lake and Sanders counties. (Figure 5.1-6)

Traffic is expected to continue to increase at the 1970-90 annual average rate of three percent, slightly more than doubling the existing volume by the design year ~~2015~~2020. ~~In the design year average daily traffic (ADT) will range from 10,510 at the permanent counter south of Ravalli to 13,110 in the Arlee area, 16,050 in the Ronan area and 21,700 in the Polson area.~~ Truck traffic is expected to continue to be 13.7% of total traffic south of MTS~~FAS~~ 212 and 10% north of MTS~~FAS~~ 212. (Figure 7.1-1)

The highway is important to safety, social well-being and the economy. US 93 is the major north-south transportation route in western Montana providing interstate, regional and local access to natural resources-based industries such as agriculture, forestry and mining, tourism and recreation.

The existing roadway has various geometric features that do not meet current standards for safety and design. Existing level-of-service (LOS) is poor, generally LOS D and E, compared with the desired standard of LOS B for rural highways. It is projected that by the design year ~~2015~~2020 capacity of the existing facility will be exceeded and the highway will be operating at LOS F in most sections. Accident numbers per mile are substantially higher than statewide averages.

12.2.2. Alternatives Under Consideration

Alternatives under consideration, described in following sections, include No Action, alignment alternatives, lane configuration alternatives, transportation demand management (TDM) measures, alternate highway routes and design options. (Chapter 5)

No Action

No Action will continue the existing transportation system with no substantial improvement.

Alignment Alternatives

The existing alignment, also referred to as Alignment 1, consists of reconstructing the roadway with only minor adjustments to allow for widening, to improve horizontal curves and vertical grades and curves, and to avoid important features adjacent to the roadway. (Appendix A, aerial photographs and maps)

Arlee alignments: (Figure 5.1-1)

Alignment 1, the existing alignment.

Alignment 2, west of Arlee and passing between the town and the existing railroad tracks.

Alignment 3, east of Arlee passing west of the rodeo grounds, east of the schools and southwest of the fish hatchery.

Alignment 4, leaves US 93 at Dirty Corner (near the Missoula/Lake county line near Milepost 15.1), continues north across the Jocko River, then continues northwest to rejoin the existing highway approximately three miles north of Arlee.

Ronan alignments: (Figure 5.1-2)

Alignment 1 is the existing alignment.

Alignment 2 is a one-way couplet that will carry southbound traffic one block west of the existing alignment on First Avenue Southwest. Northbound traffic will remain on the existing alignment.

Alignment 3 passes along the west edge of the community, approximately 0.6 mile west of the existing alignment.

Alignment 4 passes along the west edge of the community, approximately one mile west of the existing alignment, west of the sewage treatment lagoons and, for a short distance, adjacent to the railroad and a community ballfield.

Polson alignments: (Figure 5.1-3)

Alignment 1 is the existing alignment, with a bridge over the Flathead River constructed adjacent to the existing bridge.

Alignment 2 passes along Caffrey Road south of Polson, connects with Kerr Dam Road, crosses the Flathead River with a new bridge and connects with the existing highway east of the fairgrounds.

Alignment 3 is identical to Alignment 2 along Caffrey Road, then veers west by one-third to one-half mile and crosses the Flathead River with a new bridge at a point approximately 3,500 feet downstream from the Alignment 2 bridge crossing. It continues north along an alignment that is west of the airport and connects with the existing highway 1.5 miles north of Polson.

<u>Lane Configuration Alternatives</u>

Lane configuration alternatives: (Figure 2.3-1)

Lane Configuration A is a two-lane, two-way highway with auxiliary lanes (Figure 5.1-5). Where needed, passing lanes will be added for short distances, designated left-turn bays will be constructed at important intersections, and continuous two-way left-turn center medians will be constructed where there are high numbers of intersections and driveways.

Lane Configuration B is a four-lane highway with two traffic lanes in each direction. ~~A four-foot painted center median is a major design option that will be considered with this lane configuration.~~ Designated left-turn bays will be constructed at important intersections.

Lane Configuration C is a four-lane highway with a continuous two-way left-turn center median.

Lane Configuration D is a four-lane highway with a divided, unpaved center median. Designated left-turn bays will be constructed at important intersections.

Design Options

Major design options include partial access control, wildlife crossings, frontage roads, pedestrian and bicycle facilities and traffic signals. Section 5.1.6 presents detailed information about all design options considered with the alignment and lane configuration alternatives.

12.2.3. The Preferred Alternatives

There are two preferred alternatives that have been identified. The alternative preferred by the Montana Department of Transportation (MDT) is referred to in this document as the MDT Preferred Alternative. The alternative preferred by the Confederated Salish and Kootenai Tribes (CSKT) is referred to in this document as the CSKT Preferred Alternative.

Details of the MDT Preferred Alternative are presented in Section 5.3. The following is a summary of major features~~description~~ of the MDT Preferred Alternative:

Alignment 1, the existing alignment, is recommended as the preferred alignment from Evaro to Polson. At Polson, Alignment 1 is recommended as the designated route for US 93, and Alignment 3, which is approximately 5.8 miles long and passes south and west of Polson, is recommended as a truck route and as an alternate route around Polson.

Preservation of a corridor of land for future highway construction is recommended on Alignment 2 through the Arlee area and Alignment 4 through the Ronan area and will be accomplished by measures such as: 1) cooperative access control and land use planning and regulation with tribal and local governments; 2) purchase of easements, options or right-of-way (ROW) by MDT; and other public/private cooperative methods.

Table 2.3-1 and Figure 2.3-2 present information about the MDT Preferred Alternative for locations throughout the proposed action. Specific locations for the recommended applications of each lane configuration and design option are discussed in Section 5.3.

Lane Configuration A (a two-lane highway with passing lanes and other auxiliary lanes in some areas) is recommended for 3.8 miles in the city of Polson, where a substantial portion of highway traffic is shifted to Alignment 3. Lane Configuration A also is recommended initially for Alignment 3 at Polson until further traffic volume requires a four-lane highway.

Lane Configuration B (a four-lane highway), with ~~a four-foot wide painted center median and~~ designated left-turn bays where appropriate, is recommended for most of the length of the proposed action (approximately 37.6 miles on the existing alignment and, when warranted by traffic volume, 5.8 miles on Alignment 3 at Polson).

Approximately 14.5 miles of the highway is recommended to be constructed as Lane Configuration C (a four-lane highway with a continuous two-way left-turn center median).

Lane Configuration D (a four-lane highway with a divided, unpaved center median approximately 40 feet wide), is recommended for a short distance (0.4 mile) in the area of the Evaro wildlife corridor.

Details of the CSKT Preferred Alternative are presented in Section 5.4. Following is a summary of major features of the CSKT Preferred Alternative:

With this alternative, the existing alignment, Alignment 1, is recommended throughout the length of the proposed action. Preservation of a corridor for future highway construction is recommended in the Ronan area but not in the Arlee area. Neither an alternative route nor preservation of a corridor for future highway construction around Polson is recommended.

Lane Configuration A is recommended throughout the length of this alternative with continuous two-way left-turn lanes, truck climbing lanes, slow moving vehicle lanes, left-turn lanes and right-turn lanes where appropriate.

12.3. SECTION 4(f) PROPERTIES

12.3.1. Parks, Recreation Areas and Wildlife and Waterfowl Refuges

Table 12.3-1 lists Section 4(f) parks, recreation areas and wildlife and waterfowl refuges near one or more of the alternatives under consideration. The table indicates whether or not direct use will be required of land from the site with any of the alternatives under consideration.

Following sections list and describe the parks, recreation areas and wildlife and waterfowl refuges from which direct use of land may be required with any of the alternatives under consideration.

Arlee Community Park

The Arlee community park is located adjacent to the east side of US 93 in Arlee at Milepost 17.7 next to the building that houses the Jocko Valley Library and the community center. (Sheet 4, Appendix A, aerial photographs and maps) The park has an area of less than one-half acre, includes one picnic table and a park bench and is used primarily by visitors to the community center and the library. There is access to the park from US 93 and B Street, and informal parking space is located on US 93 and B Street. The park is enclosed by a wooden fence, and an asphalt pedestrian and bicycle path is located between the west fence and US 93. The park is owned by Lake County.

National Bison Range

A part of the National Bison Range is located adjacent to the north side of US 93 throughout most of the area from Milepost 27.8 to 29.2, north of Ravalli on Ravalli Hill. (Sheet 6, Appendix A, aerial photographs and maps) The bison range is under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS) and includes approximately 18,500 acres. It is fenced and is undeveloped with mostly steep terrain. Bison and other wildlife that inhabit the bison range roam and graze in this area. There is no formal public access to the bison range from US 93 but there are several access points located adjacent to other public roadways. An informal viewing and parking area (Figure 12.3-1a) has developed adjacent to US 93 using mostly unmaintained sections of old US 93 that remain from before the existing highway was constructed. As indicated below, CSKT operates a visitor center adjacent to US 93 across the highway from the Bison Range.

National Bison Range Visitor Center

The CSKT visitor center is adjacent to the south side of US 93 at Milepost 29.2 on the crest of Ravalli Hill. The visitor center has historical and travel information, covered picnic tables, and public restrooms. The entire site covers approximately eight acres. (Figure 12.3-1 and Sheet 6, Appendix A, aerial photographs and maps)

Ninepipe National Wildlife Refuge

The existing US 93, from approximately Milepost 40.4 to 40.9, is located within the Ninepipe National Wildlife Refuge, near its eastern edge (Figure 12.3-2). Ninepipe Refuge includes approximately 2,000 acres (approximately 1,300 of which is Ninepipe Reservoir) and is on land owned by CSKT, which grants an easement to USFWS to manage Ninepipe Refuge. It is fenced, undeveloped land and borders and surrounds Ninepipe Reservoir. Wildlife that inhabits Ninepipe Refuge roams and grazes in this area. Within this area, the Montana Department of Fish, Wildlife and Parks (MDFWP) operates a fishing access site. Access to the fishing access site is from US 93, but the site is not adjacent to highway ROW and no direct or constructive use will be required.

~~As indicated in Section 6.10, there are several wetlands on Ninepipe Refuge adjacent to and near existing US 93.~~

Table 12.3-1 Section 4(f) Parks, Recreation Areas and Wildlife Refuges

Section 4(f) Property	Direct Conversion of Use by Any Alternative	Direct Conversion of Use by the MDT Preferred Alternative
Arlee Community Park	Yes	Yes
Arlee Powwow Grounds	No	No
Arlee Rodeo Grounds	No	No
Arlee Elementary School Playground	No	No
Arlee Junior High School Playground	No	No
Arlee High School Athletic Field	No	No
Arlee Ballfield	No	No
National Bison Range	Yes	Yes
National Bison Range Visitor Center	Yes	Yes
St. Ignatius Ballfield	No	No
Ninepipe National Wildlife Refuge	Yes	Yes
Ninepipe Wildlife Management Area	Yes	Yes
Kicking Horse Waterfowl Production Area	Yes	Yes
Duck Haven Waterfowl Production Area	Yes	Yes
Ronan Ballfield near US 93	No	No
Ronan City Park	Yes	No
Ronan Ballfield near 13th Avenue S.W.	No	No
Ronan High School Athletic Field	Yes	No
Riverside Park	No	No
Ducharme Park	Yes	No
Lions Park	Yes	No
Polson Municipal Golf Course	Yes	No
Lake County Fairgrounds	No	No
Seventh Avenue Softball Fields	Yes	No

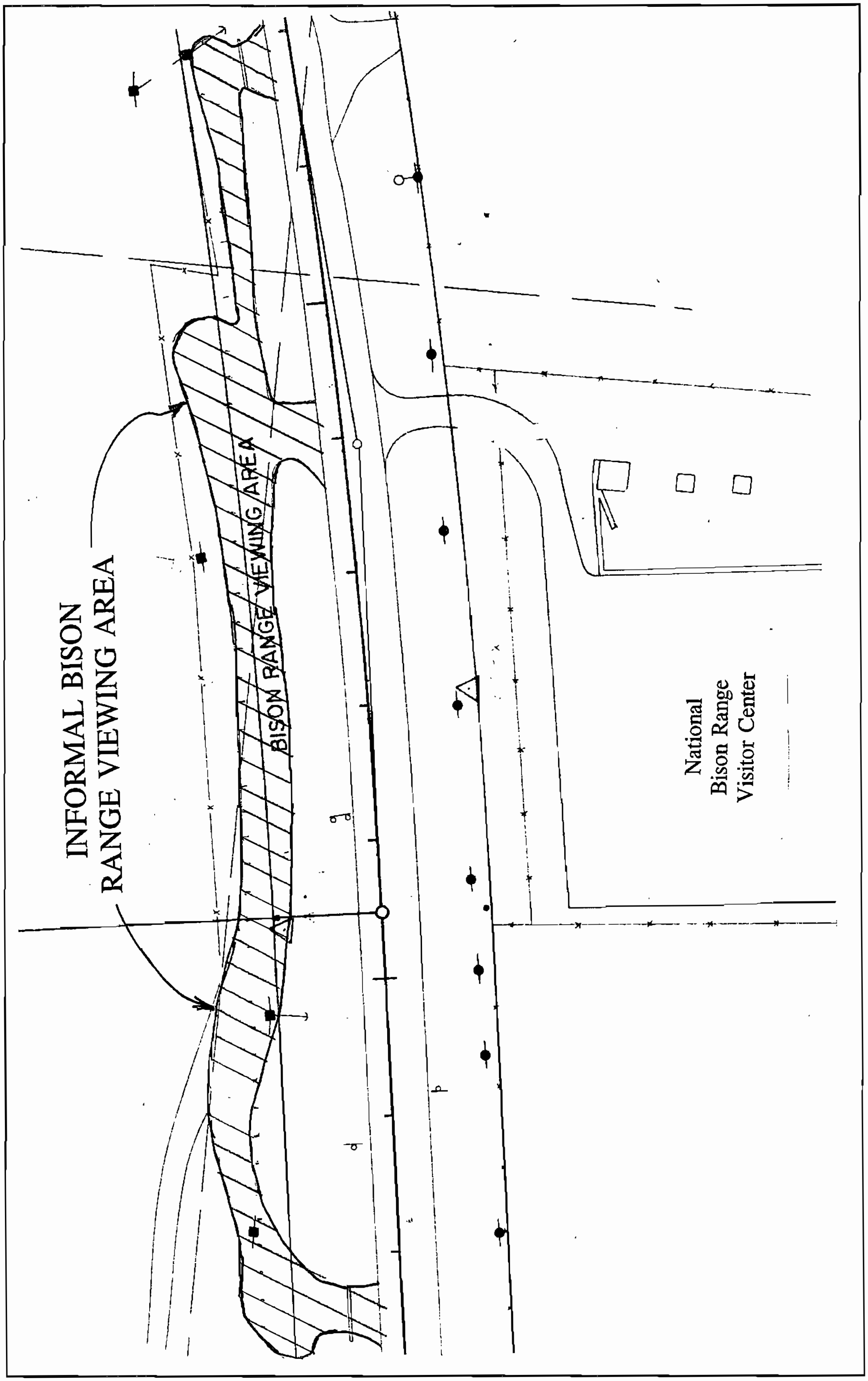

Figure 12.3-1a, Informal Bison Range Viewing Area

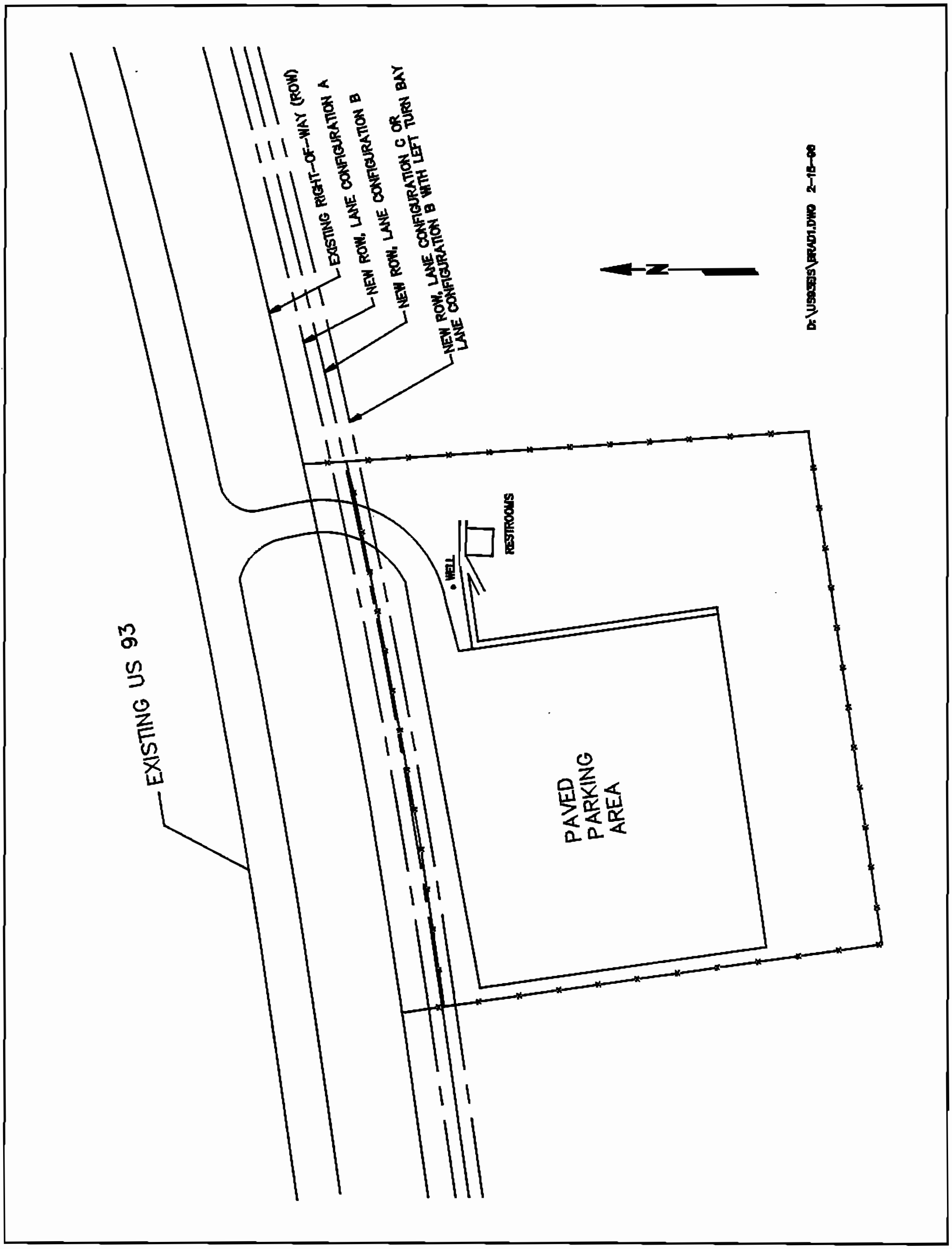

Figure 12.3-1 National Bison Range Visitor Center

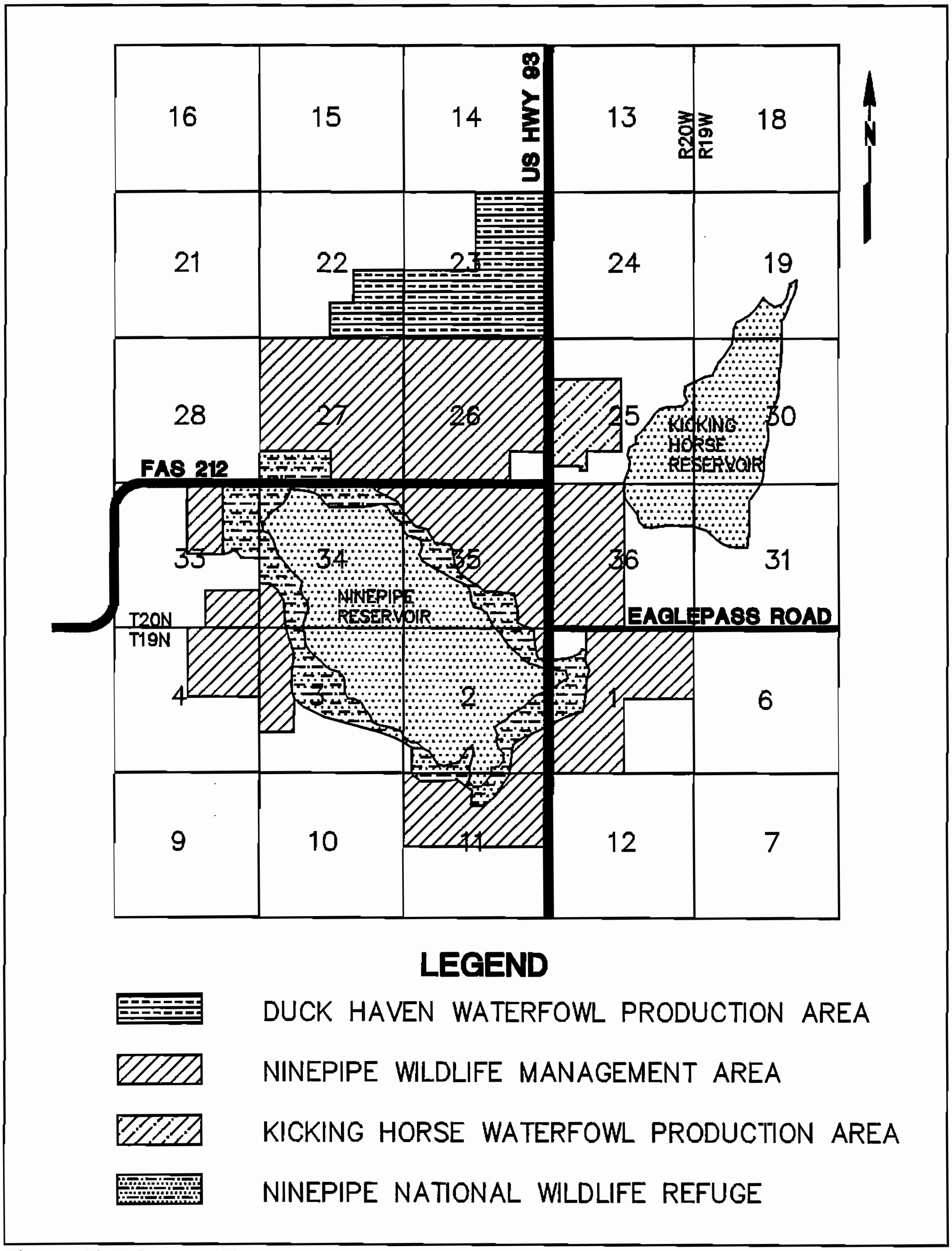

Figure 12.3-2 Wildlife and Waterfowl Refuges

Ninepipe Wildlife Management Area

The Ninepipe Wildlife Management Area (WMA) is adjacent to existing US 93 on the west from Milepost 39.6 to 43.1 and on the east from Milepost 40.1 to 42.1 (excluding Ninepipe Refuge and two small privately owned parcels). (Figure 12.3-2) The WMA land is owned by MDFWP and includes approximately 3,000 acres. This area of the WMA is fenced, undeveloped land and borders and almost surrounds Ninepipe Refuge. Wildlife that inhabits the WMA roams and grazes in this area. Within the WMA, MDFWP operates a wildlife viewing area. Access to the viewing area is from US 93, but the viewing area property is not adjacent to highway ROW.

~~As indicated in Section 6.10, there are several wetlands on the WMA adjacent to and near existing US 93.~~

Kicking Horse Waterfowl Production Area

The existing alignment of US 93, from Milepost 42.2 to 42.8 is located along the western edge of the Kicking Horse Waterfowl Production Area (WPA). (Figure 12.3-2) The Kicking Horse WPA is located just west of Kicking Horse Reservoir, is on land owned by USFWS and includes approximately 180 acres managed to include grassland/wetland complexes to favor nesting waterfowl. This area of the WPA is fenced, undeveloped land. Wildlife that inhabits the WPA roams and grazes in this area. There is no formal public access to the WPA from US 93. Access to the WPA is from an unnamed gravel road that extends eastward from US 93 opposite MTSFAS 212.

~~As indicated in Section 6.10, there are several wetlands on the Kicking Horse WPA adjacent to and near existing US 93.~~

Duck Haven Waterfowl Production Area

The existing alignment of US 93, from Milepost 43.1 to 44.1, is located along the eastern edge of the Duck Haven WPA. (Figure 12.3-2) The Duck Haven WPA is on land owned by USFWS north of Ninepipe Refuge and includes approximately 650 acres managed to include grassland/wetland complexes to favor nesting waterfowl. This area of the Duck Haven WPA is fenced, undeveloped land. Wildlife that inhabits the Duck Haven WPA roams and grazes in this area. There is no formal public access from US 93. Access is from Duck Road and Beaverhead Lane, which are paved county roads that extend westward from US 93.

~~As indicated in Section 6.10, there are several wetlands on the Duck Haven WPA adjacent to and near existing US 93.~~

Ronan City Park

The Ronan city park is located adjacent to First Avenue S.W., one block south of Main Street near Milepost 47.0 of the southbound portion of Alignment 2. The park includes approximately 1.6 acres in a residential area one block west of the existing alignment of US 93. It borders Ronan's central business district on Main Street. Spring Creek meanders through the park, which has walking trails, picnic areas and park benches. There is access from First Avenue S.W. and other city streets in the area. There is both formal and informal parking space on First Avenue S.W. and the other streets that provide access to the park. The park is open, and there are no sidewalks along the perimeter of the park. (Figure 5.1-2)

Ronan High School Athletic Field

The Ronan High School athletic field includes approximately 8.1 acres and is located in the northern end of Ronan, adjacent to buildings and parking lots on the school grounds. (Sheet 11, Appendix A, aerial photographs and maps) The athletic field is near Milepost 47.2 of the southbound portion of Alignment 2. The athletic field is west of US 93 and is separated from the existing highway by dispersed commercial development and open, undeveloped land.

Access to the athletic field is from school grounds. The athletic field is open, and there are no sidewalks along its perimeter. The athletic field, school buildings and school grounds are located in the same general area as several community ballfields.

Ducharme Park

Ducharme Park, located in Polson on the south side of US 93 near Milepost 60.6 at the US 93 intersection with Third Avenue and Seventh Street East, is one acre in size and is publicly owned and managed by the city of Polson. (Figures 12.3-3 and 12.3-4) Activities include passive recreation. The park is accessible via US 93, Third Avenue, or Seventh Street East. The site is grass-covered and contains a mixture of deciduous and coniferous foliage. Unusual characteristics include water and sewer lifts and a sewer drain on the site.

Lions Park

Lions Park in Polson is a scenic turnout located on the north side of US 93 near Milepost 59.5 directly west of the entrance to Country Club Shores and the golf course. (Figures 12.3-3 and 12.3-5) The site is almost two acres in size. It is owned by the Montana Transportation Commission and managed by the Polson Lions Club. Available activities include lake-viewing, picnicking, and obtaining regional activity information. Facilities include a Polson Chamber of Commerce information station, a parking area for 12 to 15 vehicles and two picnic tables. Access is available via US 93. There are no unusual characteristics.

This facility has received Land and Water Conservation Fund (LWCF) financial assistance and is therefore subject to the provisions of Section 6(f) of the LWCF Act, as amended. Direct use of land from this site will require approval of the U.S. Secretary of the Interior. It also will be necessary to substitute other properties of at least equal fair market value and reasonably equivalent usefulness and location for the recreation lands used.

Polson Municipal Golf Course

The Polson Municipal Golf Course is divided into three adjacent properties. The original golf course, the front nine, is located on the north side of US 93, from Milepost 59.3 to 59.5, directly east of Lions Park. (Figures 12.3-3 and 12.3-6) The Country Club Shores residential units, the clubhouse and pro shop are all located between Bay Shore and Bay View drives one block north of US 93. The new course, the back nine, is located directly east of Bay View Drive. The golf course properties are 122 acres in size. It is owned and managed by the city of Polson. Available activities include recreational golfing, golf instruction, dining and retail. Facilities include parking, 18 holes, benches, ball cleaners, a clubhouse with food, pay phones, restrooms and a pro shop, and a golf course maintenance and equipment storage facility. The site has two points of access from US 93. Unusual characteristics include the original clubhouse, which is used for live theater productions, the original pro shop, and a caretaker's cabin on the site.

This facility has received LWCF financial assistance and is therefore subject to the provisions of Section 6(f) of the LWCF Act, as amended. Direct use of land from this site will require approval of the U.S. Secretary of the Interior. It also will be necessary to substitute other properties of at least equal fair market value and reasonably equivalent usefulness and location for the recreation lands used.

Seventh Avenue Softball Fields

The Seventh Avenue softball fields are located near Polson at the southeast corner of Kerr Dam Road and Seventh Avenue near Milepost 61.0 of Alignment 2. (Figures 12.3-3 and 12.3-7) The site is 20 acres in size. The park is owned and managed by the city of Polson. Activities include softball, basketball, picnicking, and passive recreation. Facilities include parking, two softball diamonds, four dugout structures, two backstops, bleachers, restrooms, a concession stand, a picnic pavilion, an asphalt basketball court, a swing set, and a water pump station. An unusual characteristic is that the site is on a high water table and attracts several species of waterfowl.

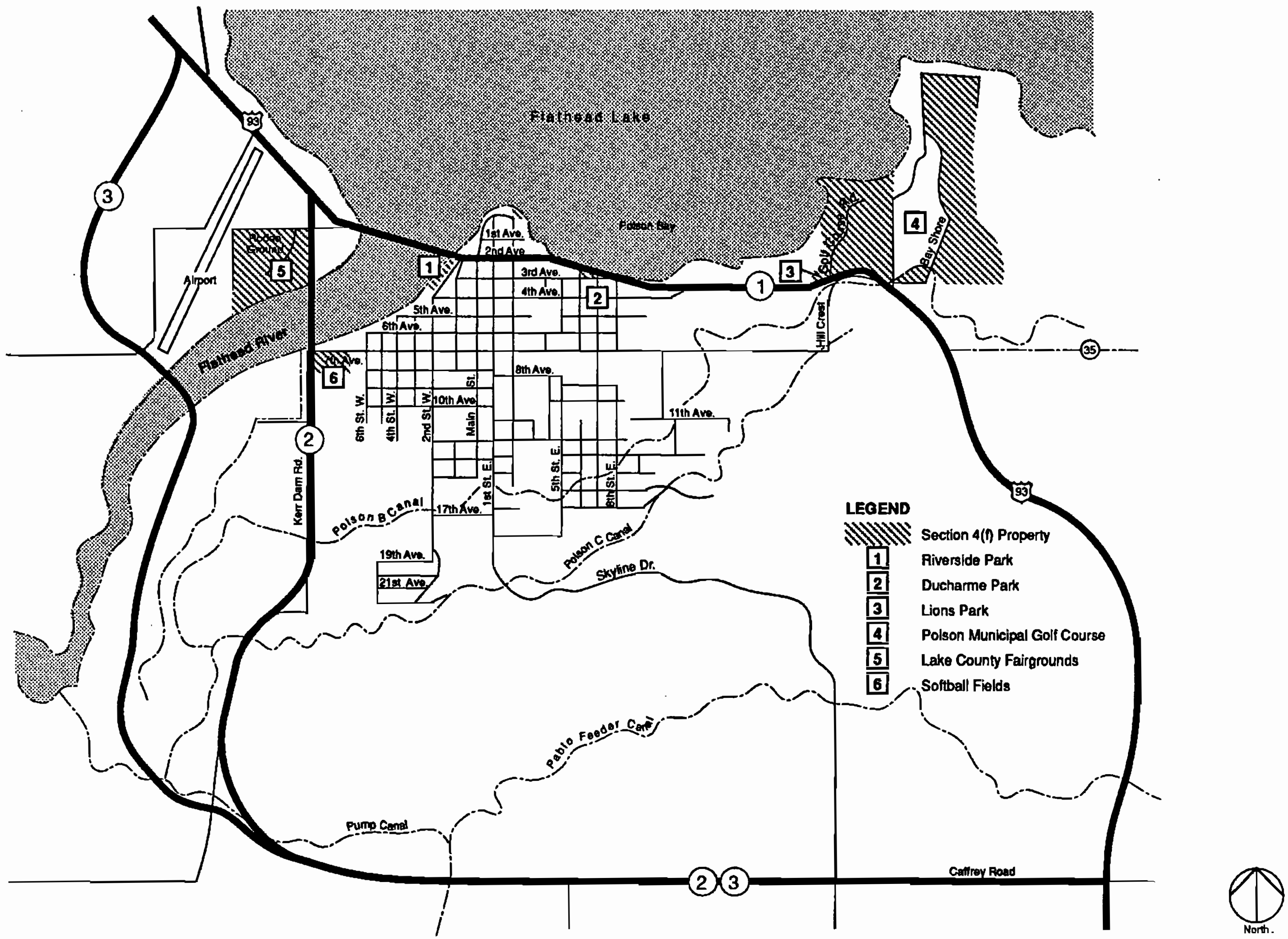

FIGURE 12.3-3
Polson Section 4(f) Properties

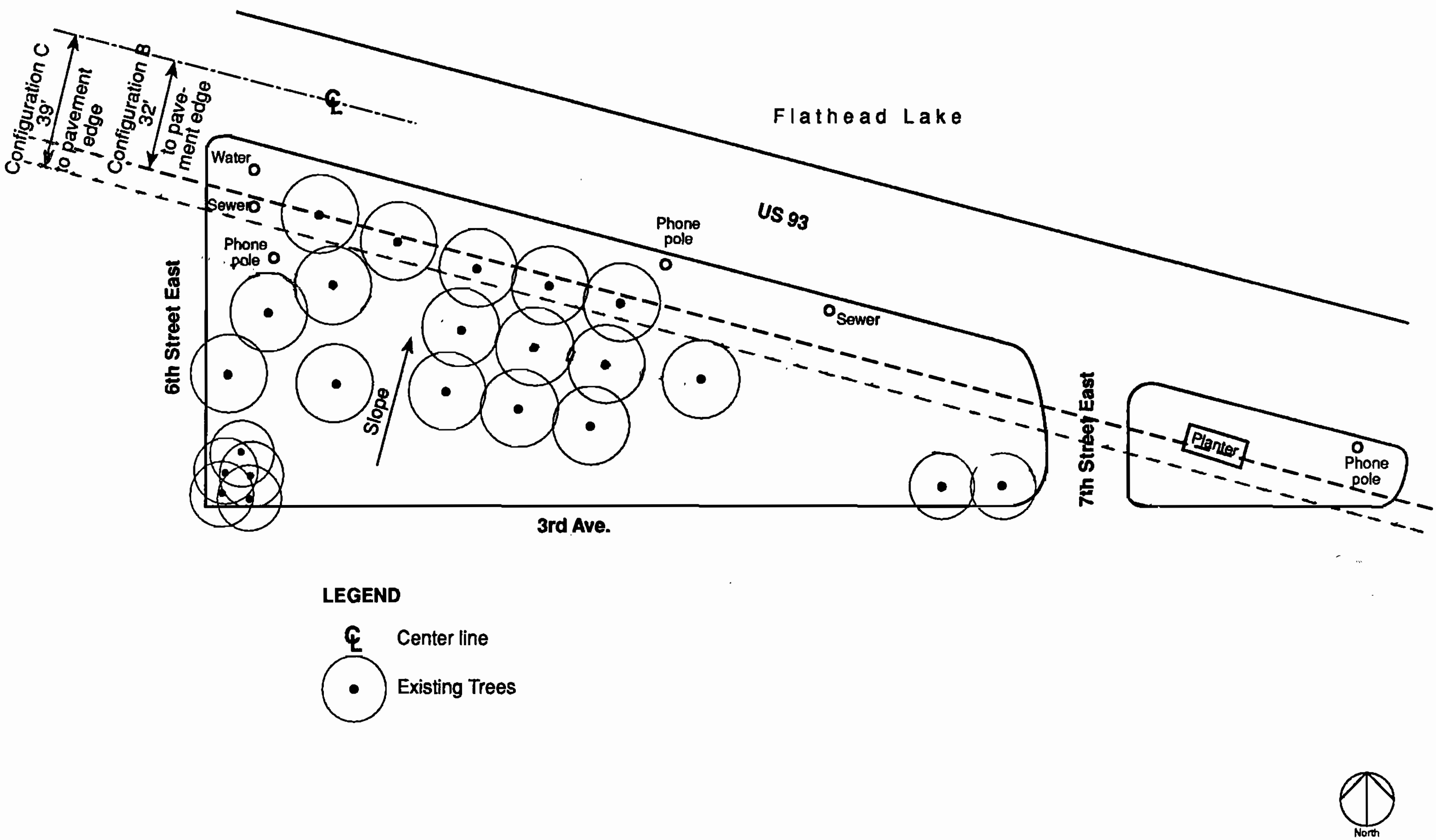

FIGURE 12.3-4
Ducharme Park

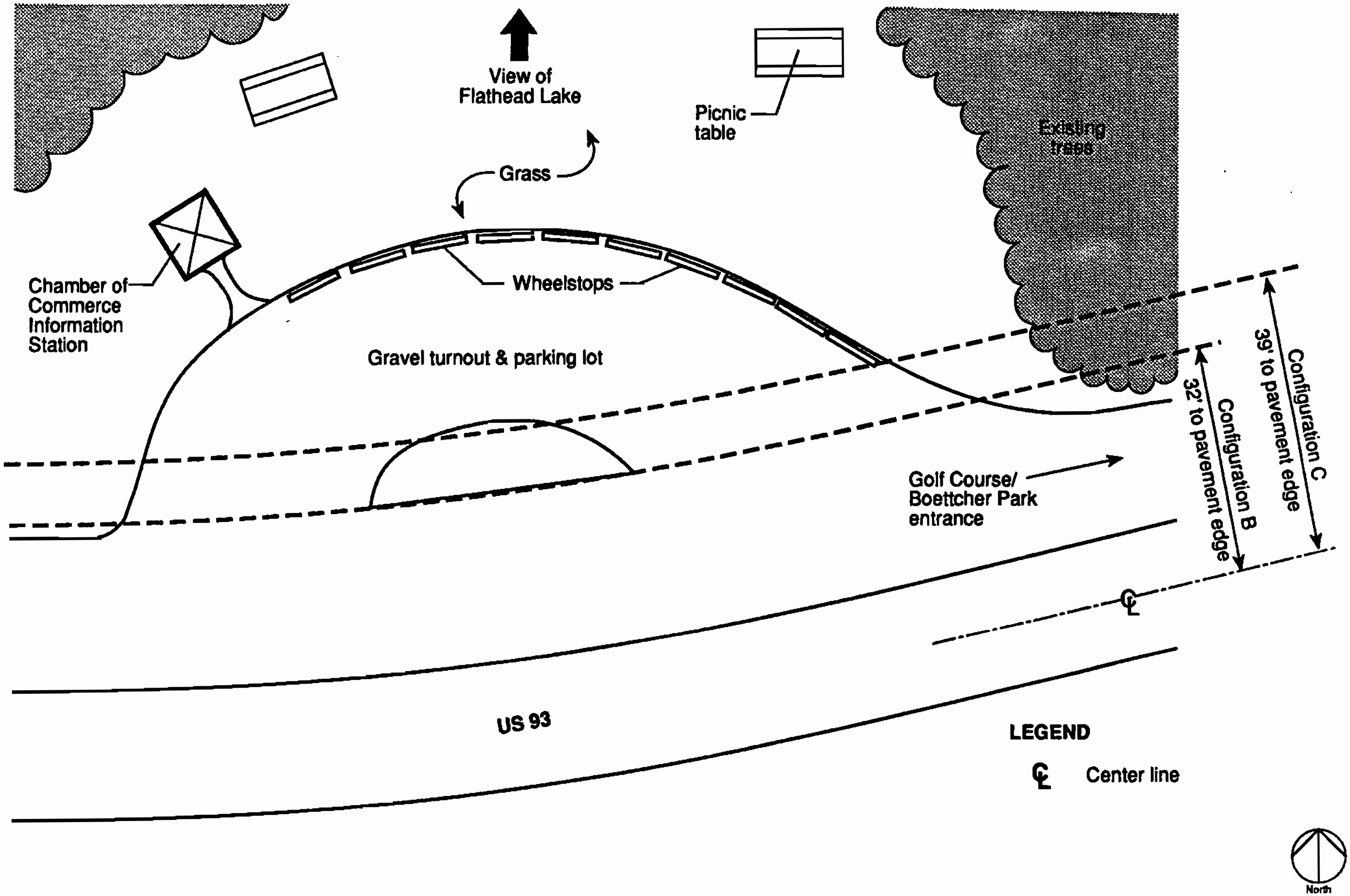

FIGURE 12.3–5
Lions Park

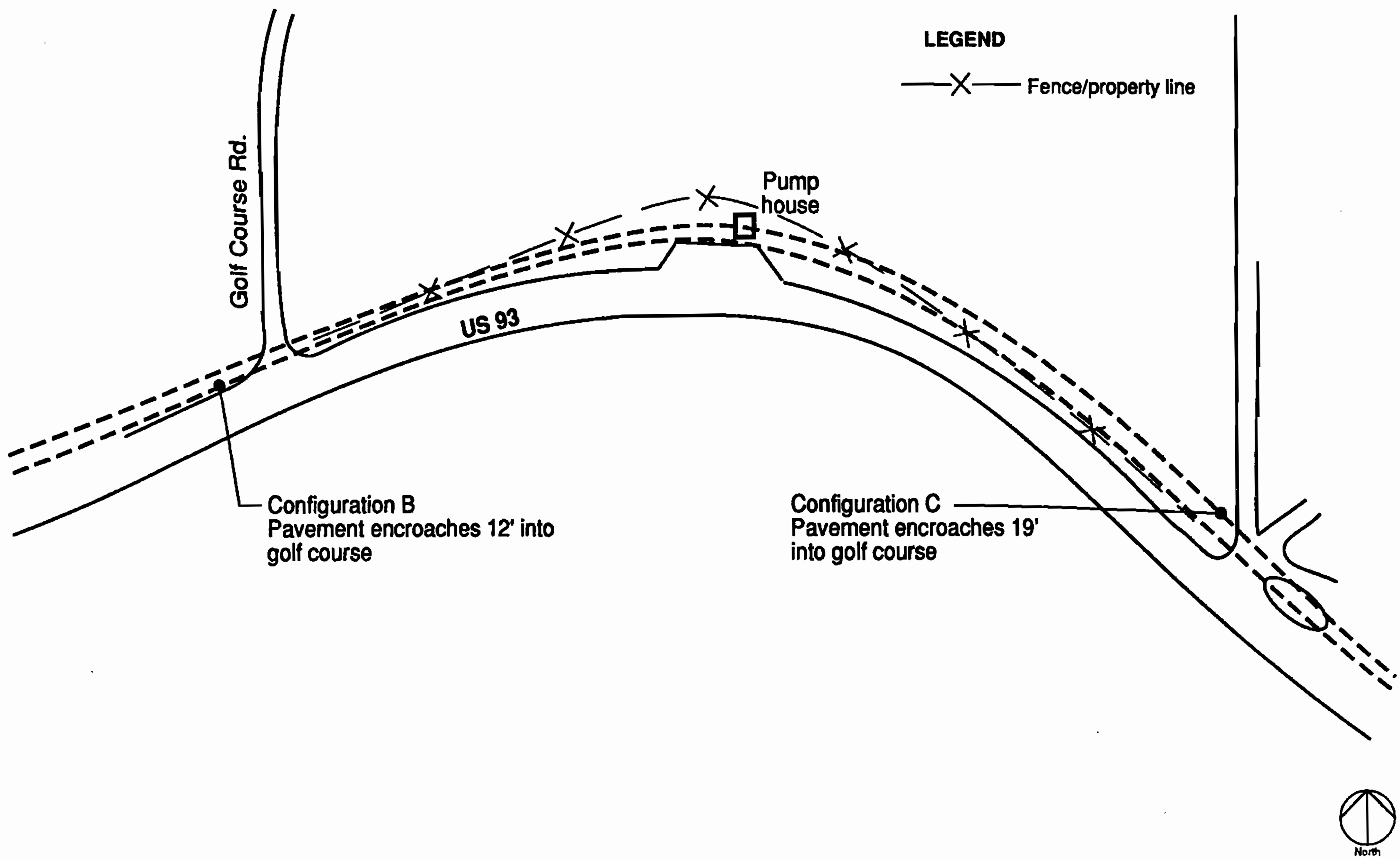

FIGURE 12.3-6
Polson Municipal Golf Course

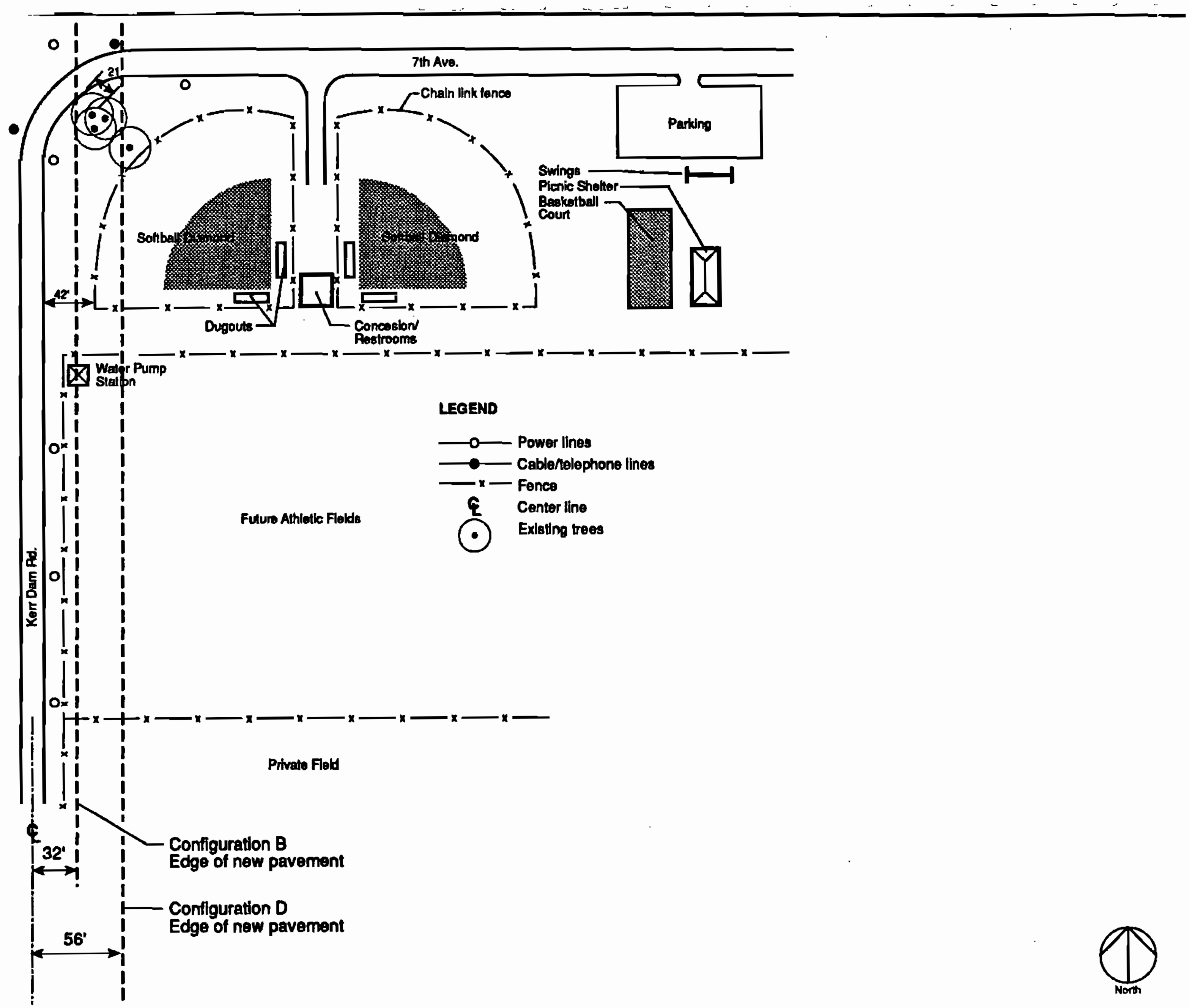

FIGURE 12.3-7
Seventh Avenue Softball Fields

This facility has received LWCF financial assistance and is therefore subject to the provisions of Section 6(f) of the LWCF Act, as amended. Direct use of land from this site will require approval of the U.S. Secretary of the Interior. It also will be necessary to substitute other properties of at least equal fair market value and reasonably equivalent usefulness and location for the recreation lands used.

12.3.2. Historic Properties

A total of 79 historic and prehistoric cultural resource properties have been formally recorded and evaluated during the inventory of the existing highway corridor and the several alternative corridors under consideration.[1] Of these, several properties have been determined eligible for listing in the National Register of Historic Places (NRHP) eligible properties. The following is a list and description of NRHP eligible sites from which direct use of land will be required for the MDT Preferred Alternative and the CSKT Preferred Alternative for the proposed action:

Ravalli School (24LA131)

The Ravalli School (Figure 12.3-8), a one-room facility with Italianate design details, is located adjacent to the east side of the highway within the small community of Ravalli. It is a one story wood frame building with an asphalt-shingled hip roof. Exterior walls are covered with beveled siding, and the roof is covered with asphalt shingles. A square bell tower with a hip roof topped by a flag pole is located on the front of the building. A wooden stoop with wood railing provides access to the front of the building. The building is on a platted lot in Ravalli with an area of approximately 0.66 acres.

Missoula County School District 28 funded the construction of Ravalli School in 1913. For the next nine years the building housed grades one through eight, averaging 31 students per year. When Lake County was formed in 1922, the Ravalli School was closed and students were sent to St. Ignatius for schooling. Between 1923 and 1935 the building was used as a polling place and as an informal social center. The Ravalli Community Club purchased the building from School District 28 in 1935, after which it served as the community center for Ravalli until the late 1960s. The building is now being used as church. Ravalli School has been determined eligible for listing in NRHP under criteria A and C[2].

Northern Pacific Railroad, Dixon-Polson Branchline (24LA89)

The Northern Pacific branchline between Dixon and Polson consists of the railroad grade and track. This branch line has been determined eligible for listing in NRHP under criterion A. This spur line is still in use on a regular basis and connects Polson with the Montana Raillink mainline through Missoula. It is Polson's only railroad connection. It is important for the timber industry and other industries and businesses in the area.

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[1]Pedestrian inventories have not been completed for the Arlee Alignment 3, Arlee Alignment 4, Ronan Alignment 2 and the Ronan Alignment 3. However drive-through inventories have been completed for all of these alignments, and most potential historical cultural resource properties with standing buildings and structures have been identified. Archaeological sites have not been identified. Preliminary judgments regarding the relative impact of the alternative alignments have been prepared based upon these inventories. Permits for these inventories must be obtained from the Tribal Culture Committees. These permits are granted where they are necessary and where they are for a good cause. Because alignments of the MDT and CSKT preferred alternatives have received complete inventories and no culturally significant sites have been identified, it has been determined that obtaining permits and conducting additional inventories is not necessary and is not justified.

[2]Criterion A includes sites that are associated with events that have made a significant contribution to the broad patterns of our history. Criterion C includes sites that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

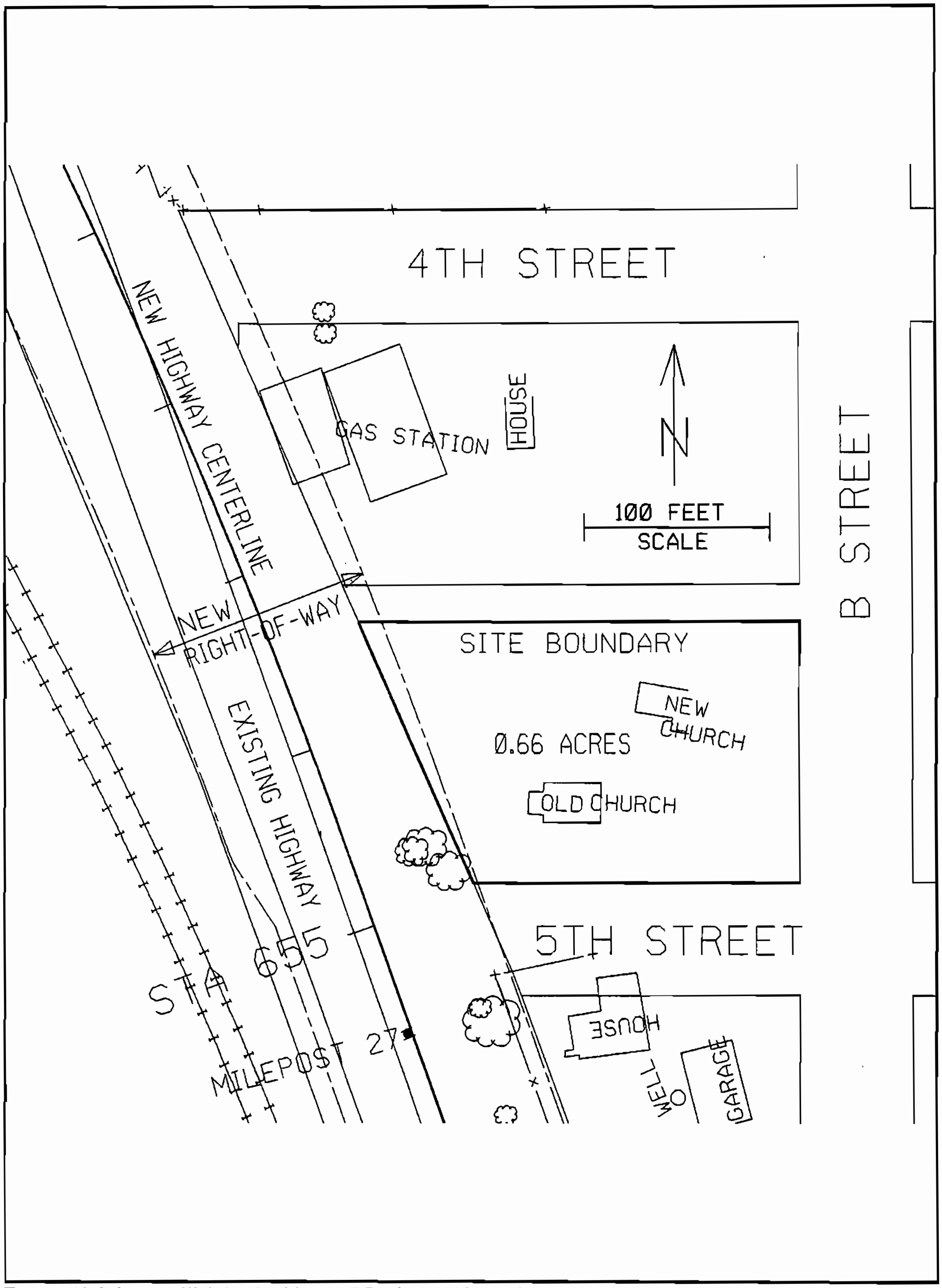

Figure 12.3-8, Ravalli School with MDT Preferred Alternative

12.4. USE OF SECTION 4(f) PROPERTIES

Following paragraphs discuss use of Section 4(f) lands that will be required for each alternative of the proposed action.

No use of land from any Section 4(f) sites will be required with No Action.

Lane Configuration D has not received substantial public or agency support and, in many cases, will cause substantially greater environmental impacts and will require substantially more use of Section 4(f) lands than Lane Configurations A, B or C. It is not part of the CSKT Preferred Alternative and is part of the MDT Preferred Alternative (Section 5.3) only for a short distance (Milepost 10.2 to 10.6) and will impact no Section 4(f) sites. Lane Configuration D is therefore not evaluated further in this document in relation to the use of Section 4(f) lands.

12.4.1. Parks, Recreation Areas and Wildlife and Waterfowl Refuges

Direct use of parks, recreation areas and wildlife and waterfowl refuges required by the preferred alternatives is summarized on Table 12.4-1. Each site is further discussed in following paragraphs.

<u>Arlee Community Park</u>

If Lane Configuration A (the CSKT Preferred Alternative as described in Section 5.4) or Lane Configuration B is constructed on Alignment 1, no direct use of land from this site will be required.

If Lane Configuration C is constructed on Alignment 1 (the MDT Preferred Alternative as described in Section 5.3), a direct use of approximately 0.1 acre of land from this site will be required. Relocation of the bicycle path and the west side of the wooden fence will be required. ~~Relocation of t~~The picnic table and the park bench will not be impacted~~required~~.

Alignments 2, 3 and 4 are not located near this site and will not require direct or constructive use of the land with any of the lane configurations under consideration.

<u>National Bison Range</u>

If Lane Configuration A, B or C is constructed on Alignment 1, a direct use of 1.5, 3.3 or 4.3 acres of Section 4(f) land from this site will be required. As indicated in Sections 5.3, 5.4 and 12.2.3, Lane Configuration B is the MDT Preferred Alternative and Lane Configuration A is the CSKT Preferred Alternative in this area.

The existing informal viewing and parking area adjacent to the north side of US 93 will be removed if Lane Configuration A, B or C is constructed. Removal of the viewing and parking area is required because: 1) it is too close to the existing or future lane configurations and creates several vehicle approaches to the highway that may be unsafe; and 2) it will be necessary to provide space for construction of roadway widening and required improvements to slopes and drainage facilities.

<u>National Bison Range Visitor Center</u>

If Lane Configuration A, B or C is constructed on Alignment 1, a direct use of 0.1, 0.3 or 0.4 acres of Section 4(f) land from this site will be required. As indicated in Sections 5.3, 5.4 and 12.2.3, Lane Configuration B is the MDT Preferred Alternative and Lane Configuration A is the CSKT Preferred Alternative in this area.

Table 12.4-1 Uses of Parks, Recreation Areas and Refuges by the Preferred Alternatives

SITE DESCRIPTION	MILE POST	TOTAL SITE AREA (ACRES)	CSKT PREFERRED ALTERNATIVE		MDT PREFERRED ALTERNATIVE	
			ALIGN-MENT/LANE CONFIG-URATION	DIRECT USE (ACRES)	ALIGN-MENT/LANE CONFIG-URATION	DIRECT USE (ACRES)
Arlee Community Park	17.7	0.5	1/A	0	1/C	0.1
National Bison Range	27.8 - 29.2	18,500	1/A	1.5	1/B	3.3
National Bison Range Visitor Center	29.2	8	1/A	0.1	1/B	0.3
Ninepipe National Wildlife Refuge	40.4 - 40.9	2,000	1/A	0.5	1/B	0.9
Ninepipe Wildlife Management Area	39.6 - 43.1	3,000	1/A	4.8	1/B	10.1
Kicking Horse Waterfowl Production Area	42.2 - 42.8	180	1/A	0.4	1/B	0.9
Duck Haven Waterfowl Production Area	43.1 - 44.1	650	1/A	0.3	1/B	0.8

This table has been revised for the final EIS.
Morrison-Maierle and Carter Burgess, 1994.

Ninepipe National Wildlife Refuge

If Lane Configuration A, B or C is constructed on Alignment 1, a direct use of 0.5, 0.9 or 1.4 acres of Section 4(f) land from this site will be required. As indicated in Sections 5.3, 5.4 and 12.2.3, Lane Configuration B is the MDT Preferred Alternative and Lane Configuration A is the CSKT Preferred Alternative in this area.

~~Section 7.10 describes the acreage of wetland that will be impacted on this site by each of the lane configurations.~~

Ninepipe Wildlife Management Area

If Lane Configuration A, B or C is constructed on Alignment 1, a direct use of 4.8, 10.1 or 13.0 acres of Section 4(f) land from this site will be required. As indicated in Sections 5.3, 5.4 and 12.2.3, Lane Configuration B is the MDT Preferred Alternative and Lane Configuration A is the CSKT Preferred Alternative in this area.

~~Section 7.10 describes the acreage of wetland that will be impacted on this site by each of the lane configurations.~~

Kicking Horse Waterfowl Production Area

If Lane Configuration A, B or C is constructed on Alignment 1, a direct use of 0.4, 0.9 or 1.3 acres of Section 4(f) land from this site will be required. As indicated in Sections 5.3, 5.4 and 12.2.3, Lane Configuration B is the MDT Preferred Alternative and Lane Configuration A is the CSKT Preferred Alternative in this area.

~~Section 7.10 describes the acreage of wetland that will be impacted on this site by each of the lane configurations.~~

Duck Haven Waterfowl Production Area

If Lane Configuration A, B or C is constructed on Alignment 1, a direct use of 0.3, 0.8 or 1.4 acres of Section 4(f) land from this site will be required. As indicated in Sections 5.3, 5.4 and 12.2.3, Lane Configuration B is the MDT Preferred Alternative and Lane Configuration A is the CSKT Preferred Alternative in this area.

~~Section 7.10 describes the acreage of wetland that will be impacted on this site by each of the lane configurations.~~

Ronan City Park

No direct or constructive use of land from this site will be required with the MDT Preferred Alternative or the CSKT Preferred Alternative.~~, Lane Configuration C on Alignment 1 and preservation of a future highway corridor on Alignment 4. (Sections 5.3 and 12.2.3)~~

No direct or constructive use of land from this site will be required with any of the lane configurations on Alignments 1 or 3.

Construction of the southbound lanes (a one-way, two-lane roadway with widths similar to Lane Configuration A) of Alignment 2 will require a direct use of approximately 0.3 acre of land from this site.

Because no direct or constructive use of Section 4(f) lands will be required with the MDT Preferred Alternative or the CSKT Preferred Alternative, this site is not evaluated further in this document.

Ronan High School Athletic Field

No direct or constructive use of land from this site will be required with the MDT Preferred Alternative or the CSKT Preferred Alternative.~~, Lane Configuration C on Alignment 1 and preservation of a future highway corridor on Alignment 4. (Sections 5.3 and 12.2.3)~~

No direct or constructive use of land from this site will be required with any of the lane configurations on Alignments 1 or 3.

Construction of the southbound lanes (a one-way, two-lane roadway with widths similar to Lane Configuration A) of Alignment 2 will require a direct use of approximately 0.1 acre of land from this site.

Because no direct or constructive use of Section 4(f) lands will be required with the MDT Preferred Alternative or the CSKT Preferred Alternative, this site is not evaluated further in this document.

Ducharme Park

If Lane Configuration A is constructed on Alignment 1 (the MDT and the CSKT preferred alternatives as described in Sections 5.3, 5.4 and 12.2.3), no direct use of land from this site will be required.

If Lane Configuration B or C is constructed on Alignment 1, a direct use of approximately 0.09 or 0.17 acre of land from this site will be required. Five mature deciduous trees will require removal if Lane Configuration B is constructed and 10 will require removal with Lane Configuration C. A brick planter with coniferous bushes will require removal with either Lane Configuration B or C.

The park would retain its primary current uses including passive recreation and picnicking, but would offer about 25% less space for those users.

Alignments 2 and 3 are not located near this site and will not require direct or constructive use of the land with any of the lane configurations.

Because no direct or constructive use of Section 4(f) lands will be required with the MDT Preferred Alternative or the CSKT Preferred Alternative, this site is not evaluated further in this document.

Lions Park

If Lane Configuration A is constructed on Alignment 1 (the MDT and the CSKT preferred alternatives as described in Sections 5.3, 5.4 and 12.2.3), no direct use of land from this site will be required.

If Lane Configuration B or C is constructed on Alignment 1, a direct use of approximately 0.07 or 0.11 acre of land from this site will be required. This will effectively abolish the entire vehicle turnout and parking lot because it will give way to highway pavement. The chamber of commerce information booth and two picnic tables will require relocation.

Alignments 2 and 3 are not located near this site and will not require direct or constructive use of the land with any of the lane configurations.

Because no direct or constructive use of Section 4(f) or Section 6(f) lands will be required with the MDT Preferred Alternative or the CSKT Preferred Alternative, this site is not evaluated further in this document.

Polson Municipal Golf Course

If Lane Configuration A is constructed on Alignment 1 (the MDT and the CSKT preferred alternatives as described in Sections 5.3, 5.4 and 12.2.3), no direct use of land from this site will be required.

If Lane Configuration B or C is constructed on Alignment 1, a direct use of approximately 0.21 or 0.33 acre of land from this site will be required. This use will impact hole #4 and the tee box for hole #5 due to pavement widening on the north side of US 93. The fairway and green for hole #4 will need to be relocated further to the north, resulting in the removal of several mature coniferous trees, and the teebox for hole #5 will need to be moved further to the north. Six or more mature deciduous trees along the Golf Course's southern boundary will also need to be removed to accommodate highway fill and pavement. With the relocations described above, the park will retain its primary current use.

Alignments 2 and 3 are not located near this site and will not require direct or constructive use of the land with any of the lane configurations.

Because no direct or constructive use of Section 4(f) or Section 6(f) lands will be required with the MDT Preferred Alternative or the CSKT Preferred Alternative, this site is not evaluated further in this document.

Seventh Avenue Softball Fields

No direct or constructive use of land from this site will be required with the MDT Preferred Alternative or the CSKT Preferred Alternative ~~(Lane Configuration A on Alignment 1 and Lane Configuration B, after initial construction of Lane Configuration A, on Alignment 3).~~

No direct or constructive use of land from this site will be required with any of the lane configurations on Alignments 1 or 3.

Construction of Lane Configuration A, B or C on Alignment 2 will require a direct use of approximately 0.20, 0.31 or 0.55 acre of land from this site. Five deciduous trees will need to be removed, a water pump station will need to be relocated, and power lines will need to be relocated. With Lane Configuration B or C, one softball diamond will need to be relocated. However, there is adequate room to accommodate this relocation on site. Therefore, the site can be expected to remain fully functional after the relocation of the softball diamond is complete.

Because no direct or constructive use of Section 4(f) or Section 6(f) lands will be required with the MDT Preferred Alternative or the CSKT Preferred Alternative, this site is not evaluated further in this document.

12.4.2. Historic Properties

Ravalli School (24LA131)

Because concrete curb and gutter is planned through Ravalli, ROW requirements are less than in rural areas. The ROW boundary will move only five feet closer to the site with Lane Configuration B, resulting in the direct use of 0.02 acres of land from this site. The ROW boundary will move ten feet closer to the site with Lane Configuration C (the MDT Preferred Alternative in this area) resulting in the direct use of 0.03 acres of land from this site (Figure 12.3-8). Lane Configuration A (the CSKT Preferred Alternative in this area) will not move highway traffic closer to the site while Lane Configurations B or C will place highway traffic approximately 43 or 48 feet closer to the site.

Although the Ravalli School building will not be directly affected by the construction of a new roadway, MDT, with the concurrence of the Montana State Historic Preservation Office (MSHPO), has determined the site will be adversely affected by impacts to its setting if the MDT Preferred Alternative is constructed. The MDT Preferred Alternative will adversely effect the setting of the property by relocating the centerline and the wider roadway closer to the school. As indicated above, the pavement edge will be closer to the property as will the driving lanes, with the MDT Preferred Alternative.

Northern Pacific Railroad, Dixon-Polson Branchline (24LA89)

It has been determined by MDT and MSHPO that this property will be adversely affected by the MDT Preferred Alternative~~proposed action~~. Approximately 1,800 linear feet of railline will be obliterated with the MDT Preferred Alternative, Lane Configuration B on Alignment 1. To replace the obliterated line, about 1,750 feet of new railline will be constructed about 100 to 150 feet from the existing line. Alignment 3 with Lane Configuration B, also part of the MDT Preferred Alternative, will require a new crossing of the railroad.

12.5. AVOIDANCE ALTERNATIVES

This section identifies and evaluates location and design alternatives which would avoid the use of Section 4(f) land.

12.5.1. Parks, Recreation Areas and Wildlife and Waterfowl Refuges

Arlee Community Park

The MDT Preferred Alternative in the Arlee area is Alignment 1 (existing alignment) with Lane Configuration C (a four-lane highway with a continuous two-way left-turn center median).

As explained in Chapter 5, alignment alternatives in the Arlee area, including Alignments 2, 3, 4 and 5, have been evaluated which will avoid the use of Section 4(f) lands. Construction of the proposed action on these alignments would:

- Make it likely that the acquisition of needed ROW would probably not be approved. Since the proposed action is located almost entirely within the Flathead Indian Reservation, any acquisition of tribal lands for ROW must receive the approval of the Confederated Salish and Kootenai Tribes. The Confederated Salish and Kootenai Tribal Council has expressed opposition to the construction of the highway on any alignment except the existing alignment (Alignment 1) in this area.

- Go against strong public opinion which has been expressed in opposition to the construction of the highway anywhere except on the existing alignment.

- Potentially create impacts to a cultural site with spiritual significance to the Tribes ~~on cultural resource sites.~~

- Place the highway closer to schools ~~(Alignment 3)~~. Alignment 1, the existing alignment, is located approximately 900 feet from the grade school, the middle school and the high school in Arlee. Alignment 1 is separated from the schools by two blocks of businesses and residences. Constructing the roadway on Alignment 3 would place the road within 250 feet of a portion of the schools with no buildings, trees or other items between the roadway and the schools.

- Increase noise levels, if Alignment 3 is constructed, at the schools from the current estimated level of less that 50 dBA with current and projected year 2020 traffic volumes to approximately 61 and 65 dBA with current and projected year 2020 traffic volumes.

- Place high volumes of highway traffic (approximately 13,000 vehicles per day in the year 2020) in areas that currently have none.

- Require the conversion of more land to highway ROW. Alignments 2, 3 and 4 will require the conversion of approximately 29, 37 and 140 acres more land to highway ROW than Alignment 1 at a cost of approximately $150,000, $200,000 and $700,000. The ROW on the existing highway must still remain for highway access.

- Require the filling of more wetlands. Alignments 2, 3 and 4 will fill approximately 0.6, 0.4 and 8.3 acres more wetlands than Alignment 1.

- Impact existing highway-oriented businesses by moving traffic away from them. By diverting highway traffic away from the existing alignment, Arlee Alignments 2 and 3 will reduce total sales in Arlee by 38%, or approximately $26 million, through the year 2015. After 2015, annual sales in Arlee will be similar for the existing alignment and Alignments 2 and 3. Arlee Alignment 4 will reduce sales in Arlee by 67% through the year 2015. Annual sales with Alignment 4 will continue to be less than Alignment 1 after 2015. (Section 7.5.4)

A minor alignment shift to move the roadway to the west sufficiently to avoid direct use of the land has been considered. This would move the highway closer to existing buildings on the west side of the highway. The gas pumping area and much of the parking lot of one gas station/convenience store on the west side of the highway would be restricted and may not be useable.

Lane Configuration A (the CSKT Preferred Alternative), with or without left-turn bays or a continuous two-way left-turn center median, will not meet the purpose and need because it will not provide adequate capacity to accommodate existing and future traffic volumes and it will not help to substantially improve safety.

Lane Configuration B, without the continuous two-way left-turn center median, will not meet the purpose and need because it will not provide for sufficient safe left-turn opportunities to the many businesses, homes and other properties in Arlee.

National Bison Range and National Bison Range Visitor Center

The MDT Preferred Alternative in this area is Alignment 1 (existing alignment) with Lane Configuration B (a four-lane highway ~~with a four-foot-wide painted center median~~).

Following paragraphs list and discuss alternatives that have been considered which will avoid or reduce the use of Section 4(f) properties at the National Bison Range and at the National Bison Range Visitor Center.

Alignment alternatives that have been considered include Arlee Alignment 5 (Section 5.1.2.2) and the Old Freight Route (Section 5.1.2.5). These alignments would:

- Make it likely that the acquisition of needed ROW would probably not be approved. Since the proposed action is located almost entirely within the Flathead Indian Reservation, any acquisition of tribal lands for ROW must receive the approval of the Confederated Salish and Kootenai Tribes. The Confederated Salish and Kootenai Tribal Council has expressed opposition to the construction of the highway on any alignment except the existing alignment (Alignment 1) in this area.

- Go against strong public opinion which has been expressed in opposition to them.

- Cause substantial environmental impacts related to introducing high volumes of highway traffic in areas that currently have very little vehicle traffic. Related impacts will include noise, safety, visual, air quality, social, wildlife, wetlands and cultural resources.

- Noise levels, currently estimated at or below 47 dBA in areas with no substantial highway traffic, would rise to 72, 69 and 64 dBA within 100, 150 and 300 feet of the centerline of the new highway.

- Field reviews that have been conducted along these alternate alignments indicated that wetland impacts would be approximately equal to impacts if the highway is constructed on its existing alignment.

- Require new crossings of the Jocko River and other streams.

- Construction of a new highway along the Old Freight Route would require 680 acres of new ROW as compared with approximately 140 acres for the same length of Alignment 1, the existing alignment. Construction of a new highway along Arlee Alignment 5 would require 360 acres of new ROW, as compared with approximately 40 acres for the same length of Alignment 1, the existing alignment. The ROW on the existing highway will remain and must still remain for highway access. This additional new ROW would include~~Convert~~ large amounts of existing farmland~~-to highway ROW~~.

- Create two highways through the valley -- existing US 93 would have to remain to at least serve local traffic.

Minor alignment shifts have been considered to avoid direct impacts on Section 4(f) lands in these sites. These shifts would:

- Create greater cuts or fills in the steep terrain which would create related adverse environmental impacts and substantially increase construction costs.

- Create greater impacts to the Visitor Center if shifted one direction and create greater impacts to the Bison Range if shifted the other direction.

Construction of Lane Configuration A (the CSKT Preferred Alternative) will reduce the direct use of Section 4(f) lands at these sites. Lane Configuration A, with or without left-turn bays or a continuous two-way left-turn center median, will not meet the purpose and need because it will not provide adequate capacity to accommodate existing and future traffic volumes and it will not help to substantially improve safety.

<u>Recreation Areas and Wildlife and Waterfowl Refuges</u>

The MDT Preferred Alternative in this area is Alignment 1 (existing alignment) with Lane Configuration B (a four-lane highway~~-with a four foot wide painted center median~~).

Following paragraphs list and discuss alternatives that have been considered and which will avoid or reduce the use of Section 4(f) properties at Ninepipe Refuge, Ninepipe WMA, Kicking Horse WPA and Duck Haven WPA.

Alignment alternatives that have been considered include several variations of an alignment following the Old Freight Route (Section 5.1.2.5). These alignments would:

- Make it likely that the acquisition of needed ROW would probably not be approved. Since the proposed action is located almost entirely within the Flathead Indian Reservation, any acquisition of tribal lands for ROW must receive the approval of the Confederated Salish and Kootenai Tribes. The Confederated Salish and Kootenai Tribal Council has expressed opposition to the construction of the highway on any alignment except the existing alignment (Alignment 1) in this area.

- Go against strong public opinion which has been expressed in opposition to them.

- Cause substantial environmental impacts related to introducing high volumes of highway traffic into areas that currently have very little vehicle traffic. Related impacts will include noise, safety, visual, air quality, social, wildlife, wetlands and cultural resources.

- Noise levels, currently estimated at or below 47 dBA in areas with no substantial highway traffic, would rise to 72, 69 and 64 dBA within 100, 150 and 300 feet of the centerline of the new highway.

- Field reviews that have been conducted along this alignment indicated that wetland impacts would be approximately equal to impacts if the highway is constructed on its existing alignment.

- Convert large amounts of farmland to highway ROW.

- Construction of a new highway along the Old Freight Route would require 680 acres of new ROW as compared with approximately 140 acres for the same length of Alignment 1, the existing alignment. The ROW on the existing highway will remain and must still remain for highway access. This additional new ROW would include~~Convert~~ large amounts of existing farmland~~-to highway-ROW~~.

- Create two highways through the valley -- existing US 93 would have to remain to at least serve local traffic.

Minor alignment shifts have been considered to avoid direct impacts on Section 4(f) lands in these sites. These shifts would:

- ~~Create greater cuts or fills in the steep terrain which would create related adverse environmental impacts and substantially increase construction costs.~~

- Require similar use of Section 4(f) lands on the side toward which the alignment is shifted.

- Require the highway be completely reconstructed rather than overlaying the existing pavement and widening.

Construction of Lane Configuration A (the CSKT Preferred Alternative) will reduce the direct use of Section 4(f) lands at these sites. Lane Configuration A, with or without left-turn bays or a continuous two-way left-turn center median, will not meet the purpose and need because it will not provide adequate capacity to accommodate existing and future traffic volumes and it will not help to substantially improve safety.

With any of the proposed lane configurations, nearly vertical retaining walls using gabions or other structures will be used in some areas to eliminate the normal 6:1 or 4:1 safety slopes that would normally be constructed in this area. Areas where these walls will be used include areas where guardrail currently exists and where most of the larger ponds and potholes adjacent to the highway exist. Wherever these walls are used, new guardrail will be required. Use of these walls will eliminate impacts to ponds and potholes in some areas and substantially reduce impacts in other areas.

12.5.2. Historic Properties

Ravalli School (24LA131)

The MDT Preferred Alternative in this area is Alignment 1 (existing alignment) with Lane Configuration C (a four-lane highway with a continuous two-way left turn center median).

Alignment alternatives have been considered in this area but none have been identified that are feasible and prudent. The highway is bordered on the west by a railroad, west of the railroad is the Jocko River and west of the river the steep slopes of the canyon walls begin. The Community of Ravalli lies immediately adjacent to the east side of the highway and immediately east of Ravalli the steep slopes of the east side of the canyon begin. Other than the existing alignment, there are no practical locations to place the highway in this area.

Minor adjustments to Alignment 1 to move it away from the site are not appropriate because they will require substantial relocation of the Northern Pacific Railroad Grade (24LA199) which is also eligible for NRHP.

Construction of Lane Configuration A (the CSKT Preferred Alternative) or Lane Configuration B will not adequately accommodate existing and projected traffic volumes, improve safety and provide for the substantial number of left turns from US 93 required in the community.

<u>Northern Pacific Railroad, Dixon-Polson Branchline (24LA89)</u>

The MDT Preferred Alternative in this area is Alignment 1 (existing alignment) with Lane Configuration B (a four-lane highway ~~with a four-foot wide painted center median~~). Alignment 3 will also be constructed with Lane Configuration B, after initial construction of Lane Configuration A, to serve as an alternate route through the Polson area.

As explained in Chapter 5, other alignments have been considered but, because traffic must still be maintained on Alignment 1, the existing alignment, they do not reduce the required use of Section 4(f) lands.

Minor adjustments to Alignment 1 to move the roadway away from the railroad have been considered but are not considered feasible and prudent because:

- Relocation of at least one residence will be required,
- Construction of substantially larger fill slopes will be required with related additional environmental impacts and construction costs, and
- Substantial additional impacts to~~direct use of land from~~ the Polson Z Canal will occur~~(24LA90) will be required~~.

Construction of Lane Configuration A on Alignment 1 (the CSKT Preferred Alternative) will reduce the direct use of Section 4(f) lands at these sites. Lane Configuration A, with or without left-turn bays or a continuous two-way left-turn center median, will not meet the purpose and need because it will not provide adequate capacity to accommodate existing and future traffic volumes, and it will not help to substantially improve safety. Construction of Lane Configuration C will require more use of Section 4(f) lands and is not required to adequately and safely accommodate existing and future traffic demand in this area.

12.6. MEASURES TO MINIMIZE HARM

This section identifies and discusses possible measures to minimize the impacts on Section 4(f) properties.

12.6.1. Parks, Recreation Areas and Wildlife and Waterfowl Refuges

Arlee Community Park

With the MDT Preferred Alternative at the Arlee community park, the wooden fence will be relocated or will be replaced with a new similar wooden fence. The pedestrian/bicycle path will also be replaced with a new similar path. Bushes, lawn and other vegetation will be replaced.

National Bison Range and National Bison Range Visitor Center

The informal viewing and parking area that has developed, on highway ROW and on National Bison Range land across US 93 from the Visitor Center, will be removed. This will eliminate the various unsafe approaches to US 93 and remove vehicular and most pedestrian traffic from the area. Traffic will be strongly encouraged to use the Visitor Center parking lot and facilities instead. The Visitor Center is better equipped to accommodate this use with restrooms and regular maintenance including cleanup and garbage removal.

A protected left-turn bay will be provided at the entrance to the Visitor Center to safely and efficiently accommodate left turns into the site. This will further encourage visitors to use the site rather than leaving the highway at random locations.

Recreation Areas and Wildlife and Waterfowl Refuges

In Ninepipe Refuge, Ninepipe WMA, Kicking Horse WPA and Duck Haven WPA, wetlands that are filled or otherwise removed by construction of the proposed action will be replaced by wetlands constructed to provide similar functions and equal or greater value.

Construction of these replacement wetlands will require the acquisition of land which can serve to replace the Section 4(f) lands used by the proposed action. Much of the acquired land will be adjacent to the existing Refuge and the WPAs but farther away from the highway. Wildlife biologists representing agencies with jurisdiction or special expertise related to the proposed action have indicated that relocation of these wetlands and related wildlife habitat will have a beneficial effect because it will move wildlife farther away from the highway -- road kills and other negative impacts will be substantially reduced.

12.6.2. Historic Properties

Ravalli School (24LA131)

MDT and MSHPO have agreed to a plan that mitigates the adverse effects of the proposed action on the Ravalli School[3]. The plan includes three parts: 1) planting of a vegetative buffer to screen the school from the roadway 2) preparation and submittal of an NRHP nomination form for the Ravalli School and 3) installation of an NRHP marker for the building. The plan has not yet been implemented.

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[3]Federal Highway Administration, Montana State Historic Preservation Office, Advisory Council on Historic Preservation, Montana Department of Transportation, Memorandum of Agreement, Dirty Corner - Ravalli Highway Project (Evaro - Polson EIS), Missoula/Lake Counties, Montana, F 5-2(34)17, Control No. 1296, July 1994. A copy of this document is included at the end of this Section 4(f) Evaluation.

With this plan, MDT, with the concurrence of MSHPO, has determined there will be no adverse effect to this property as a result of the proposed action. With this plan, the site will remain eligible for the NRHP.

Northern Pacific Railroad, Dixon-Polson Branchline (24LA89)

MDT and MSHPO have agreed to a plan that mitigates the adverse effects of the proposed action on the railroad[4]. The memorandum of agreement (MOA) includes provisions for MDT to contribute funds to the Museum of the Rockies in Bozeman, Montana for the purchase of the Ronald V. Nixon Photograph Collection. This collection documents the history of the Northern Pacific, Great Northern, Union Pacific and the Chicago, Milwaukee, St. Paul & Pacific railroads in Montana from 1910 to 1980. The plan has not yet been implemented.

With this plan, MDT, with the concurrence of MSHPO, has determined there will be no adverse effect to this property as a result of the proposed action. With this plan, the site will remain eligible for the NRHP.

[4]Federal Highway Administration, Montana State Historic Preservation Office, Advisory Council on Historic Preservation, Montana Department of Transportation, Memorandum of Agreement, Ronan - Polson Highway Project (Evaro - Polson EIS), Lake County, Montana, F 5-2(33)48, Control No. 1060, March 1994. A copy of this document is included at the end of this Section 4(f) Evaluation.

12.7. COORDINATION

Correspondence and information has been sent to agencies with jurisdiction for all Section 4(f) Parks, Recreation Areas and Wildlife and Waterfowl Refuges discussed in this document. The correspondence listed potential properties with Section 4(f) significance, made preliminary estimates of the direct use and constructive use required, discussed mitigation measures and asked for additional information, suggestions and comments. The correspondence was sent to the following agencies:

Lake County	Arlee Community Park
US Fish and Wildlife Service	National Bison Range Ninepipe National Wildlife Refuge Kicking Horse Waterfowl Production Area Duck Haven Waterfowl Production Area
Confederated Salish and Kootenai Tribes	National Bison Range Visitor Center Ninepipe National Wildlife Refuge
Montana Department of Fish, Wildlife and Parks	Ninepipe Wildlife Management Area Lions Park[5] Polson Municipal Golf Course[4] Seventh Avenue Softball Fields[4]
City of Ronan	Ronan City Park
Ronan School District No. 30	Ronan High School Athletic Field
City of Polson	Ducharme Park Polson Municipal Golf Course Seventh Avenue Softball Field
Montana Department of Transportation	Lions Park

MSHPO has been consulted and has concurred with the determination of eligibility and the determination of effect, based on the MDT Preferred Alternative, for each of the historic properties. MSHPO has concurred with mitigation plans proposed at historic sites that may be adversely affected. (Copies of MOAs for these historic properties are included at the end of this Section 4(f) Evaluation.)

The United States Department of the Interior has concurred, based on the MDT Preferred Alternative, that there is no feasible and prudent alternative to the use of the parks, recreation areas, wildlife refuges and historic properties listed in this Section 4(f) Evaluation[6].

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[5]As indicated in Section 12.3.1., these sites have been developed using LWCF financial assistance and are therefore subject to the provisions of Section 6(f) of the LWCF Act. The Montana Department of Fish, Wildlife and Parks (MDFWP) has been delegated the responsibility, by the U.S. Department of Interior, to handle LWCF matters in Montana. For that reason, coordination with MDFWP has been and will continue to be conducted for these sites. As indicated in Section 12.4.1., no use of Section 6(f) lands will be required with the MDT Preferred Alternative or the CSKT Preferred Alternative.

[6]Taylor, Willie R., Director, Office of Environmental Policy and Compliance, Office of the Secretary, United States Department of the Interior, letter dated 08 June 1995.

12.8. CONCLUSION

Based upon the above considerations, there is no feasible and prudent alternative to the use of the land from the Section 4(f) properties. The proposed action includes all possible planning to minimize harm to the Section 4(f) properties resulting from such use.

MEMORANDUM OF AGREEMENT FOR THE RAVALLI SCHOOL

Advisory Council On Historic Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

Reply to: 730 Simms Street, #401
Golden, Colorado 80401

RECEIVED
AUG 16 1994
ENVIRONMENTAL BUREAU

MASTER FILE COPY

cc: G. Stockstad
K. Nelwik

August 1, 1994

Dale W. Paulson
Environmental Coordinator
Federal Highway Administration
301 South Park Street
Room 448
Helena, MT 59626

REF: Memorandum of Agreement regarding the Dirty Corner to Ravalli Segment of the U.S. 93 reconstruction (F 5-1(9)6).

Dear Mr. Paulson:

The enclosed Memorandum of Agreement regarding the effects of the Dirty Corner to Ravalli highway reconstruction on the Ravalli School (24LA131) has been accepted by the Council. This action constitutes the comments of the Council required by Section 106 of the National Historic Preservation Act and the Council's regulations. Please send copies of the signed Agreement to the Montana State Historic Preservation Officer and your Federal Preservation Officer.

The Council appreciates your cooperation in reaching a satisfactory resolution of this matter.

Sincerely,

Claudia Nissley
Director, Western Office
of Review

Enclosure

MEMORANDUM OF AGREEMENT FOR THE NORTHERN PACIFIC RAILROAD, DIXON-POLSON BRANCHLINE

MEMORANDUM OF AGREEMENT
DIRTY CORNER - RAVALLI HIGHWAY PROJECT
(EVARO - POLSON EIS)
MISSOULA/LAKE COUNTIES, MONTANA
F 5-2(34)17
Control No. 1296

WHEREAS the Federal Highway Administration (FHWA) proposes to assist the Montana Department of Transportation (MDT) in funding the Dirty Corner - Ravalli highway project;

WHEREAS FHWA has determined that the undertaking will have an effect on the Ravalli School (24LA131), a property eligible for inclusion on the National Register of Historic Places, and has consulted with the Montana State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation (Council) pursuant to Section 106 of the National Historic Preservation Act (16 USC 470) and its implementing regulations, "Protection of Historic Properties" (36 CFR 800);

WHEREAS MDT participated in the consultation and has been invited to concur in this Memorandum of Agreement; and

NOW, THEREFORE; FHWA, the Montana SHPO, and Council agree that the undertaking will implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

Stipulations

FHWA shall ensure that the following measures are carried out:

1) The MDT shall prepare and submit a nomination for the listing of the Ravalli School (24LA131) on the National Register of Historic Places. The nomination will be prepared with the cooperation of the current owners of the property, the Ravalli Community Church.

2) The MDT will purchase and install a National Register of Historic Places marker describing the historic and architectural significance of the Ravalli School when the property is listed.

3) The MDT will install a vegetative buffer between the Ravalli School and U.S. Highway 93 in the vicinity of the property when the reconstruction project is completed. The type of vegetation will be determined by the MDT Agronomist and will be consistent with plant species known to be present in the area.

4) If a dispute arises regarding the implementation of this Agreement, FHWA shall consult with the objecting party to resolve the dispute. If any consulting party determines that the dispute cannot be resolved, FHWA shall request the further comments of the Advisory Council on Historic Preservation pursuant to the Council's regulations.

EXECUTION OF THIS MEMORANDUM OF AGREEMENT and implementation of its terms evidences that FHWA has afforded the Council an opportunity to comment on the Dirty Corner - Ravalli highway reconstruction project and its affects to historic properties, and that FHWA has taken into account the effect of the Undertaking on historic properties.

Federal Highway Administration — 6-20-94 (Date)

Marcella Sherfy
Montana State Historic Preservation Office — 6-10-94 (Date)

Concurring Parties:

Robert D. Bush
Advisory Council on Historic Preservation — 7/22/94 (Date)

D. Stockstad
Montana Department of Transportation — 6/22/94 (Date)

Jon Axline

MEMORANDUM OF AGREEMENT
RONAN - POLSON HIGHWAY PROJECT
(EVARO - POLSON EIS)
LAKE COUNTY, MONTANA
F 5-2(33)48
Control No. 1060

MASTER FILE COPY

WHEREAS the Federal Highway Administration (FHWA) proposes to assist the Montana Department of Transportation (MDT) in funding the Ronan - Polson highway project.

WHEREAS FHWA has determined that the undertaking will have an effect on the Northern Pacific Branch Line (24LA89), a property eligible for inclusion on the National Register of Historic Places, and has consulted with the Montana State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation (Council) pursuant to Section 106 of the National Historic Preservation Act (16 USC 470) and its implementing regulations, "Protection of Historic Properties" (36 CFR 800);

WHEREAS MDT participated in the consultation and has been invited to concur in this Memorandum of Agreement; and

NOW, THEREFORE; FHWA, the Montana SHPO, and Council agree that the undertaking will be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

Stipulations

FHWA shall ensure that the following measures are carried out:

1) The MDT will donate $2,500.00 to the Museum of the Rockies in Bozeman, Montana for use toward the purchase of the Ronald V. Nixon Photograph Collection, a collection significant for its documentation of the history of railroad transportation in Montana.

2) The MDT will provide the SHPO with a copy of the donation agreement between the MDT and the Museum of the Rockies in which the conditions for use of the donated funds are detailed.

3) If a dispute arises regarding the implementation of this Agreement, FHWA shall consult with the objecting party to resolve the dispute. If any consulting party determines that the dispute cannot be resolved, FHWA shall request the further comments of the Advisory Council on Historic Preservation pursuant t the Council's regulations.

EXECUTION OF THIS MEMORANDUM OF AGREEMENT and implementation of its terms evidences that FHWA has afforded the Council an opportunity to comment on the Ronan - Polson highway reconstruction project and its affects to historic properties, and that FHWA has taken into account the effect of the Undertaking on historic properties.

Federal Highway Administration — (Date) 2-25-94

Montana State Historic Preservation Office — (Date) 2-14-94

Advisory Council on Historic Preservation — (Date) 3-9-94

Concurring Party:

Montana Department of Transportation — (Date) 2/8/94

APPENDICES

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APPENDIX A. AERIAL PHOTOGRAPHS AND MAPS

Aerial Photos

Table 6.10-1, Wetland & Riparian Area Characteristics and Estimated Impact Acreages -- Page 1

Site	MDT[1] Classification	Hydrologic Type[2]	Hydrologic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[5] Overall Rating (Category)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Alternative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
A1	Em (Ditch)	S	GW, R		<1	SF	IV	0.94/--	0.90/--	0.94/--	0.94/--	0.94/--	
A2	Em (Ditch)	S	R		<1	SF	IV	0.14/--	0.06/--	0.14/--	0.15/--	0.20/--	
A3	Em, Sh	SF	CF, GW		<1	WH, SF	III	tr/0.05	tr/0.04	tr/0.05	0.01/0.05	0.17/0.07	
A27	Em	SF	OBF, R		>10	EC, SF, WH	II	1.63/--	1.33/--	1.63/--	1.80/--	2.24/--	
R1	Fo, Sh (NWR)	TF	GW, R		<1	WH, FC	III	--/0.01	--/0.00	--/0.01	--/0.02	--/0.06	
A4	Em (Ditch)	S	R		<1	SF	IV	0.00/--	0.00/--	0.00/--	0.01/--	0.08/--	
R2	Fo, Sh (NWR)	TF	GW, R		1-5	WH, GDR	III	--/0.50	--/0.28	--/0.50	--/0.63	--/0.94	
A5	Em, Sh	SF	CF		<1	WH, SF	III	0.00/--	0.00/--	0.00/--	0.00/--	0.01/--	
A6	Em (Ditch)	S	R		<1	SF	IV	0.16/0.16	0.1/0.09	0.16/0.16	0.16/0.16	0.16/0.16	
R3	Fo, Sh (NWR)	TF	GW, R		1-5	WH, GDR	III	--/0.30	--/0.17	--/0.30	--/0.38	--/0.58	
A7	Em (Ditch)	S	R		<1	SF	IV	0.25/--	0.10/--	0.25/--	0.25/--	0.25/--	
A28	Fo, Sh	SF	CR, OBF		1-5	WH, FC	III	0.04/--	0.03/--	0.04/--	0.05/--	0.07/--	
A8	Em, Sh	PF, S	OBF	Finley Creek	>10	FCS, EC, GDR, SF, TES, FC, WH, SS	I	0.61/0.20	0.53/0.17	0.61/0.20	0.65/0.22	0.77/0.26	

Table 6.10-1, - Wetland & Riparian Area Characteristics and Estimated Impact Acreages (Continued) -- Page 2

Site	MDT[1] Class-ification	Hydro-logic Type[2]	Hydro-logic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[5] Over-all Rating (Cate-gory)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Altern-ative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
A9	Fo, Sh, Em	SF, S	CF, GW		>10	FCS, FC, EC, NC, TES, WH, GDR, U	II	0.11/0.06	0.10/0.05	0.11/0.06	0.12/0.07	0.14/0.08	
A10	Fo, Sh, Em	SF, S	GW, CF		>10	FC, SF, EC, GDR, FCS, TES, WH, SS	I	01.03/0.11	0.49/0.05	0.79/0.09	0.86/0.10	1.03/0.11	
A11	Em (Ditch)	S	R		<1	SF	IV	0.08/--	tr/--	0.06/--	0.08/--	0.08/--	
A29	Fo, Sh, Em	SF	GW, CF		>10	FCS, FC, EC, NC, TES, WH, GDR, U	II	0.07/tr	0.00/0.00	0.01/0.00	0.03/tr	0.07/tr	
A12	Fo, Sh, Em	SF, S	GW, CF		>10	FCS, FC, EC, NC, U, TES, WH, GDR	II	0.27/0.03	0.13/0.01	0.17/0.02	0.21/0.02	0.27/0.03	
A13	Fo, Sh, Em	SF, S	GW, CF		>10	FCS, FC, EC, NC, U, TES, WH, GDR	II	0.03/tr	tr/--	0.01/tr	0.02/tr	0.03/tr	
A14	Fo, Sh, Em	SF, S	GW, CF		>10	FCS, FC, EC, NC, U, TES, WH, GDR	II	0.02/tr	tr/--	0.02/tr	0.04/tr	0.12/0.01	
A30	Em (Ditch)	S	R		<1	SF	IV	0.06/--	0.01/--	0.06/--	0.08/--	0.09/--	
A15	Em (Ditch)	SF, S	R		<1	SF	IV	0.18/--	0.02/--	0.18/--	0.23/--	0.26/--	

Table 6.10-1, - Wetland & Riparian Area Characteristics and Estimated Impact Acreages (Continued) -- Page 3

Site	MDT[1] Classification	Hydrologic Type[2]	Hydrologic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[4] Overall Rating (Category)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Alternative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
A16	Em (Ditch)	SF, S	R		<1	SF	IV	0.12/--	0.01/--	0.12/--	0.12/--	0.12/--	
A17	Em (Ditch)	SF, S	R		<1	SF	IV	0.10/--	0.09/--	0.10/--	0.10/--	0.10/--	
A18	Fo, Sh, Em	SF, S	GW, CF		>10	FC, EC, NC, FCS, TES, WH	II	0.13/--	0.10/--	0.13/--	0.15/--	0.19/--	
A19	Fo, Sh, Em	PF, S	OBF	Schley Creek	>10	SF, EC, GDR, FCS, WH, FC	I	0.10/0.01	0.06/0.01	0.10/0.01	0.11/0.02	0.17/0.02	
A31	Sh, Em (Ditch)	SF, S	R, GW		<1	SF	III	0.12/--	0.05/--	0.12/--	0.14/--	0.20/--	
A20	Fo, Sh, Em	PF, S	OBF	EF Finley Ck	>10	SF, EC, GDR, FCS, WH, FC	I	0.15/0.10	0.11/0.08	0.15/0.10	0.17/0.10	0.20/0.13	
R4	Fo, Sh, (NWR)	TF	OBF		<1	WH, FC	III	--/0.02	--/0.01	--/0.02	--/0.02	--/0.02	
A21	Fo, Sh, Em	PF, S	GW, CF, CD		>10	FC, EC, NC, FCS, WH, FC	II	0.37/0.10	0.27/0.07	0.37/0.10	0.43/0.10	0.54/0.13	
R5	Sh, (NWR)	TF	R		<1	SF	IV	--/0.19	--/0.15	--/0.19	--/0.15	--/0.15	
A22	Em, (Ditch)	SF, S	CF, R		<1	SF	IV	0.14/0.03	0.06/0.01	0.14/0.03	0.14/0.03	0.14/0.03	
R13	Fo, Sh (NWR)	TF	R		<1	WH, FC	III	--/0.10	--/0.05	--/0.10	--/0.12	--/0.21	
A23	Em, Sh (Ditch)	SF, S	CF, R		1-5	SF, FC	III	0.28/0.07	0.18/0.05	0.28/0.07	0.38/0.09	0.48/0.12	

Table 6.10-1, - Wetland & Riparian Area Characteristics and Estimated Impact Acreages (Continued) -- Page 4

Site	MDT[1] Class-ification	Hydro-logic Type[2]	Hydro-logic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[1] Over-all Rating (Cate-gory)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Altern-ative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
A33	Fo, Em, OW (Ex)	PF, S	CF		<1	WH, FC	III	0.00/--	0.00/--	0.00/--	0.00/--	0.00/--	
R6	Sh (NWR)	TF	R		<1	SF	IV	--/0.07	--/0.06	--/0.07	--/0.08	--/0.10	
A34	Em, Sh (Ditch)	SF, S	CF, R		1-5	SF, FC	III	0.13/0.50	0.09/0.38	0.13/0.50	0.14/0.57	0.19/0.74	
A24	Em (Ditch)	SF, S	R		<1	SF	IV	0.10/--	0.05/--	0.10/--	0.10/--	0.10/--	
A35	Em, Sh (Ditch)	SF, S	CF, R		1-5	SF, FC	III	0.50/0.12	0.30/0.07	0.50/0.12	0.61/0.15	0.89/0.22	
A36	Sh (Ditch)	SF, S	R		<1	SF	IV	0.03/--	0.02/--	0.03/--	0.04/--	0.05/--	
A37	Sh, Fo (Ditch)	SF, S	CD		<1	SF	III	0.01/0.03	tr/0.01	0.01/0.03	0.01/0.03	0.01/0.04	
A38	Em, Sh (Ditch)	SF, S	CF, R		1-5	SF, FC	III	0.00/0.00	0.00/0.00	0.00/0.00	tr/0.02	0.05/0.22	
A25	Em, Sh (Ditch)	SF, S	CF, R		1-5	SF, FC	III	0.10/0.01	0.04/tr	0.10/0.01	0.14/0.01	0.23/0.02	
R7	Fo, Sh (NWR)	TF	GW		<1	WH, FC	III	--/0.01	--/0.01	--/0.01	--/0.02	--/0.03	
A39	Fo, Em, OW (Ex)	SF, S	GW, CF		1-5	NC, GDR, WH, FC, SF	II	0.00/--	0.00/--	0.00/--	0.00/--	0.00/--	Arlee 1, 2, 3
R14	Fo, Sh, (NWR)	TF	CD		<1	WH	III	--/	--/0.00	--/0.00	--/0.00	--/0.00	Arlee 1, 2, 3
A26	Em (Ditch)	SF, S	R		<1	SF	IV	0.03/--	0.02/--	0.03/--	0.03/--	0.03/--	Arlee 1, 2, 3

Table 6.10-1, - Wetland & Riparian Area Characteristics and Estimated Impact Acreages (Continued) -- Page 5

Site	MDT[1] Classification	Hydrologic Type[2]	Hydrologic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[5] Overall Rating (Category)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Alternative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
B1	Em (Ditch)	SF, S	R		< 1	SF	IV	0.05/--	tr/--	0.05/--	0.06/--	0.06/--	Arlee 1, 2, 3
R8	Fo, Sh (NWR)	TF	GW		< 1	WH, FC	III	--/0.04	--/0.00	--/0.02	--/0.04	--/0.13	Arlee 1
R9	Fo, Sh (NWR)	TF	GW		> 10	FCS, TES, WH, FC, EC	II	--/0.29	--/0.27	--/0.27	--/0.20	--/0.40	Arlee1, 3
C1	Em, OW (Ex)	PF, S	GW		1-5	GDR	III	1.01/0.21	.069/0.08	0.95/0.11	1.01/.021	1.48/.015	Arlee 1, 3
								NA	0.59/0.06	0.70/0.08	0.77/0.09	0.94/0.10	Arlee 2
C2	Fo, Sh	PF, SF, S	OBF, GW	Jocko River	> 10	TES, SS, EC, GDR, U, REP, FC, WH, FCS	I	1.25/0.14	1.04/0.02	1.16/0.13	1.25/0.14	1.51/0.17	Arlee 1, 2, 3
C3	Em (Ditch)	SF, S	R		< 1	SF	IV	0.12/--	0.08/--	0.12/--	0.15/--	1.58/--	Arlee 1, 2, 3
C4	Em, OW (Ex)	PF	GW (Sp)		1-5	REP, GDR	III	0.02/--	0.00/--	0.02/--	0.04/--	0.12/--	Arlee 1, 2, 3
								NA	0.25/--	0.30/--	0.33/--	0.40/--	Arlee 4
A2-1	Em	SF, S	CF, OBF		1-5	SF, EC	III	NA	0.83/--	0.83/--	0.83/--	0.83/-	Arlee 2
A2-2	Em, OW (Ex)	SPF	GW		< 1	SF	IV	NA	0.02/--	0.02/--	0.02/--	0.02/--	Arlee 2
A3-1	Sh (Ditch)	TF	CD		< 1	SF	IV	NA	0.03/--	0.03/--	0.04/--	0.04/--	Arlee 3
A3-2	Em	SF, S	CF		1-5	SF, EC, WH	III	NA	0.28/--	0.33/--	0.36/--	0.44/--	Arlee 3

Table 6.10-1, - Wetland & Riparian Area Characteristics and Estimated Impact Acreages (Continued) -- Page 6

Site	MDT[1] Class-ification	Hydro-logic Type[2]	Hydro-logic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[5] Over-all Rating (Cate-gory)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Altern-ative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
A3-3	Sh (Ditch)	TF	CD		<1	SF	IV	NA	0.02/--	0.02/--	0.02/--	0.02/--	Arlee 3
A4-1	Em (Ditch)	TF	CF		1-5	SF, EC	III	NA	0.03/--	0.03/--	0.04/--	0.04/--	Arlee 4
A4-2	Em (Ditch)	SF	CD		<1	SF, EC	IV	NA	0.03/--	0.03/--	0.04/--	0.04/--	Arlee 4
A4-3	Em (Ditch)	SF	CD		<1	SF, EC	IV	NA	0.03/--	0.03/--	0.04/--	0.04/--	Arlee 4
A4-4	Fo, Sh	TF, S	CD		6-10	WH, FC, FCS	II	NA	0.88/0.22	1.06/0.26	1.16/0.29	1.41/0.35	Arlee 4
A4-5	Fo, Sh	PF, SF, S	OBF, GW	Jocko River	>10	TES, SS, EC, GDR, U, .REP, WH, FC, FCS	I	NA	1.76/0.44	2.11/0.53	2.32/0.58	2.82/0.70	Arlee 4
A4-6	Em, OW	SF, S	R		1-5	WH	III	NA	0.55/--	0.66/--	0.73/--	0.88/--	Arlee 4
A4-7	Em (Ditch)	SF	CD		<1	SF	IV	NA	0.03/--	0.03/--	0.04/--	0.04/--	Arlee 4
A4-8	Em (Ditch)	SF	CD		<1	SF	IV	NA	0.03/--	0.03/--	0.04/--	0.04/--	Arlee 4
A4-9	Em (Ditch)	SF	CD		<1	SF	IV	NA	0.03/--	0.03/--	0.04/--	0.04/--	Arlee 4
A4-10	Em	PF, TF, S	OBF, GW	Spring Creek	>10	FC, FCS, GDR, WH	II	NA	4.40/--	5.30/--	5.80/--	7.05/--	Arlee 4
A4-11	Em	SF, S	GW		6-10	WH, FCS	II	NA	0.21/--	0.25/--	0.27/--	0.33/--	Arlee 4
C5	Em (Ditch)	SF	R		<1	SF	IV	0.00/--	0.00/--	0.00/--	0.00/--	0.06/--	

Table 6.10-1, - Wetland & Riparian Area Characteristics and Estimated Impact Acreages (Continued) --

Site	MDT[1] Classification	Hydrologic Type[2]	Hydrologic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[5] Overall Rating (Category)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Alternative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
C6	Em (Ditch)	SF	R		<1	SF	IV	0.10/--	0.06/--	0.10/--	0.13/--	0.15/--	
C7	Em	SF, S	GW		1-5	FCS, SF	III	0.23/---	0.17/--	0.23/--	0.28/--	0.43/--	
C8	Em, Sh (Ditch)	SF	R, GW		1-5	SF	III	1.11/--	0.70/--	1.11/--	1.33/--	1.88/--	
C9	Em (Ditch)	SF	R		<1	SF	IV	0.74/--	0.40/--	0.74/--	0.82/--	0.91/--	
C10	Sh	PF, S	GW, OBF	Spring Creek	>10	FCS, TES, SS, SF, GDR, WH, FC, EC	II	0.40/0.10	0.22/0.06	0.40/0.10	0.50/0.12	0.60/0.15	
C16	Em, Sh (Ditch)	SF, S	R		<1	SF	III	0.31/--	0.19/--	0.31/--	0.39/--	0.59/--	
C11	Em (Ditch)	SF, S	R, GW		<1	SF	IV	0.02/--	0.01/--	0.02/--	0.03/--	0.04/--	
C12	Em (Ditch)	SF, S	R		<1	SF	IV	0.00/--	0.00/--	0.00/--	0.00/--	0.00/--	
C13	Em (Ditch)	SF, S	R		<1	SF	IV	0.08/--	0.01/--	0.08/--	0.12/--	0.24/--	
C14	Em	S	GW (Sp)		<1	GDR, SF	III	0.02/--	0.01/--	0.02/--	0.03/--	0.03/--	
C15	Em (Ditch)	SF, S	R		<1	SF	IV	0.06/--	0.02/--	0.06/--	0.09/--	0.17/--	
D1	Em (Ditch)	SF, S	R		<1	SF	IV	0.07/--	0.06/--	0.07/--	0.07/--	0.09/--	
D2	Fo, Sh	SF, S	OBF, GW		1-5	GDR, FC, SF	III	1.20/0.14	1.00/0.10	1.20/0.14	1.32/0.14	1.55/0.17	

Table 6.10-1, - Wetland & Riparian Area Characteristics and Estimated Impact Acreages (Continued) -- Page 8

Site	MDT[1] Class-ification	Hydro-logic Type[2]	Hydro-logic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[4] Over-all Rating (Cate-gory)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Altern-ative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
D3	Em (Ditch)	SF, S	R, GW		< 1	SF	IV	0.00/--	0.00/--	0.00/--	tr/--	0.08/--	
D4/D5	Fo, Sh	SF, S	GW, OBF		1-5	GDR, FC, SF	III	0.72/0.08	0.66/0.07	0.72/0.08	0.76/0.08	0.82/0.09	
R10	Sh (NWR)	TF	R		< 1	SF	IV	--/0.00	--/0.00	--/0.00	--/0.00	--/0.00	
R11	Sh (NWR)	TF	R		< 1	SF	IV	--/0.00	--/0.00	--/0.00	--/0.00	--/0.00	
F7	Fo, Sh	S, SF	R, GW		1-5	GDR, SF	III	0.25/0.24	0.24/0.24	0.25/0.24	0.25/0.24	0.25/0.24	
F1	Fo, Sh	S, SF	R, GW (Sp)		1-5	SF, GDR	III	0.74/0.19	0.56/0.14	0.74/0.19	0.80/0.21	0.91/0.23	
F2	Em (Ditch)	SF, S	R		< 1	SF	IV	0.00/--	0.00/--	0.09/--	0.10/--	0.10/--	
F3	Em, Sh	SF, S	GW, OBF		1-5	SF, EC, NC	III	0.15/--	0.13/--	0.15/--	0.16/--	0.17/--	
F4	Em, Sh	SF, S	GW, OBF		1-5	SF, EC, NC	III	0.33/--	0.28/--	0.33/--	0.34/--	0.40/--	
F5	Em, Sh	SF, S	GW, OBF		1-5	SF, EC, NC	III	0.11/--	0.08/--	0.11/--	0.12/--	0.14/--	
F6	Em (Ditch)	S	CD		< 1	SF	IV	0.00/--	0.00/--	0.00/--	0.00/--	tr/--	
G1	Em (Ditch)	SF, S	R		< 1	SF	IV	0.13/--	0.04/--	0.13/--	0.13/--	0.13/--	
G2	Em	S	R, GW		< 1	SF	IV	0.07/--	0.06/--	0.07/--	0.08/--	0.10/--	

Table 6.10-1, - Wetland & Riparian Area Characteristics and Estimated Impact Acreages (Continued) -- Page 9

Site	MDT[1] Classification	Hydrologic Type[2]	Hydrologic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[4] Overall Rating (Category)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Alternative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
G3	Em, Sh	SF, S	GW, OBF	Sabine Creek	> 10	FCS, SF, GDR, WH, FC, EC	II	0.89/0.16	0.47/0.08	0.89/0.16	0.99/0.17	1.19/0.21	
R12	Fo, Sh (NWR)	TF	GW		< 1	WH, FC	III	--/0.00	--/0.00	--/0.00	--/0.00	--/0.00	
G9	Em (Ditch)	SF, S	R		< 1	SF	IV	tr/--	tr/--	tr/--	tr/--	tr/--	
G4	Em (Ditch)	SF, S	R		< 1	SF	IV	0.00/0.00	0.00/0.00	0.00/0.00	0.06/0.05	0.10/0.10	
G5	Fo, Sh, Em	SF, S	GW, OBF	Mission Ck	> 10	TES, SF, EC, GDR, WH, FC, FCS	I	1.27/2.97	0.27/0.62	1.27/2.97	1.46/3.40	1.91/4.47	
G6	Em (Ditch)	SF, S	CF		< 1	SF	IV	1.00/--	0.77/--	1.00/--	1.13/--	1.59/--	
G7	Em (Ditch)	SF, S	R		< 1	SF	IV	0.36/--	0.22/--	0.36/--	0.44/--	0.76/--	
G8	Em (Ditch)	SF, S	R, CF		< 1	SF	IV	0.38/--	0.20/--	0.38/--	0.45/--	0.62/--	
H1	Em, Sh	SF, S	GW, OBF		6-10	FCS, SF, WH, FC, EC	II	1.57/0.03	1.31/0.03	1.57/0.03	1.67/0.04	1.95/0.04	
H2	Em	SF, S	GW, OBF		1-5	SF	III	3.08/--	2.22/--	3.08/--	3.55/--	4.48/--	
H3	Em	SF, S	GW, OBF		1-5	SF	III	0.65/--	0.42/--	0.57/--	0.65/--	0.79/--	
H4	Em	SF, S	R		1-5	SF	III	0.06/--	0.05/--	0.06/--	0.07/--	0.07/--	

Table 6.10-1, - Wetland & Riparian Area Characteristics and Estimated Impact Acreages (Continued) -- Page 10

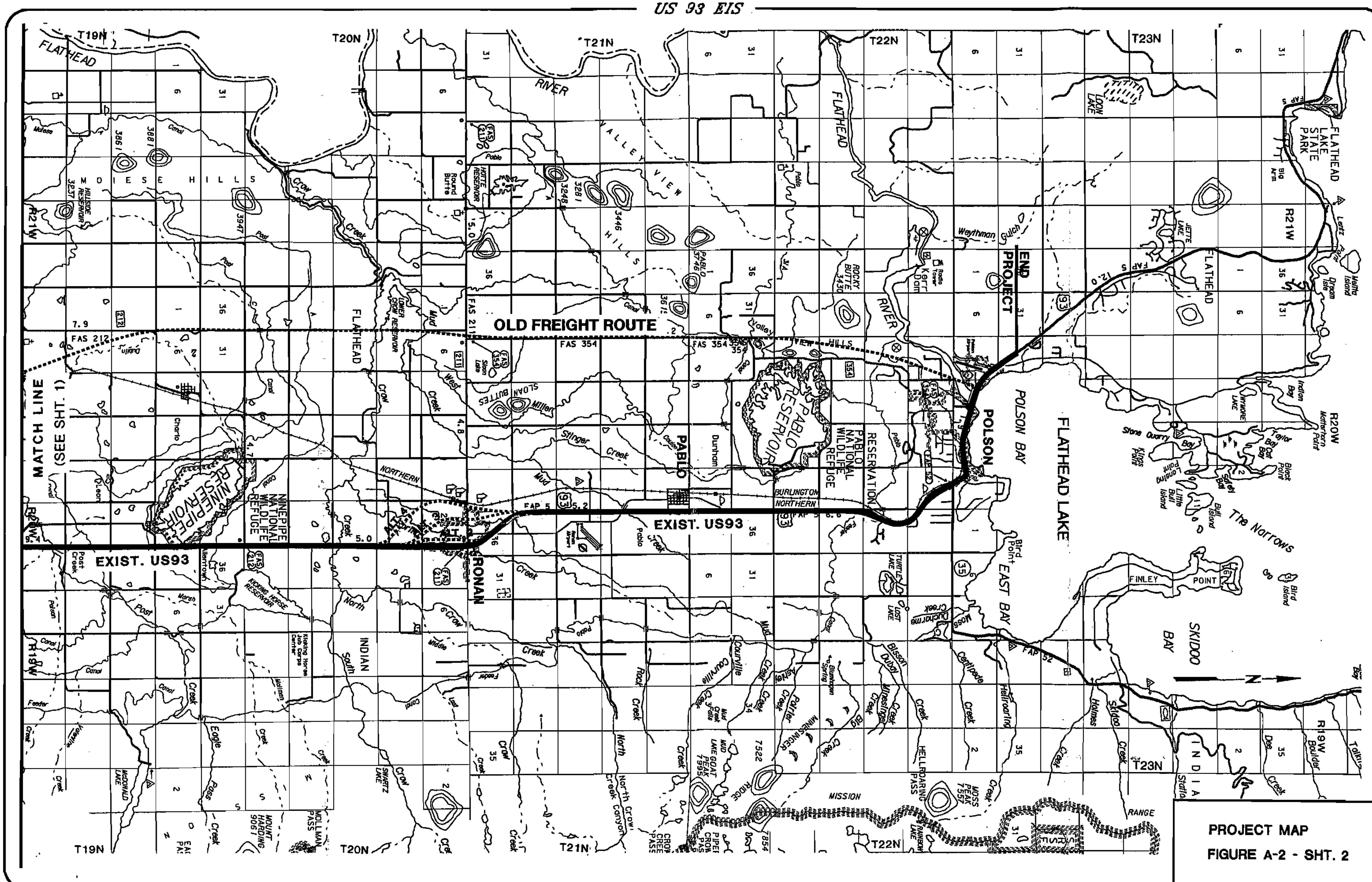
Site	MDT[1] Classification	Hydrologic Type[2]	Hydrologic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[5] Overall Rating (Category)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Alternative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
H5	Em	SF, S	GW, OBF		1-5	SF	III	0.11/--	0.09/--	0.11/--	0.12/--	0.15/--	
H6	Em	SF, S	GW, OBF		1-5	SF	III	0.15/--	0.05/--	0.15/--	0.19/--	0.25/--	
H7	Em	SF, S	GW, OBF		1-5	SF	III	0.26/--	0.10/--	0.26/--	0.31/--	0.41/--	
H8	Em (Ditch)	SF, S	CD		<1	SF	IV	0.04/--	0.06/--	0.04/--	0.15/--	0.46/--	
H9	Em	SF, S	GW, OBF		1-5	SF	III	0.44/--	0.29/--	0.44/--	0.61/--	0.77/--	
H10	Em (Ditch)	SF, S	R		<1	SF	IV	tr/--	0.00/--	tr/--	0.02/--	0.18/--	
H11	Em, Sh	SF, S	GW, OBF		1-5	SF	III	0.50/--	0.30/--	0.50/--	0.57/--	0.74/--	
H12	Em (Ditch)	SF, S	R		<1	SF	IV	0.43/--	0.19/--	0.43/--	0.47/--	0.56/--	
H13	Em, Sh	SF, S	GW, OBF		1-5	SF	III	0.48/--	0.28/--	0.42/--	0.48/--	0.63/--	
H14	Em	SF, S	GW(S), OBF		1-5	NC, GDR	III	0.42/--	0.23/--	0.40/--	0.42/--	0.43/--	
H15	Fo, Sh, Em	SF, S	GW, OBF	Post Creek	>10	TES, SF, EC, GDR, REP, WH, FC, FCS	I	1.29/0.07	0.45/0.01	1.00/0.05	1.29/0.07	1.86/0.09	
H16	Em, Sh	SF, S	GW(S)		1-5	FC, SF, GDR	III	0.09/--	0.03/--	0.09/--	0.12/--	0.20/--	

Table 6.10-1, - Wetland & Riparian Area Characteristics and Estimated Impact Acreages (Continued) -- Page 11

Site	MDT[1] Classification	Hydrologic Type[2]	Hydrologic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[5] Overall Rating (Category)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Alternative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
H17	Em (Ditch)	SF, S	R, GW		< 1	SF	IV	0.93/--	0.75/--	0.93/--	0.99/--	1.09/--	
H41	Em (Ditch)	SF, S	CD		< 1	SF	IV	0.03/--	0.01/--	0.03/--	0.05/--	0.09/--	
H18	Em (Ditch)	SF, S	R		< 1	SF	IV	0.20/--	0.12/--	0.20/--	0.22/--	0.29/--	
$H20_B$	Em (Ditch)	SF, S	GW, CD		< 1	SF	IV	0.28/--	0.15/--	0.28/--	0.35/--	0.50/--	
H19	Em (Ditch)	SF, S	CD		< 1	SF	IV	0.01/--	0.00/--	0.01/--	0.02/--	0.05/--	
$H20_a$	Em (Ditch)	SF, S	R		< 1	SF	IV	0.17/--	0.09/--	0.17/--	0.17/--	0.17/--	
H21	Em	SF	GW, OBF		1-5	SF	IV	0.06/--	0.02/--	0.06/--	0.13/--	0.28/--	
H22	Em (Ditch)	SF, S	R, GW		< 1	SF	IV	1.31/--	0.56/--	1.31/--	1.41/--	1.48/--	
H23	Em (Ditch)	SF, S	R, GW		< 1	SF	IV	0.46/--	0.19/--	0.46/--	0.51/--	0.67/--	
H24	Em, OW	SF, S	R		1-5	EC, WH, U,	II	0.00/--	0.00/--	0.00/--	0.00/--	0.00/--	
H25	Em, OW	SPF, S	R		6-10	EC, FCS, U, WH	II	0.24/--	0.07/--	0.24/--	0.41/--	0.79/--	
H26	Em, OW	SPF, S	R, GW		6-10	EC, FCS, U, WH	II	0.01/--	0.00/--	0.01/--	0.02/--	0.05/--	
H27	Em, OW	SPF, S	R		6-10	EC, FCS, U, WH	II	0.00/--	0.00/--	0.00/--	0.00/--	0.00/--	

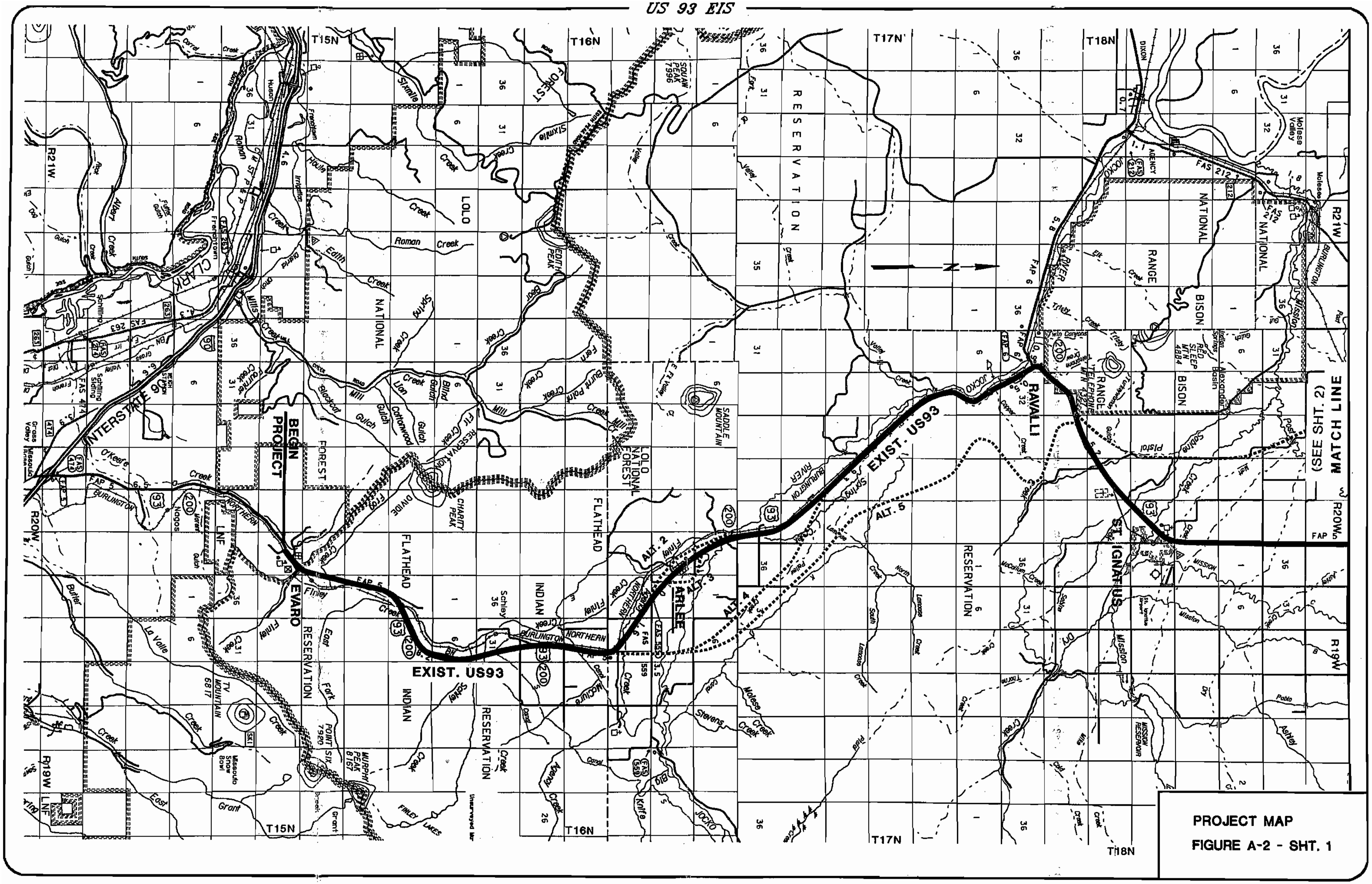
Table 6.10-1, - Wetland & Riparian Area Characteristics and Estimated Impact Acreages (Continued) -- Page 12

Site	MDT[1] Class-ification	Hydro-logic Type[2]	Hydro-logic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[5] Over-all Rating (Cate-gory)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Altern-ative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
H28	Em, OW	SPF, S	R		6-10	EC, FC, U, WH	II	tr/--	0.00/--	tr/--	0.02/--	0.09/--	
H29	Em, OW	SPF, S	R, GW		>10	FCS, SS, EC, U, WH, TES, REP	I	0.05/--	0.00/--	0.05/--	0.21/--	0.80/--	
H30	Em, OW	SPF, G	R, GW		>10	FCS, SS, EC, U, WH, TES, REP	I	0.01/--	0.00/--	0.01/--	0.08/--	0.49/--	
H31	Em OW	SPF, S	R, GW		1-5	FCS, EC, U, WH, TES, REP	II	0.02/--	0.00/--	0.02/--	0.03/--	0.07/--	
H32	Em, OW	SPF, S	R, GW		6-10	FCS, EC, U, WH, TES, REP	II	0.00/--	0.00/--	0.00/--	0.00/--	0.00/--	
H33	Em, OW, Sh	SPF, S	R		6-10	FCS, EC, U, WH, TES, REP	II	0.59/--	0.26/--	0.59/--	0.74/--	1.04/--	
H34	Em, OW	SPF, S	R		6-10	FCS, EC, U, WH, TES, REP	II	0.00/--	0.00/--	0.00/--	0.00/--	0.00/--	
H35	Em, Sh, OW	SPF, S	R		6-10	FCS, EC, U, WH, TES, REP	II	0.28/0.01	0.12/0.01	0.28/0.01	0.37/0.02	0.59/0.03	
H36	Em, OW	PF, S	R, GW(S)		6-10	FCS, EC, U, WH, TES, REP	II	0.03/--	0.00/--	0.03/--	0.16/--	0.49/--	
H37	Em, OW	PF, S	R, GW(S)		6-10	FCS, EC, U, WH, GDR, TES, REP	II	0.04/--	0.00/--	0.04/--	0.17/--	0.50/--	



PROJECT MAP

FIGURE A-2 - SHT. 2



PROJECT MAP
FIGURE A-2 - SHT. 1

APPENDIX F: AIR QUALITY REPORTS

I. Air Quality Conformity Analysis

II. Air Quality Dispersion Analysis

F.6.7 Affected Environment
F.7.7 Environmental Consequences

I. Air Quality Conformity Analysis

U.S. Department
of Transportation
**Federal Highway
Administration**

Montana Division
301 South Park Street, Room 448
Drawer 10056
Helena, Montana 59626-0056

January 31, 1996

Patricia Saindon, Administrator, Transportation Planning Bureau
Montana Department of Transportation
2701 Prospect Ave., P.O. Box 201001
Helena, MT 59620-1001

Subject: Polson and Ronan Conformity Determination

Dear Patricia:

In accordance with the Clean Air Act Amendments of 1990, a conformity finding of programs in a non-attainment area is required of the U.S. Department of Transportation. Based on our evaluation of the State's finding of conformity and related documentation, in coordination with the Environmental Protection Agency (EPA), we have determined that the Polson and Ronan, Montana rural non-attainment areas have met the requirements of the conformity regulations dated November 24, 1993. A finding of conformity is hereby made with respect to the analysis contained in your November 24, 1995 memorandum.

This conformity determination is in effect until such time as a new determination is required either by new regulatory requirements, major revision of the network assumptions, or a Tribal Implementation Plan (TIP) revision.

Sincerely,

Louis F. Mraz, Jr.
FTA Regional Administrator

Hank D. Honeywell
FHWA Division Administrator

File #: 510.11

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

Marc Racicot, Governor

November 24, 1995

David C. Miller, Planning & Research Engineer
Federal Highway Administration
301 South Park, Drawer 10056
Helena, MT 59626-0056

Subject: Polson and Ronan Regional Air Quality Analysis

Section 176 of the Clean Air Act requires transportation plans, programs, and projects in designated air quality nonattainment areas to conform to the applicable implementation plan's purpose of eliminating or reducing the severity and number of violations of national ambient air quality standards and achieving attainment of such standards.

Detailed regulations for assessing plan, program, and project conformity appear in Parts 51 and 93 of 40 CFR (Code of Federal Regulations). Requirements vary depending on the type of pollutant, the status of the area's implementation plan, the seriousness of the air quality problem, the availability of analysis tools, and the scope and nature of planned projects. In all cases, the regulations require a regional analysis of the cumulative effects of major transportation projects in each designated nonattainment area.

In urbanized nonattainment areas, the responsibility for conformity determinations rests with metropolitan planning organizations (MPOs) and sponsors of major transportation projects. In isolated rural nonattainment areas without MPOs, the responsibility for conformity determinations defaults to State departments of transportation. The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) must ultimately approve all conformity determinations.

This letter represents the required MDT regional analysis and resulting conformity determination for the Polson and Ronan, Montana PM-10 nonattainment areas.

Background

Polson and Ronan are classified as moderate nonattainment areas for particulate matter less than 10 microns in diameter (PM-10). Official nonattainment area boundaries are shown in Attachment A and are coincident with the municipal boundaries of the two cities. Official 1990 Census population for Polson and Ronan was 3,283 and 1,547, respectively.

For conformity purposes, the two areas are required to meet 'Interim Period' requirements for areas that haven't submitted an air quality implementation plan that establishes control strategies and emissions budgets. Federal regulations require regional analyses in these areas to demonstrate that estimated emissions are either less than emissions in a baseline year or that a 'build' or 'action' scenario including planned regionally-significant non-exempt projects will contribute to reductions in emissions when compared to a 'no-build' or 'baseline' scenario. The regional analyses for Polson and Ronan make the latter comparison.

Federal regulations also require a project-level hot-spot analysis for projects in PM-10 nonattainment areas. However, this requirement does not apply until EPA releases guidance on how to perform this analysis.

Analysis

The following separate regional analyses for Polson and Ronan share the following characteristics:

- Unlike the other two isolated rural nonattainment areas (Kalispell and Whitefish) that MDT has previously completed regional analyses for, sophisticated travel forecasting models aren't available or feasible for Polson and Ronan. Traffic estimates and assumptions are therefore based on forecasts developed for the "Evaro-Polson Draft EIS". These forecasts indicate similar future traffic levels on US 93 in Ronan for all proposed actions. Reductions in traffic due to implementation of transportation demand management measures under consideration are difficult to estimate but are expected to be minimal given travel and employment characteristics of the two areas.

- Based on a review of MDT's long-range construction plans and discussions with Polson and Ronan officials, the only regionally-significant, non-exempt projects in the two areas during the analysis period are those described in the "Evaro-Polson Draft EIS" as the

Preferred Alternative. These US 93 projects are therefore the only difference between the Action and Baseline Scenarios in both areas. Actual project termini and construction dates for the various segments will be determined based on future funding availability.

Polson:

The Preferred Alternative described in the "Evaro-Polson Draft EIS" includes a 2-lane bypass around Polson and relatively minor changes to US 93 within Polson. The planned bypass would be located entirely outside of Polson and would therefore divert a substantial number of trucks and other through traffic from the nonattainment area. Any quantitative or qualitative comparison of the Action and Baseline Scenarios must therefore inevitably conclude the Action Scenario would result in a reduction in transportation-related emissions in the nonattainment area.

The diversion of just 1,000 vehicles per day, for example, would reduce daily PM-10 emissions in Polson by approximately 160 pounds.

Ronan:

The Preferred Alternative described in the "Evaro-Polson Draft EIS" would widen US 93 from 3 lanes to 5 lanes through Ronan. In the process, existing curbs, gutters and paved shoulders and approaches would be replaced. The Preferred Alternative would extend these features one-half mile to the south from Garfield Street to the south city limits. This would substantially reduce carryon or background emissions caused by vehicles tracking road dust from adjacent unpaved surfaces onto the highway.

Previous regional analyses and conformity determinations in Kalispell and Whitefish have estimated a conservative 60% reduction in background emissions attributable to similar design features based on information provided by the Department of Health and Environmental Sciences (DHES). Using the same reduction factor for Ronan, the Action Scenario would result in a net reduction of 103.7 pounds per day in PM-10 emissions compared to the Baseline Scenario in 2020* based on the following calculations:

$$17{,}073 \times .5 = 8{,}536.5 \times .02025 \times .60 = 103.7 \text{ lbs.}$$

Where:
17,073 = Estimated 2020 average daily traffic (Table 7.7-3)

.5 = One half mile segment

8,536.5 = Estimated vehicle miles traveled (VMT)

.02025 = Carryon or background arterial emission factor (DHES, Kalispell Regional Analysis)

.60 = Adjustment to reflect partial elimination of carryon or background emissions

* 2020 was used as the only analysis year because it's the DEIS design year and is also the first quinquennial year following estimated completion of all US 93 projects.

Note: The necessary written MDT commitment to include these design features in the final design of the project is attached as Attachment B.

This analysis doesn't quantify regional VMT or PM-10 emissions. However, identical project-level traffic forecasts for the two scenarios and the lack of other regionally significant projects during the analysis period justify the conclusion that the only difference between the the two scenarios at both the regional and project levels would be the reduction in emissions quantified above.

<u>Conclusion</u>

This regional analysis has shown that, in both Polson and Ronan, the Action Scenario will result in a reduction in emissions compared to the Baseline Scenario and therefore fulfills the requirements for conformity determinations for included projects.

In accordance with the requirements of 40 CFR, we ask for your concurrence in this determination and assistance in obtaining any necessary FHWA and FTA approvals.

Please call me at 444-3143 or Dick Turner at 444-7289 if you have any questions.

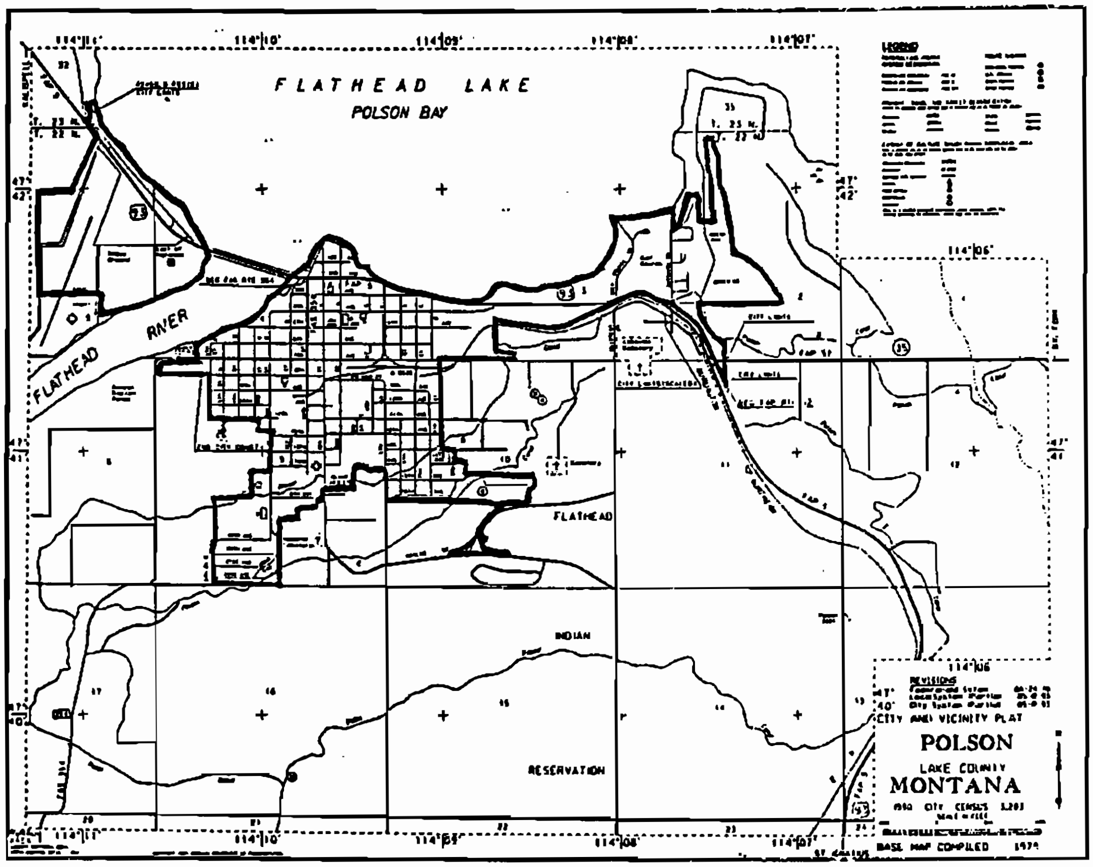
Patricia Saindon

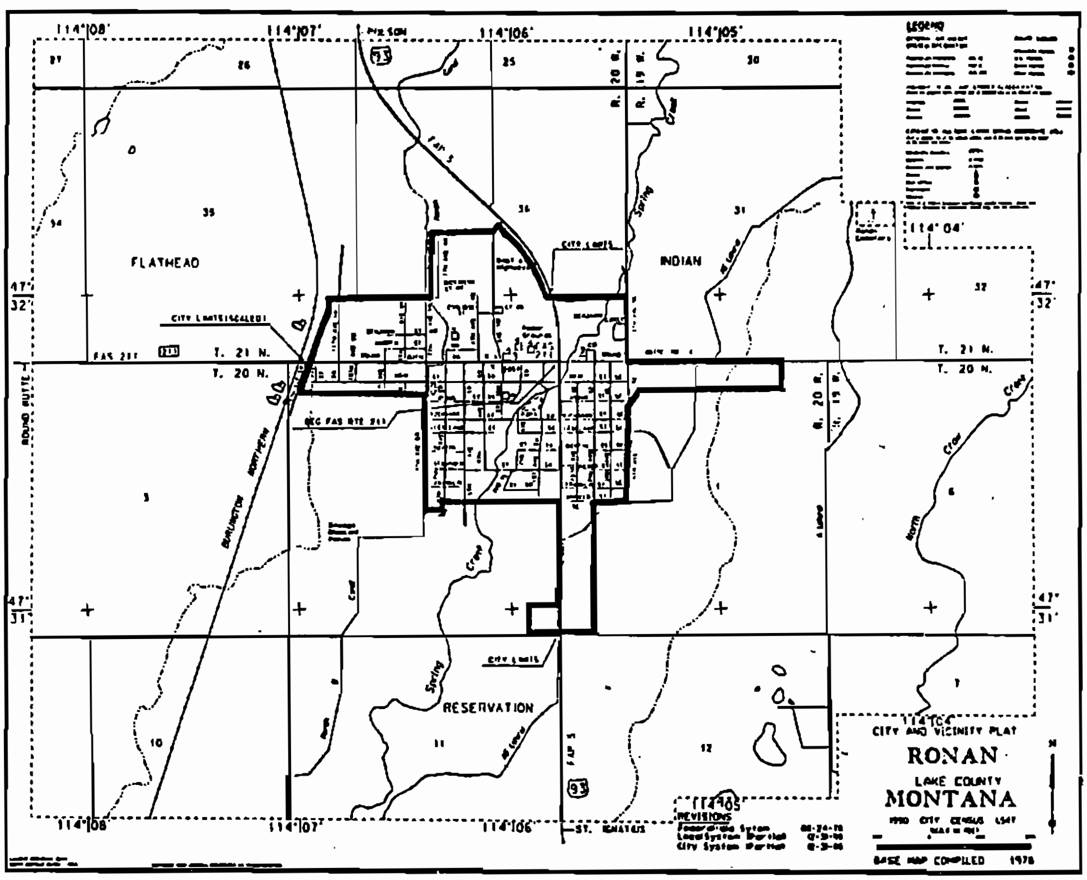
Patricia Saindon, Administrator
Transportation Planning Division

Attachments

cc: Gary Gilmore, Engineering Division
    Lewis McLeod, Confederated Salish & Kootenai Tribes
    Ken Augustson, Confederated Salish & Kootenai Tribes
    Dick Turner, Special Studies Section
    John Craig, Multimodal Planning Bureau
    Joel Marshik, Environmental Services Unit
    Jim Weaver, Missoula District
    Brad Peterson, Morrison & Maierle

Attachment A





Attachment B
Ronan Regional Air Quality Analysis
Commitment to Design Features

In accordance with Section 51.458 of 40 CFR, Part 51, the Montana Department of Transportation (MDT) commits to the following project design features assumed in the Ronan Regional Air Quality Analysis. These commitments apply to US 93 from the intersection with Garfield Street to the south city limits. These commitments will be implemented as part of US 93 improvements described in more detail in the "Evaro-Polson Draft EIS."

1) Gravel and dirt shoulders will be surfaced.

2) Curbs and gutters will be added.

3) Gravel and dirt approaches will be consolidated wherever possible and surfaced within the US 93 right-of-way.

4) The project will provide new surfacing throughout.

These commitments will be re-evaluated if a new regional analysis is necessary due to future changes, such as Montana Highway Commission selection of a significantly different design alternative following completion of the EIS process.

Patricia Saindon
Signature

11-21-95
Date

Admn. Planning Div.
Title

DT:G:TP:15.mb

Table 6.10-1, - Wetland & Riparian Area Characteristics and Estimated Impact Acreages (Continued) -- Page 17

Site	MDT[1] Class-ification	Hydro-logic Type[2]	Hydro-logic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[5] Over-all Rating (Cate-gory)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Altern-ative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
P3	Em (Ditch)	SF, S	R		<1	SF	IV	NA	0.04/--	0.14/--	0.14/--	0.14/--	Polson 2
P4	Em	SF	R		<1	SF	IV	NA	0.27/--	1.02/--	1.18/--	1.57/--	Polson 2
P5	Em	SF	R, GW		<1	SF	IV	NA	0.06/--	0.22/--	0.32/--	0.55/--	Polson 2
P6	Em (Ditch)	SF, S	R, CD		<1	SF	IV	0.04/--	0.03/--	0.04/--	0.05/--	0.08/--	Polson 3
P7	Em	SF	CF		>10	SS, WH, EC, REP, TES, FCS, FC	I	0.05/--	0.05/--	0.05/--	0.05/--	0.05/--	Polson 3
Flathead River				Flathead River				0.00/--	0.00/--	0.12/--	0.12/--	0.12/--	Polson 1
								NA	0.23/--	0.23/--	0.23/--	0.23/--	Polson 2
								0.18/--	0.18/--	0.18/--	0.18/--	0.18/--	Polson 3

[1] MDT Classification
Em - Emergent
Fo - Forested
OW - Open Water
Sh - Shrub
(Ex) - Excavated
(Ditch) - Roadside or irrigation ditch
(NWR) - Non-Wetland riparian area

Hydrologic Source
CD - Canal Discharge
CF - Channel flow
GW - Groundwater
GW(S) - Probable spring
OBF - Over-bank flow
R - Runoff/precipitation

[2]Hydrologic Type (Cowardin et.al., 1979)
PF - Permanently flooded
SPF - Semi-permanently flooded
SF - Seasonally flooded
S - Saturated
TF - Temporarily flooded

[5]MDT Overall Rating - (as determined using MDT Wetland site evaluation forms)
I - Exceptional
II - High
III - Moderate
IV - Low

[4]Prominent Functions (as determined using MDT wetland site evaluation forms. Functions rating as "high" or "exceptional" for each wetland are indicated on this table as "Prominent Functions")
EC - Erosion Control
FC - Flood control & storage
FCS - Food chain support
GDR - Groundwater discharge/recharge
HD - Habitat diversity
NC - Nutrient Cycling
REP - Recreation/Education potential
SF - Sediment filtration[3]
SS - Habitat for sensitive species
TES - Habitat for threatened & endangered species
U - Uniqueness
WH - Fish & Wildlife habitat

Table 6.10-1, - Wetland & Riparian Area Characteristics and Estimated Impact Acreages (Continued) -- Page 16

Site	MDT[1] Class-ification	Hydro-logic Type[2]	Hydro-logic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[5] Over-all Rating (Cate-gory)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Altern-ative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
R4-11	Em (Ditch)	SF	CD		<1	SF	IV	NA	0.03/--	0.03/--	0.04/--	0.04/--	Ronan 4
R4-12	Em, OW	SPF, S	R, GW		6-10	WH, NC, SF	II	NA	0.69/--	0.83/--	0.90/--	1.10./--	Ronan 4
R4-13	Em, OW	SPF, S	R, GW		6-10	WH, NC, SF	II	NA	0.55/--	0.66/--	0.73/--	0.88/--	Ronan 4
R4-14	Em, OW	SPF, S	R, GW		6-10	WH, NC, SF	II	NA	0.07/--	0.08/--	0.09/--	0.11/--	Ronan 4
K2	Em	SF, S	GW, OBF		6-10	FCS, WH, SF, EC	II	0.16/--	0.01/--	0.16/--	0.29/--	0.58/--	
K3	Em	SF, S	R, GW		6-10	FCS, WH, SF, EC	II	0.60/--	0.36/--	0.60/--	0.74/--	1.05/--	
K4	Em (Ditch)	SF, S	R, GW		<1	SF	IV	0.41/--	0.14/--	0.41/--	0.56/--	0.62/--	
L1	Em, Sh	SF, S	GW, OBF		>10	FCS, TES, GDR, U, FC, WH, EC	I	0.67/.029	0.34/0.14	0.67/0.29	0.75/0.32	0.95/0.41	
L2	Em (Ditch)	SF, S	R		<1	SF	IV	0.36/0.04	0.09/0.01	0.36/0.04	0.37/0.04	0.37/0.04	
N1	Em (Ditch)	SF, S	CD		<1	SF	IV	0.06/--	0.01/--	0.05/--	0.06/--	0.22/--	Polson 1
N2	Em, Sh (Ditch)	SF, S	R, GW		<1	SF	III	0.09/--	0.10/--	0.08/--	0.09/--	0.12/--	Polson 1
O1	Em (Ditch)	SF, S	CD		<1	SF	IV	0.00/--	0.00/--	tr/--	0.01/--	0.21/--	Polson 1
P1	Fo, Sh	TF, S	OBF		<1	TES	III	0.00/--	0.00/--	0.05/--	0.08/--	0.15/--	Polson 1
P2	Em (Ditch)	SF, S	R		<1	SF	IV	0.00/--	0.00/--	0.00/--	0.00/--	0.00/--	Polson 2, 3

Site	MDT[1] Class-ification	Hydro-logic Type[2]	Hydro-logic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[5] Over-all Rating (Cate-gory)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Altern-ative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
R3-1	Em	SF, S	R, GW		1-5	NC	III	NA	0.37/--	0.38/--	0.42/--	0.51/--	Ronan 3
R3-2	Em	SF, S	R, GW		1-5	NC	III	NA	0.55/--	0.66/--	0.73/--	0.88/--	Ronan 3
J1	Sh, Em	SF, S	OBF, GW	Spring Creek	>10	FCS, EC, GDR, U, FC, WH, REP	I	NA	0.15/0.02	0.18/0.02	0.20/0.02	0.23/0.03	Ronan 3
R3-3	Em (Ditch)	SF	CD		<1	SF	IV	NA	0.03/--	0.03/--	0.04/--	0.04/--	Ronan 3
R3-4	Em	SPF	R, GW		<1	SF	III	NA	0.58/--	0.69/--	0.77/--	0.92/--	Ronan 3
R4-1	Em	SF	R, GW		<1	SF	III	NA	0.42/--	0.50/--	0.54/--	0.66/--	Ronan 4
R4-2	Em (Ditch)	SF	CD		<1	SF	IV	NA	0.03/--	0.03/--	0.04/--	0.04/--	Ronan 4
R4-3	Em	SF	CF		<1	SF	IV	NA	0.03/--	0.03/--	0.04/--	0.04/--	Ronan 4
R4-4	Em	SF	R, GW		<1	WH, SF	III	NA	0.69/--	0.83/--	0.90/--	1.10/--	Ronan 4
R4-5	Em, Sh	SF, S	OBF, GW	Spring Creek	>10	FCS, EC, GDR, U, WH, EC, FC	I	NA	0.50/0.05	0.60/0.06	0.66/0.07	0.80/0.08	Ronan 4
R4-6	Em	SF, S	R, GW		1-5	WH, NC, SF	III	NA	0.55/--	0.66/--	0.73/--	0.88/--	Ronan 4
R4-7	Em (Ditch)	SF	CD		<1	SF	IV	NA	0.03/--	0.03/--	0.04/--	0.04/--	Ronan 4
R4-8	Em	SF, S	R, GW		<1	WH, SF	III	NA	0.28/--	0.33/--	0.36/--	0.44/--	Ronan 4
R4-9	Em	SF, S	R, GW		6-10	WH, SF	II	NA	0.46/--	0.60/--	0.67/--	0.85/--	Ronan 4
R4-10	Em	SF, S	R, GW		6-10	WH, SF	II	NA	0.37/--	0.48/--	0.54/--	0.70/--	Ronan 4

Table 6.10-1, - Wetland & Riparian Area Characteristics and Estimated Impact Acreages (Continued) -- Page 14

Site	MDT[1] Classification	Hydrologic Type[2]	Hydrologic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[1] Overall Rating (Category)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Alternative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
I11	Em, OW	SPF, S	R, GW		6-10	FCS, EC, TES, U, WH, REP	II	0.00/--	0.00/--	0.00/--	0.00/--	0.00/--	
I12	Em, Sh	SF, S	GW, OBF	Crow Creek	>10	FCS, TES, EC, GDR, FC, WH	I	0.01/tr	0.00/0.00	0.01/tr	0.04/tr	0.16/0.01	
I13	Em	SF, S	R		<1	SF	IV	0.48/--	0.04/--	0.48/--	0.73/--	1.04/--	
I14	Em	SF, S	R, OBF		1-5	SF	III	0.02/--	0.00/--	0.02/--	0.05/--	0.15/--	
I15	Em	SF, S	R, GW		<1	SF	IV	0.17/--	0.03/--	0.17/--	0.21/--	0.22/--	
I16	Em	SF, S	OBF, CD		<1	SF	IV	0.26/--	0.04/--	0.18/--	0.26/--	0.48/--	
I17	Em	SF, S	R, GW		6-10	SF	III	0.11/--	0.05/--	0.09/--	0.11/--	0.19/--	Ronan 1, 2, 3
								NA	0.83/--	0.99/--	1.09/--	1.32/--	Ronan 4
J1A	Sh	SF, S	GW, OBF	Spring Creek	>10	GDR, U, REP, FCS, FC, EC	II	0.02/--	0.00/--	0.01/--	0.02/--	0.04/--	Ronan 1
								NA	0.01/--	0.02/--	0.02/--	0.03/--	Ronan 2
J2	Em	SF, S	R, GW		1-5	SF	III	0.17/--	0.09/--	0.14/--	0.17/--	0.27/--	Ronan 1
								NA	0.28	0.33	0.36	0.44	Ronan 2
J3	Em	SF, S	R, GW		1-5	SF	III	0.13/--	0.06/--	0.12/--	0.13/--	0.17/--	Ronan 1, 2
K1	Em	SF, S	R, GW		6-10	EC, SF, WH, FCS	II	0.16/--	0.01/--	0.16/--	0.29/--	0.58/--	Ronan 1, 2
								NA	0.69/--	0.83/--	0.90/--	1.10/--	Ronan 3, 4

Table 6.10-1, - Wetland & Riparian Area Characteristics and Estimated Impact Acreages (Continued) -- Page 13

Site	MDT[1] Class-ification	Hydro-logic Type[2]	Hydro-logic[3] Source	Drainage	Est. Size Range (Acres)	Prominent[4] Functions	MDT[5] Over-all Rating (Cate-gory)	Estimated Impacts (Acres), Wetland/Riparian					Alternative Alignments
								Preferred Altern-ative	Lane Config. A	Lane Config. B	Lane Config. C	Lane Config. D	
H38	Em	SF, S	R		1-5	EC, U, WH, FCS	II	0.02/--	tr/--	0.02/--	0.04/--	0.13/--	
H39	Em	SF, S	R		1-5	EC, U, WH, FCS	II	0.20/--	0.01/--	0.20/--	0.26/--	0.38/--	
H40	Em, OW	SPF, S	R		1-5	EC, U, WH, TES, REP	II	0.00/--	0.00/--	0.00/--	0.00/--	0.00/--	
I1	Em	SF, S	R		<1	SF, NC	IV	0.09/--	0.01/--	0.09/--	0.10/--	0.11/--	
I2	Em, OW	SF, S	R		1-5	EC, TES, WH, U, REP	II	0.09/--	0.04/--	0.09/--	0.11/--	0.15/--	
I3	Em, OW	SPF, S	R		6-10	EC, TES, U, WH, REP	II	0.01/--	0.00/--	0.01/--	0.20/--	0.84/--	
I4	Em, OW	SF, S	R		1-5	EC, TES, WH, U, REP	II	0.00/--	0.00/--	0.00/--	0.00/--	0.00/--	
I5	Em, OW	SF, S	R		1-5	EC, TES, WH, U, REP	II	0.04/--	0.03/--	0.04/--	0.05/--	0.07/--	
I6	Em, OW	SF, S	R		1-5	EC, TES, WH, U, REP	II	0.23/--	0.09/--	0.23/--	0.34/--	0.59/--	
I7	Em, OW	SF, S	R		1-5	U, REP	II	0.03/--	0.02/--	0.03/--	0.04/--	0.06/--	
I8	Em, OW	SF, S	R		1-5	EC, TES, WH, U, REP	II	0.02/--	tr/--	0.02/--	0.05/--	0.09/--	
I9	Em, OW	SF, S	R		1-5	EC, TES, WH, U, REP	II	tr/--	0.00/--	tr/--	0.02/--	0.10/--	
I10	Em, OW	SF, S	R		6-10	FCS, EC, TES, U, WH, REP	II	0.13/--	0.03/--	0.13/--	0.22/--	0.46/--	

II. Air Quality Dispersion Analysis

TABLE OF CONTENTS

LIST OF TABLES

F.6.7. AIR QUALITY: AFFECTED ENVIRONMENT

F.6.7.1. Environmental Setting

Air quality characteristics in the area of US 93 are influenced by the topography -- the area is in a wide valley sheltered by the mountains of the Mission Range. Being sheltered by the mountains, the area has lighter winds and more stable atmospheric conditions than open terrain.

Particulate air quality data were collected on the Flathead Indian Reservation at several sites between 1981 and 1988. The monitoring sites in Ronan and Polson have collected data since 1981 and 1984 respectively. Total Suspended Particulate (TSP) data were collected until 1989 when the network was modified to monitor respirable particulate (PM_{10}) at Ronan and Polson only. In addition, PM_{10} concentrations were monitored at Hot Springs during 1995. TSP data gathered on the Flathead Indian Reservation between 1981 and 1989 and PM_{10} data collected at Hot Springs during 1995 indicate the existing air quality is good except for Polson and Ronan. No monitoring for carbon monoxide (CO) has been conducted on the Flathead Indian Reservation.

F.6.7.2. Regulations

Separate air quality regulations address ambient pollutant concentrations and emissions of pollutants from specific sources. Federal limits have existed for the ambient concentrations of five "criteria" pollutants since 1971. The sixth criteria pollutant, lead, was added in 1978. These limits are designated as the National Ambient Air Quality Standards (NAAQS). These standards are the driving force behind the development and implementation of emission limitations and other controls. Sources of pollution, or emission sources, are classified as point sources, area sources, and mobile sources. Emission limitations have been determined for many specific industrial point sources and some mobile sources.

Two levels of NAAQS were established: Primary standards to protect public health with an adequate margin of safety and secondary standards to protect the general public welfare from any known or anticipated adverse effects associated with the presence of pollutants in the air. Secondary standards are based on the potential for damage to crops, vegetation, wildlife, visibility, climate and adverse effects on the economy.[1] Table F.6.7-1 lists these primary and secondary federal standards in micrograms per cubic meter ($\mu g/m^3$) for the pollutants for which ambient standards have been established.

The United States Environmental Protection Agency (USEPA) has the primary responsibility of ensuring compliance with the NAAQS. This is accomplished by classifying all parts of the country as either 1) "attainment," where existing concentrations are less than the NAAQS limits, 2) "non-attainment," where concentration levels exceed the NAAQS limits more than once or twice a year, or 3) "unclassified," where there are insufficient data to establish a classification. Regulations require that non-attainment areas develop implementation plans to lower the pollutant concentration to less than NAAQS levels. Ronan and Polson are designated as non-attainment areas for PM_{10}. As a result, a draft Technical Support Document (TSD)[2] has been prepared by USEPA Region VIII to address control strategies for these areas preliminary to the development of a tribal implementation plan. The Polson portion of the draft TSD was finalized in February 1993.[3] Future finalization of the Ronan portion is anticipated.

The 1977 Clean Air Act amendments added protection of the cleanliness of existing air in attainment areas by establishing regulations for the Prevention of Significant Deterioration (PSD) for selected pollutants. The PSD

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[1] John H. Seinfeld, Atmospheric Chemistry and Physics of Air Pollution, Wiley, New York, 1986, p. 69.

[2] U.S. Environmental Protection Agency, A Technical Support Document to the Confederated Salish and Kootenai Tribes Tribal Implementation Plan for Achieving Attainment of the PM_{10} Standard in Polson and Ronan, Montana, third draft, November 1991, prepared by Mark J. Komp.

[3] Personal communication with Ms. Susan Zazzali, USEPA Helena Office, March 4, 1993.

Table F.6.7-1 Ambient Air Quality Standards

Pollutant	Averaging Period	National Primary[1] ($\mu g/m^3$)	National Secondary[2] ($\mu g/m^3$)
Sulfur Dioxide (SO_2)	Annual	80	None
	24-hour[3]	365	None
	Three-hour[3]	None	1,300
Lead (Pb)	Quarter	1.5	Same as primary
Ozone (VOC)	One-hour[3]	235	Same as primary
Nitrogen Dioxide (NO_2)	Annual	100	Same as primary
Particulate Matter (PM_{10})	Annual	50	Same as primary
	24-hour[3]	150	Same as primary
Carbon Monoxide (CO)	Eight-hour[3]	10,000	Same as primary
	One-hour[3]	40,000	Same as primary

40 CFR 50
Micrograms per cubic meter is ($\mu g/m^3$)
[1] Primary standards are intended to protect the public health. [2] Secondary standards are intended to protect the general welfare of the public. [3] Not to be exceeded more than once per year.

regulations divide the country into Class I and Class II areas with the possibility of a Class III designation. Class I areas include national wilderness areas, all national parks and monuments, and any areas that states or American Indian tribes wish to designate as Class I. All other areas are considered Class II. The Flathead Indian Reservation is designated as a Class I area. The PSD regulations ~~which apply to~~are triggered by the first permit application from a large stationary source~~s, either new or modified,~~ requesting new construction or modification of an existing facility. This first permit establishes a baseline date and concentration. The PSD regulations allow specific incremental increases in particulate, sulfur dioxide, and nitrogen oxide pollution over the~~-existing~~ baseline levels. ~~The PSD regulations do not apply to the proposed action because it is not a stationary source.~~ Once the PSD baseline is established, a demonstration of the increment consumed by all subsequent new or modified sources, including mobile sources, must be part of a permit application. The baseline date and concentrations have not been triggered on the Flathead Indian Reservation as of January 1996.

In addition to the quantitative analysis of increment consumption, the PSD regulations require an analysis of the effects on visibility. This analysis is presented in Appendix F.

Of the six criteria ambient air quality pollutants presented in Table F.6.7-1, five are associated with the operation of automobiles and will be considered in this document. Sulfur dioxide is not emitted by internal combustion engines to a degree that warrants an emission factor and is not considered a gaseous mobile source pollutant.[4]

Two of the other five criteria pollutants, CO and PM_{10}, affect air quality within the highway corridor. The effects of CO and PM_{10} typically occur at distances up to approximately 100 meters from the point of emission. The remaining three criteria pollutants, lead (Pb), ozone as measured by volatile organic compounds (VOCs), and nitrogen dioxide (NO_2) are of limited concern because they create small effects on air quality within the highway corridor.

Because the proposed action is almost entirely within the boundaries of the Flathead Indian Reservation, the Montana Ambient Air Quality Standards (MAAQS) are not applicable. USEPA regulations, the NAAQS regulations and local tribal regulations apply.

F.6.7.3. Emissions

The magnitude of the ambient concentration of an air quality pollutant is directly related to the amount of emissions, the relative location of the source of the emissions, and other factors which may be characteristic of specific pollutants. Emission rates are calculated using empirical relationships developed by USEPA. These emission rates are then used with computer models that combine the effects of the emission levels and meteorology to predict the ambient concentration at specific receptor locations. This study will consider only CO and PM_{10} quantitatively. Effects of the other three criteria pollutants associated with mobile sources will be discussed qualitatively.

Maximum CO emission rates and concentrations occur during the "CO season" which typically extends from November through February. Starting cold engines and typical winter meteorology combine to produce higher ambient concentrations of CO during the cold months of the year. CO emissions are ~~also~~ higher at ~~the~~ low~~er~~ vehicle speeds ~~in the communities~~decreasing to an almost constant rate between approximately 50 and 55 miles per hour then increasing with higher speeds.

Particulate emissions from mobile sources consist of exhaust or tailpipe emissions of lead, organic compounds, and sulfates, and fugitive emissions from travel on roadways. Tailpipe particulate emissions are approximately three orders of magnitude less than the fugitive emissions and so they were not included in this quantitative study. Fugitive particulate emissions and PM_{10} ambient concentrations arise from the presence of particulate matter, typically soil and winter sanding material, on the roadway. Soil may be deposited on paved roadways by tracking from unpaved areas by vehicle tires. Fugitive emissions may be high for a short period of time in early spring due to the accumulation of sanding material on highways over the winter months. Some respirable particles are present in the sanding material; in addition, the grinding action of tires on the dry roadway surface creates respirable particulate from the larger particles. Ideally, ~~s~~Sanding material is ~~typically~~ removed from streets and highways ~~approximately~~within two weeks after the last spring snow. The highest PM_{10} concentrations are expected in the areas where ~~high~~large volumes of sanding material are used and where many unpaved streets intersect US 93.

On 10 April 1991, a road dust study was conducted in the non-attainment areas of Polson and Ronan by the Montana Air Quality Division (AQD)[5] to help identify the source of high ambient PM_{10} concentrations measured in those two communities. The study included a turning lane on US 93 in Ronan and a southbound lane on Main Street in Polson. The study measured the amount of small particles found on the roadway and used the data to calculate PM_{10} emission factors. These emissions factors are applicable in a limited area for a limited time, but the

[4]U.S. Environmental Protection Agency, Compilation of Air Pollutant Emission Factors (AP-42), Volume 1 Stationary Point and the Area Sources and Volume 2 Mobile Sources, September 1985, (NTIS PB86-124906).

[5]GeoResearch, Inc., Confederated Salish and Kootenai Tribes of the Flathead Reservation, Air Quality Data Report, Second Quarter 1990 - First Quarter 1991.

AQD was able to demonstrate that fugitive emissions from travel on roadways with these levels of particulate matter can be expected to produce ~~to~~ ambient levels of PM_{10} which exceed the standards. ~~Using studies conducted in three Montana cities,~~ USEPA has ~~estimated that early spring~~published silt loadings ~~on winter sanded streets may be five to six times the values presented for year round driving conditions.~~ measured at many locations in several Montana communities from 1978 through 1992 and the AQD has similar data through October 1995. Data are available for measurements made several times throughout the year at the same location. In order to estimate the silt loadings on roadways on the Flathead Indian Reservation, the silt loading data collected at 19 locations in five Montana communities which were judged to experience similar weather conditions and traffic levels as the Flathead Indian Reservation were selected for further analysis. An average of the measurements made during the winter and spring months (November through April) was used to characterize winter-sanded streets in the communities. During the winter of 1994, chemical deicer was used in the communities of Ronan and Polson when the temperatures were above zero degrees Fahrenheit. An average of the measurements made at the selected locations during the summer and fall months was used to characterize carry-on from unpaved areas in the communities during the usage of chemical deicer. The emission factors used for the rural segments of the highway were obtained by adding a factor characteristic of carry-on US 93 at Missoula to the USEPA silt loading measured soon after the application of sand on an limited access roadway. The carry-on factor was weighted for the number of approaches found on each segment. (Section 6.2)

Tables F.6.7-2 and F.6.7-3 present~~s~~ the pertinent variables with the calculated existing emission factors for CO and ~~the rates~~ for PM_{10} on each segment and at the major intersections of US 93 in the Mission Valley. These emission factors ~~and rates~~ are used as ~~information~~input data for an air dispersion model~~s~~ to calculate the predicted ambient concentrations. ~~PM_{10} emission factors for designated left turn bays outside the communities of Ronan and Polson were not included because of lack of data~~The CO emission factors were calculated using the USEPA model MOBILE5a.[6] The particulate emission from vehicle tailpipe emissions were obtained using the USEPA model PART5.[7] The reentrained road dust PM_{10} emission factors were obtained using silt loading data from AP-42[8] and from the AQD.[9] These emission factors are considered to represent the worst case because they represent the time of year when the CO and PM_{10} emissions are highest. They are not average values, but the highest expected values.

F.6.7.4. Ambient Concentrations

This analysis includes a qualitative discussion of five of the six federal criteria pollutants and a quantitative analysis of CO and PM_{10}. Federal Highway Administration (FHWA) guidelines[10] state that project-level air quality analysis of volatile organic compounds and oxides of nitrogen are best addressed on a regional scale because their effects are manifested at large distances from the point of emission. FHWA requires quantitative project-level analysis of CO and PM_{10} because effects are apparent in or near the highway corridor.[11]

NAAQS are the ultimate standard for comparison when assessing the effects of an existing or proposed emission source. Tables F.6.7-~~3~~4 and F.6.7-5 presents the ambient concentrations of CO and PM_{10} on each segment and at the major intersections of US 93 in the Mission Valley for the shortest regulated time averaging periods and the annual average for PM_{10}. These concentrations are considered to be worst case because they combine the highest expected emission factors from winter periods with traffic levels which include the higher summer levels.

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[6]U.S. Environmental Protection Agency, Office of Mobile Sources, User's Guide to Mobile5 (Mobile Source Emission Factor Model), May 1994. EPA-AA-AQAB-94-01.

[7]U.S. Environmental Protection Agency, Office of Mobile Sources, Draft User's Guide to PART5: A Program for Calculating Particle Emissions From Motor Vehicles. February 1995. EPA-AA-AQAB-94-2.

[8]U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Compilation of Air Pollutant Emission Factors, Fifth edition. January 1995. AP-42.

[9]Facsimile transmission from Gretchen Bennett, Montana Department of Environmental Quality, January 26, 1996.

[10]Federal Highway Administration Bulletin, June 18, 1980, and attachment: Project-Level Air Quality Analyses - A Discussion Paper, prepared by Jesse R. Chaves, Federal Highway Administration Office of Environmental Policy.

[11]Ibid.

Table F.6.7-2 Worst Case Emission Factors for 199~~1~~4[1]

Segment	Carbon Monoxide			PM_{10}		
	Design Hour Volume	Speed Limitation (mph)	Emission Factor (g/veh-mile)	Average Daily Traffic	Approaches (per mile)	Emission Factor (g/veh-mile)
A	877	LOS E (45)	47.78	6,960	11.6	5.859
B	770	posted 35	51.58	7,397	18.0	6.786
C	813	LOS E (45)	47.78	6,452	6.0	3.428
D	813	LOS E (45)	47.78	6,452	6.5	3.634
E	813	posted 45	46.28	6,452	5.6	3.219
F	801	LOS E (45)	47.78	6,357	4.9	2.916
G	723	LOS D (45)	46.39	5,738	6.7	3.707
H	664	LOS D (50)	46.39	5,269	13.5	6.701
I	879	LOS D (50)	46.39	6,976	11.0	5.609
J	1,235	posted 25	65.92	9,800	26.0	8.130[2]
K	1,235	LOS E (45)	47.78	9,801	11.6	5.856
L	1,292	LOS E (45)	47.78	10,253	15.1	6.824
M	1,324	LOS E (45)	47.78	10,507	15.6	6.994
N	1,356	LOS E (45)	47.78	10,761	5.6	3.017
O	1,550	posted 25	65.92	12,300	50.0	8.130[2]
P	664	LOS E (45)	47.78	5,292	7.8	3.375
idling	--	2.5 mph	1536 grams per veh-hour	-	-	0.000

GeoResearch, Inc. 1996. [1] 1994 traffic and existing level of service speed or posted speed limit (Refer to Section 6.1.). Maximum CO emission factors during the CO season (November through February), based on design hour traffic levels and average daily traffic (refer to Section 6.1.). Maximum PM_{10} emission factors in spring after last snow melts and before streets are cleaned (when sanding materials have been allowed to accumulate) based on average daily traffic reported in Section 6.1. Reduction in emission factors for passing lanes not included. [2] Reflects use of chemical deicer. This table has been revised in the final EIS to use traffic volumes for 1994, the MOBILE5A model and 1995 PM_{10} silt loadings.

Table F.6.7-3 Worst Case Emission Factors for Intersection Cross Streets, 1994[1]

Intersection	Carbon Monoxide			PM$_{10}$		
	Design Hour Volume	Speed Limitation (mph)	Emission Factor (g/veh-mile)	Average Daily Traffic	Approaches (per mile)	Emission Factor (g/veh-mile)
B Street Arlee	77	posted 35 30% delay	51.58	739	18.0	6.106
MT 200 Ravalli	180	estimated 45 45% delay	46.28	1,427	5.6	3.219
Main Access St. Ignatius	137	estimated 45 45% delay	46.28	1,088	22.0	4.008
EASMTS 212	132	LOS C (53) 60% delay	46.46	1,045	13.5	6.701
Round Butte Road Ronan	433	posted 25 signal	65.92	3,443	25 to 50	8.130[2]
Division Street Pablo	129	LOS C (53) 60% delay	46.46	1,025	15.1	7.447
Clairmont Road Pablo	129	LOS C (53) 60% delay	46.46	1,025	15.1	7.447
Old US 93 North of Pablo	129	LOS C (53) 60% delay	46.46	1,025	15.6	7.447
MT 35	328	LOS E (45) 88% delay	47.78	2,600	5.6	3.238
Unsignalized Streets Polson	155	posted 25 88% delay	65.92	1,229	25 to 50	8.130[2]
First Avenue East Polson	451	posted 25 signal	65.92	3,580	25 to 50	8.130[2]

GeoResearch, Inc. 1996. [1] 1994 traffic and existing level of service speed or posted speed limit (Refer to Section 6.1.). Maximum CO emission factors during the CO season (November through February), based on design hour traffic levels, average daily traffic (refer to Section 6.1.) and projected traffic levels taken from Montana Traffic By Sections, 1993. PM$_{10}$ emission factors reflect carry-on from approaches and characteristic community silt loading in spring after last snow melts and before streets are cleaned (when sanding materials have been allowed to accumulate) or the use of chemical deicer. [2] Reflects use of chemical deicer. This table has been revised in the final EIS to use traffic volumes for 1994, the MOBILE5A model and 1995 PM$_{10}$ silt loadings.

In addition, whenever more than one value for a model parameter was characteristic of a segment, the value which would produce the higher concentration was selected as worst case. The predicted concentrations shown in Tables F.6.7-3 and F.6.7-4 are the sum of the concentration predicted by the USEPA CAL3QHC line model and a background concentration. CAL3QHC predicts the concentrations of pollutants which are generated by the traffic on US 93. The background concentration represents all other sources of the specific pollutant. The PM_{10} background concentration includes reentrained road dust generated on other roadways and parking lots, and from burning, agricultural activities, and industrial sources. The CO background concentration represents emissions from vehicles on roadways other than those being modeled and from burning and industrial sources. The Montana Air Quality Division (AQD) has established background concentrations of the criteria pollutants typical of the state of Montana as a whole. In addition, AQD has conducted studies in the vicinity of the Flathead Reservation in an attempt to obtain background PM_{10} concentrations specific to the area; however, the results have been representative of pristine wilderness or have included effects from nearby industrial sources. The PM_{10} background concentrations established by AQD are 30 micrograms per cubic meter ($\mu g/m^3$) for 24-hour averages and 8 $\mu g/m^3$ for the annual average. The established CO background concentrations for the 1-hour average is 1725 $\mu g/m^3$.

The short-term standards are more stringent and if the short-term average concentrations are in compliance as they are for CO, the long-term concentrations most likely will also be in compliance. ~~The stringency of the shorter averaging time periods can be demonstrated with a comparison of long-term and short term modeling results and with actual concentration measurements. The Draft Technical Support Document for Polson and Ronan[12] includes results of long-term annual modeling. The detailed Industrial Source Complex (ISC) model which was used indicated that no exceedences of the annual NAAQS were predicted for the years 1988 and 1989 while exceedences of the 24-hour standard were predicted. Actual monitoring data at Polson show the 24-hour standard was exceeded once in 1989, three times in 1990,[13] once in 1991[14] and not at all in 1992[15] or during the first three quarters of 1993.[16] The annual standards were not exceeded during that time period.~~

~~Table 6.7-3 presents the background, modeled, and total predicted (modeled plus background) concentrations of CO and PM_{10} for each segment~~. Tables F 6.7-~~3~~4 and F 6.7-5 shows that predicted CO concentrations are approximately 17% ~~one-tenth~~ or less of the allowable 1-hour NAAQS concentrations on the rural segments of US 93. ~~The predicted PM_{10} concentrations on open road segments are shown to be less than the one half of the standards. The PM_{10} concentrations in Ronan and Polson are shown to exceed the NAAQS.~~

The indicated PM_{10} concentrations are relative values, not absolute values. These values may be used to compare predicted concentrations from one highway segment to another, from one time period to another, and from one alternative to another within this document. These values have been obtained using the CAL3QHC air dispersion model. This model has two modes of operation: (1) screening mode; (2) refined mode. The model was used in the screening mode for this air quality analysis.

The version of the CAL3QHC model which predicts PM_{10} concentrations was released in September 1995. Since that time, it has consistently produced unreasonably high predicted concentrations of PM_{10} when the model has been used in the screening mode (i.e., when it assumes a single worst-case wind speed of 1.0 meters per second). This assumed condition of essentially no wind results in unreasonably high predicted concentrations of PM_{10}. This

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[12]U.S. Environmental Protection Agency, A Technical Support Document to the Confederated Salish and Kootenai Tribes Tribal Implementation Plan for Achieving Attainment of the PM_{10} Standard in Polson and Ronan, Montana, third draft, November 1991, prepared by Mark J. Komp.

[13]Komp, p. 10.

[14]GeoResearch, Inc., Confederated Salish and Kootenai Tribes of the Flathead Reservation, Air Quality Data Report, Fourth Quarter 1991, p. 5.

[15]GeoResearch, Inc. Confederated Salish and Kootenai Tribes of the Flathead Indian Reservation, Air Quality Data Report, Fourth Quarter 1992, p. 7.

[16]GeoResearch, Inc., Confederated Salish and Kootenai Tribes of the Flathead Indian Reservation, Air Quality Data Report, Third Quarter 1993, p. 6.

condition in the new PM_{10} portion of the CAL3QHC model does not occur when the refined model is used (i.e., when one year of actual measured wind speed data are part of the input data). [17]

Because of this tendency of the model, the predicted concentrations at Ronan and at Polson should not be taken as actual values. Instead the trend in relative predicted concentrations should be considered. The predicted concentrations produced by the CAL3QHC model are sufficient for comparison of impacts among alternatives because each scenario is treated consistently, just as it would be if the model were used in the refined mode.

The tables in this section have been changed to reflect the use of the 1994 traffic levels and to reflect the parameters required as input by the CAL3QHC model. The tables also have been changed to indicate that the comparison of the relative PM_{10} predicted concentrations to the absolute value NAAQS is not appropriate. The calculation of these concentrations is made possible with the new model, CAL3QHC. Neither should these relative predicted PM_{10} concentrations be compared with concentrations predicted by any other air dispersion model. Also, Tables F.6.7-3 and F.6.7-5 have been added and old Table F.6.7-3 has been renumbered to 6.7-4 to present the emission factors and the predicted concentrations at intersections.

It is likely that Polson will have the highest actual PM_{10} concentrations on the reservation and higher concentrations are likely to occur at intersections than in areas where traffic flows freely~~, when the USEPA Montana springtime emission factor is used for through traffic and the emission factor determined by AQD for left turn bays is used for traffic making left turns.~~ ~~The more general emission factor developed by USEPA was used for Arlee where an exceedence is not predicted. These factors are applicable in spring between the melting of the last snow storm and street cleaning activities to remove sand used to mitigate winter driving conditions. The spring levels of PM10 in Ronan and Polson are approximately five times greater than the NAAQS.~~ Tables F.6.7-4 and F.6.7-5 show that both CO and PM_{10} predicted concentrations are higher in communities and at intersections. In Arlee, the model shows a slight decrease in PM_{10} at the intersection which is likely due to the small number of vehicles expected on B Street and the larger mixing area that the model considers when including the cross streets at intersections. The status of the predicted CO concentrations shown in Tables F.6.7-~~3~~4 and F.6.7-5 is determined by comparison with the applicable NAAQS. This comparison is not appropriate for PM_{10} because of the excessively high predicted concentrations. It should be noted that although extremely high concentrations are predicted in the non-attainment areas of Ronan and Polson, the highest actual measured concentrations have not exceeded the NAAQS since the use of chemical deicer was initiated.

[17] Telephone conversation with Jeff Houk, Region VIII USEPA, January 24, 1996

Table F.6.7-~~3~~4 Worst Case Predicted Concentrations on Free Flow Segments 199~~1~~4[1]

Segment	Carbon Monoxide Concentration			Relative PM_{10} Concentrations[2]				
	1-hour NAAQS ($\mu g/m^3$)	Predicted 1-hour ($\mu g/m^3$)	Status	~~24-hour NAAQS ($\mu g/m^3$)~~	Predicted 24-hour ($\mu g/m^3$)	~~Annual NAAQS ($\mu g/m^3$)~~	Predicted Annual ($\mu g/m^3$)	~~Status~~
A	40,000	4,358	in compliance	~~150~~	71	~~50~~	16	~~in compliance~~
B	40,000	5,045	in compliance	~~150~~	102	~~50~~	22	~~in compliance~~
C	40,000	4,129	in compliance	~~150~~	52	~~50~~	12	~~in compliance~~
D	40,000	4,129	in compliance	~~150~~	54	~~50~~	13	~~in compliance~~
E	40,000	4,931	in compliance	~~150~~	60	~~50~~	14	~~in compliance~~
F	40,000	4,129	in compliance	~~150~~	49	~~50~~	12	~~in compliance~~
G	40,000	3,789	in compliance	~~150~~	52	~~50~~	12	~~in compliance~~
H	40,000	3,671	in compliance	~~150~~	66	~~50~~	15	~~in compliance~~
I	40,000	4,129	in compliance	~~150~~	70	~~50~~	16	~~in compliance~~
J	40,000	9,854	in compliance	~~150~~	143[3]	~~50~~	31[3]	~~in compliance[3]~~
K	40,000	5,618	in compliance	~~150~~	93	~~50~~	21	~~in compliance~~
L	40,000	6,763	in compliance	~~150~~	124	~~50~~	27	~~in compliance~~
M	40,000	5,847	in compliance	~~150~~	110	~~50~~	24	~~in compliance~~
N	40,000	5,618	in compliance	~~150~~	63	~~50~~	15	~~in compliance~~
O	40,000	11,914	in compliance	~~150~~	172[3]	~~50~~	36[3]	~~exceedence (24-hr)~~
P	40,000	3,671	in compliance	~~150~~	48	~~50~~	12	~~in compliance~~

GeoResearch, Inc. 1996. Micrograms per cubic meter is ($\mu g/m^3$). [1] 1994 traffic, existing level of service speed or posted speed limit (Refer to Section 6.1.). Maximum CO concentrations during the CO season (November through February), based on design hour traffic levels (Refer to Section 6.1.). Maximum PM_{10} concentrations in spring after last snow melts and before streets are cleaned (when sanding materials have been allowed to accumulate) based on average daily traffic reported in Section 6.1. [2] These values are suitable only for comparison with other relative PM_{10} concentrations presented in this document due to excessively high PM_{10} concentrations predicted by the CAL3QHC model. [3] Reflects the use of chemical deicer. This table has been revised in the final EIS to use traffic volumes for 1994 and to use the CAL3QHC model.

Table F.6.7-5 Worst Case Predicted Concentrations at Intersections 1994.[1]

Intersection	Carbon Monoxide Concentration			~~Relative~~ PM_{10} Concentrations[2]				
	1-hour NAAQS ($\mu g/m^3$)	Predicted 1-hour ($\mu g/m^3$)	Status	~~24-hour NAAQS ($\mu g/m^3$)~~	Predicted 24-hour ($\mu g/m^3$)	~~Annual NAAQS ($\mu g/m^3$)~~	Predicted Annual ($\mu g/m^3$)	~~Status~~
B Street Arlee	40,000	5,274	in compliance	~~150~~	100	~~50~~	22	~~in compliance~~
MT 200 Ravalli	40,000	10,541	in compliance	~~150~~	64	~~50~~	15	~~in compliance~~
Main Access St. Ignatius	40,000	4,473	in compliance	~~150~~	51	~~50~~	12	~~in compliance~~
~~EAST~~ MTS 212	40,000	5,961	in compliance	~~150~~	76	~~50~~	17	~~in compliance~~
Round Butte Road Ronan	40,000	19,127	in compliance	~~150~~	154[3]	~~50~~	33[3]	~~exceedence (24-hr)~~[2]
Division Street Pablo	40,000	13,746	in compliance	~~150~~	122	~~50~~	26	~~in compliance~~
Clairmont Road Pablo	40,000	13,746	in compliance	~~150~~	122	~~50~~	26	~~in compliance~~
Old US 93 North of Pablo	40,000	9,281	in compliance	~~150~~	125	~~50~~	27	~~in compliance~~
MT 35	40,000	20,959	in compliance	~~150~~	65	~~50~~	15	~~in compliance~~
Unsignalized Streets Polson	40,000	22,104	in compliance	~~150~~	170	~~50~~	36	~~exceedence 24-hr)~~
First Ave East Polson	40,000	21,646	in compliance	~~150~~	183[3]	~~50~~	39[3]	~~exceedence (24-hr)~~[2]

GeoResearch, Inc. 1996. Micrograms per cubic meter is ($\mu g/m^3$) [1] 1994 traffic, existing level of service speed or posted speed limit (Refer to Section 6.1.). Maximum CO concentrations during the CO season (November through February), based on design hour traffic levels (Refer to Section 6.1.) and projected traffic levels from Montana Traffic By Sections, 1993. Maximum PM_{10} concentrations in spring after last snow melts and before streets are cleaned (when sanding materials have been allowed to accumulate) based on average daily traffic reported in Section 6.1. [2] ~~These values are suitable only for comparison with other relative PM_{10} concentrations presented in this document due to excessively high PM_{10} concentrations predicted by the CAL3QHC model.~~ [3] Reflects the use of chemical deicer. This table has been revised in the final EIS to use traffic volumes for 1994 and to use the CAL3QHC model.

F.7.7. AIR QUALITY: ENVIRONMENTAL CONSEQUENCES

Tables in Appendix F identify the impacts for Lane Configurations A, B, C and D that correspond to the Montana Department of Transportation's (MDT) Preferred Alternative and the Confederated Salish and Kootenai Tribe's (CSKT) Preferred Alternative. Refer to Sections 5.3 and 5.4 for more information about the MDT Preferred Alternative and the CSKT Preferred Alternative.

This study quantitatively and qualitatively examines the impacts of carbon monoxide (CO) emissions from vehicles and respirable particulates (PM_{10}) emissions from vehicle travel on roadways on the ambient concentrations of these two air pollutants. Qualitative discussions of lead (Pb), oxides of nitrogen (NO_x), and hydrocarbons or volatile organic compounds (VOCs), CO, and PM_{10} also are included.

Air quality conformance evaluations and determinations, as required by the December 1993 regulations promulgated by the U.S. Environmental Protection Agency, ~~have not yet been completed for the Ronan and Polson PM_{10} non-attainment areas. They will be completed and~~ are discussed in Appendix F of the final ~~environmental impact statement (~~EIS~~)~~.

F.7.7.1. Impacts Common to All Alternatives

Air pollution negatively affects visibility, aesthetics, economic viability, safety, personal comfort, and health.

The quantitative analysis of air quality considers the worst case concentrations of both CO and PM_{10}. The National Ambient Air Quality Standards (NAAQS) for CO (one- and eight-hour averages) and PM_{10} (24-hour average) permit the measured concentrations to exceed the established standard concentrations no more than once per year (Table F.6.7-1). Therefore, the concentrations of concern are the highest and second highest concentrations for the averaging period in each year. "Worst-case" parameters and conditions are selected in accordance with U.S. Environmental Protection Agency (USEPA) modeling guidance by combining the highest expected emission factors with the highest expected traffic even though these conditions do not occur at the same time. Worst case also implies selecting the value which will produce the highest concentration when more than one value of the parameter is characteristic.

It is assumed that if these worst case guidance conditions do not show concentrations in exceedence of the standards, then there is little probability the standards will in fact be exceeded. Ambient air monitoring has shown the highest CO concentrations are most likely to occur during the months of November through February in the United States.[18] Likewise, ambient air quality monitoring in Montana has shown the highest concentrations of PM_{10} are most likely to occur in communities during the time between the melting of the last snow and the removal of winter sanding material from the streets.[19] This is the same period when the largest amount of carry-on of particulates from adjacent unpaved areas is expected.

Concentrations of pollutants in the ambient air which are directly related to their emission rates are used as the measurement of their impacts.

Visibility

The primary visibility impacts on the Flathead Indian Reservation are related to regional agricultural burning, local slash burning, residential heating, and fugitive dust from wind erosion of agricultural fields during periods of high

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[18]Chaves, Jesse R., Project-Level Air Quality Analyses, A Discussion Paper, May 1980, attached to Federal Highway Administration Bulletin June 18, 1980, p. 10.

[19]Personal communication with Montana Air Quality Bureau, July 17, 1992.

winds or stable conditions[20]. Additional visibility impacts may be contributed by traffic on US 93 during periods of inversion. However, the prevailing meteorology of the area keeps the atmosphere clear most of the time.

<u>Emissions</u>

Five emission source categories have been considered in the discussion of estimated future emissions: emissions from automobile exhaust, emissions from automobile travel on roadways, emissions from highway construction activities, emissions from residential heating, and emissions from agricultural activities.

Vehicle exhaust or tailpipe emissions include CO, VOCs, NO_x, and PM_{10}. A fraction of the tailpipe particulate emissions is lead. Gaseous emission rates of CO, VOCs, and NO_x from vehicles are directly related to traffic volume, traffic speed, temperature, and the model year of the vehicles on the highway. PM_{10} emission rates are directly related to traffic volume. Approximately 25% of the tailpipe PM_{10} emissions are lead and that percentage will continue to decrease as fewer automobiles use leaded gasoline.

PM_{10} emission rates are directly related to the amount of traffic, the weight of the vehicles and their loads, and the quantity of particulate matter on the paved surfaces. ~~High levels of particulate matter are expected on roadways during the spring between the time the last snow melts and the streets are cleaned either by traffic on the open road or by street cleaning activities in the communities. The rates of speed on open road sections of US 93 are highly effective for flushing particles to the roadside.~~The primary sources of particulate matter on paved surfaces are winter sanding activities, tracking of mud and dirt from nearby unpaved areas, and erosion from adjacent areas.

Emissions associated with construction of a new roadway will be temporary. These temporary emissions are the result of land clearing, blasting, ground excavation, cut and fill operations, and construction of the roadway base and surface. Reconstruction of the segments of the route which will be in the same location as the existing roadway will produce lower emissions than will new construction on the alternate alignments.

Emissions from home heating and agricultural activities include CO, NO_x, VOCs, and PM_{10}. The emission factors for the gaseous pollutants (CO, NO_x, and VOCs) from residential wood burning are larger than for other home heating fuels. These emissions are proportional to the population. It is reasonable to expect a larger population and higher emission from the combustion of home heating fuels in the Mission Valley in 20~~15~~20 than currently exists regardless of transportation improvement. A further increase in home heating emissions may be expected if population increases further due to transportation improvement.

Emissions from agricultural activities are largely PM_{10}. Small amounts of the gaseous pollutants are emitted by the agricultural vehicles. Agricultural emissions are inversely proportional to the population in the area. As the population grows, less land is available for agricultural use and these emissions are expected to decrease as population increases~~regardless of transportation improvements~~.

The quantitative analysis includes CO and PM_{10} only. The ultimate comparison for air quality impacts is made between the applicable National Ambient Air Quality Standards and the predicted ambient concentrations as determined through modeling efforts. Emission rates for these two pollutants were determined and then used as ~~information~~input data for an air diffusion model~~s~~ to determine the ambient concentrations.

The tables in this section have been changed to reflect the use of the 2020 traffic levels and to reflect the parameters required as input by the CAL3QHC model. Table F.7.7-2 has been added and old Tables F.7.7-2 through F.7.7-4 have been renumbered to include the data related to intersections. The calculation of concentrations at intersections is made possible with the use of the CAL3QHC model.

[20] Personal communication with Confederated Salish and Kootenai Tribes Air Quality Program, October 11, 1995.

Tables F.7.7-1 through F.7.7-45 present estimated emission ~~rates~~factors for CO and PM_{10} for each highway segment of the existing alignment with the two-lane and four-lane configurations, for intersecting streets at the major intersections, and for the various alignments at Arlee, Ronan and Polson. Carbon monoxide emission factors were determined using LOS speed or ~~the minimum~~an average speed based on the posted speed limit on each segment, whichever ~~is lower~~produced the higher emission factor (Sections 6.1 and 7.1). On segments where LOS varies with the presence of ~~passing~~additional lanes, the higher emission factor~~s are also provided for the passing lane areas~~ was selected to characterize the entire segment. LOS F is approximated by a speed of less than 45 miles per hour and 100% time delay or "gridlock".[21] To determine a CO emission factor representative of LOS F, it was assumed that traffic will travel at a speed of 2.5 mph for one-third of the time, at 25 mph for one-third of the time, and at 45 mph for one-third of the time. CO emission factors vary with vehicle speed and thus vary between 2-lane and 4-lane configurations as the reduction in congestion permits higher speeds. CO emission factors are greatest at very low speeds, decreasing to a minimum at approximately 50 to 55 miles per hour then increasing with higher speeds. CO emission factors decrease between the 1994 and 2020 scenarios because of government-required automobile design changes.

Fugitive PM_{10} emission ~~rates~~ factors for travel on paved surfaces were estimated using ~~traffic volumes in Section 7.1~~ the vehicle weights characteristic of the mix of traffic in Lake, Sanders, and Flathead Counties in 1994. Factors for the rural segments include some carry-on from each of the approaches. A factor obtained from AP-42 was used to characterize the communities of ~~Arlee,~~ Ronan, and Polson. Values are presented for two winter roadway scenarios: 1) assumes the use of chemical deicers in ~~communities~~Ronan and Polson when temperatures are above zero degrees fahrenheit and the use of clean sand at lower temperatures with the sand being removed when temperatures rise above zero degrees; and 2) assumes the use of typical sanding materials which are allowed to accumulate on roadways throughout the sanding season and are flushed to the roadside on the rural segments or are mechanically removed from the community streets in the spring after the last snow melts. ~~Scenario 1 is applicable to communities only. Scenario 2 is assumed for all~~The use of chemical deicers (Scenario 1) was not considered on the rural highway segments. PM_{10} emission factors for the four-lane configurations assumes that one and one-half as much silt is found on the 4-lane configuration as is present on the 2-lane roadway in the rural areas. In the communities carry-on is assumed to be evenly distributed across the roadway.

These CO and PM_{10} emission factors ~~and PM_{10} emission rates~~are applicable to each lane of traffic in the various highway configuration alternatives. Tables F.7.7-1 through F.7.7-5 present the emission factors which were modeled to determine the predicted ambient concentrations.

Concentrations

Air quality modeling for this study was conducted using screening techniques as an approximation of the modeled concentrations which could be expected from a more lengthy and detailed refined modeling effort. ~~The screening models which were used include the FHWA recommended nomographic technique "CALINE 3"[22] for CO and the USEPA model "SCREEN"[23] for respirable particulates (PM_{10}).~~ As with any dispersion modeling, the accuracy of the modeled concentrations is limited by the quality and completeness of the emissions data, by the quality and representativeness of the meteorological data, and by the mathematical approximation techniques used by the model.

[21] American Association of State Highway and Transportation Officials, A Policy on Geometric Design of Highways and Streets, 1990.

[22] Federal Highway Administration Technical Advisory T6640.6, CALINE 3 - A Graphical Solution Procedure for Estimating Carbon Monoxide (CO) Concentrations Near Roadways, March 2, 1981.

[23] U.S. Environmental Protection Agency, Screening Procedures for Estimating the Air Quality Impact of Stationary Sources (EPA-450/4-88-010) draft for public comment, August 1988, (NTIS PB89-159396).

Table F.7.7-1 2020 Worst Case Emission Factors[1] Existing Alignment. (Except Arlee, Ronan and Polson).

Segment	Carbon Monoxide					PM_{10}*				
	Design Hour Volume	CSKT Preferred Alternative No Action and/or Lane Configuration A		MDT Preferred Alternative Lane Configurations B, C and D		Average Daily Traffic	Approaches per mile	No Action	Lane Configuration A[3]	Lane Configurations B, C, and D[4]
		Speed Limitation[2] (mph)	Emission Factor (g/veh/mi)	Speed Limitation[2] (mph)	Emission Factor (g/veh/mi)			Emission Factor (g/veh/mi)	Emission Factor (g/veh/mi)	Emission Factor (g/veh/mi)
A	1,891	LOS F (24)	44.32	LOS B (56)	19.59	15,007	11.6	5.859	4.335	3.731
C	1,753	LOS F (24)	44.32	LOS B (56)	19.59	13,912	6.0	3.428	2.634	2.318
D	1,753	LOS F (24)	44.32	LOS B (56)	19.59	13,912	6.5	3.634	2.777	2.438
E	1,753	LOS E (45)	19.79	posted 45	18.08	13,912	5.6	3.219	1.756	1.756
F	1,728	LOS F (24)	44.32	LOS B (56)	19.59	13,714	4.9	2.916	2.275	2.021
G	1,560	LOS F (24)	44.32	LOS A (65)	32.79	12,380	6.7	3.707	2.829	2.480
H	1,432	LOS F (24)	44.32	LOS B (56)	19.59	11,365	13.5	6.701	4.925	4.220
I	1.897	LOS F (24)	44.32	LOS B (56)	19.59	15,055	11.0	5.609	4.160	3.586
K	2,663	LOS F (24)	44.32	LOS B (56)	19.59	21,134	11.6	5.856	4.333	3.729
L	2,785	LOS F (24)	44.32	LOS B (56)	19.59	22,103	15.1	6.824	3.437	3.437
M	2,855	LOS F (24)	44.32	LOS B (56)	19.59	22,658	15.6	6.994	5.560	4.748

GeoResearch, Inc. 1996. [1] 2020 traffic levels based on three percent annual growth rate; CO emission rates are the expected maximum during CO season (November through March); PM_{10} emission rates are maximum in the spring after the last snow melts and before roadways are cleaned. [2] Speed limitation is determined by which of posted limit or LOS corresponds to the highest emission rate; LOS F, congested conditions, is assumed to be an average of three speeds, 45, 25 and 2.5 mph. [3] Lane configuration A assumes that approaches will be paved and that curbs and gutters will be installed in Ravalli and Pablo. [4] Lane configurations with multiple lanes assumes carry-on equal to 2-lane configuration is present in driving lane and half again as much is found in the passing lane. This is table has been revised in the final EIS using traffic volumes for the year 2020, the MOBILE5A model and 1995 PM_{10} silt loadings.
*CSKT preferred alternative is Lane Configuration A. MDT preferred alternative is combination of Lane Configurations B, C and D.

Table F.7.7-2 2020 Worst Case Emission Factors[1] for Cross Streets at Intersections on Existing Alignment. (Except Arlee, Ronan and Polson).

Intersection	Carbon Monoxide					PM$_{10}$*		
	Design Hour Volume	CSKT Preferred Alternative Lane Configuration A and/or No Action on US 93 No Action on Cross Streets		MDT Preferred Alternative Lane Configurations B, C, and D on US 93 No Action on Cross Streets		Average Daily Traffic	Approaches per mile	Lane Configurations A, B, C, and D No Action on Cross Streets
		Speed Limitation[2] (mph)	Emission Factor (g/veh/mi)	Speed Limitation[2] (mph)	Emission Factor (g/veh/mi)			Emission Factor (g/veh/mi)
MT 200 Ravalli	344	LOS D (50) 75% delay	18.08	LOS D (50) 75% delay	18.08	2,354	5.6	3.219
Main Access St. Ignatius	296	LOS D (50) 75% delay	18.08	LOS D (50) 75% delay	18.08	2,349	6.7	4.008
~~FAS~~MTS 212	245	LOS E (45) 88% delay	19.79	LOS E (45) 88% delay	19.79	1,944	13.5	6.701
Division Street Pablo	279	LOS E (45) 88% delay	19.79	LOS E (45) 88% delay	19.79	2,210	15.1	3.710
Clairmont Road Pablo	279	LOS E (45) 88% delay	19.79	LOS E (45) 88% delay	19.79	2,210	15.1	3.710
Old US 93 North of Pablo	279	LOS E (45) 88% delay	19.79	LOS E (45) 88% delay	19.79	2,210	15.6	3.710
MT 35	609	LOS F (24) 97% delay	44.32	LOS F (24) 97% delay	44.32	4,837	5.6	3.238
idling	-	-	586.8 g/veh/hr	-	586.8 g/veh/hr	-	-	0.000

GeoResearch, Inc. 1996. [1] 2020 traffic levels based on three percent annual growth rate; CO emission rates are the expected maximum during CO season (November through March); PM$_{10}$ emission rates are maximum in the spring after the last snow melts and before roadways are cleaned. [2] Speed limitation is determined by which of posted limit or LOS corresponds to the highest emission rate; LOS F, congested conditions, is assumed to be an average of three speeds, 45, 25 and 2.5 mph. This table has been revised in the final EIS using traffic volumes for the year 2020, the MOBILE5A model and 1995 PM$_{10}$ silt loadings.
*CSKT preferred alternative is Lane Configuration A. MDT preferred alternative is combination of Lane Configurations B, C and D.

Table F.7.7-3 2020 Worst Case Emission Factors[1] Arlee Alignments and Intersection Cross Street.

Alignments	Carbon Monoxide					PM_{10}*				
	Design Hour Volume	CSKT Preferred Alternative No Action and Lane Configuration A		MDT Preferred Alternative Lane Configurations B, C and D		Average Daily Traffic	Approaches per mile	No Action	Lane Configuration A[3]	Lane Configurations B, C, D[4]
		Speed Limitation[2] (mph)	Emission Factor (g/veh/mi)	Speed Limitation[2] (mph)	Emission Factor (g/veh/mi)			Emission Factors (g/veh/mi)	Emission Factors (g/veh/mi)	Emission Factors (g/veh/mi)
No Action	1,670	LOS F (24)	44.32	-	-	15,944	18.0	6.786	-	-
Existing Alignment	1,670	LOS F (24)	44.32	posted 35	23.26	15,944	18.0	-	6.786	3.941
Existing Alignment B Street	167	posted 35 75% delay	23.26	posted 35 75% delay	23.26	1,594	18.0	6.106	-	-
Alignments 2, 3, 4 Community	334	posted 35	23.26	posted 35	23.26	3,189	18.0	-	4.267	4.267
Alignments 2, 3, 4 B Street	33	posted 35 45% delay	23.26	posted 35 45% delay	23.26	319	18.0	6.106	-	-
Alignments 2, 3, 4 Rural	1,336	LOS F (24)	44.32	LOS A (65)	32.79	12,755	5	-	2.317	[illegible]

GeoResearch, Inc. 1996. [1] 2020 traffic levels based on three percent annual growth rate; CO emission rates are the expected maximum during CO season (November through March); PM_{10} emission rates are maximum in the spring after the last snow melts and before roadways are cleaned. [2] Speed limitation is determined by which of posted limit or LOS corresponds to the highest emission rate; LOS F, congested conditions, is assumed to be an average of three speeds, 45, 25 and 2.5 mph. [3] Lane configuration A assumes paved approaches and curbs and gutters in the community. [4] Assumes carry-on equal to 2-lane configuration is present in driving lane and half again as much in passing lane on rural segments. This table has been revised in the final EIS using traffic volumes for the year 2020, the MOBILE5A model and 1995 PM_{10} silt loadings.
*CSKT preferred alternative is Lane Configuration A. MDT preferred alternative is combination of Lane Configurations B, C and D.

Table F.7.7-4 2020 Worst Case Emission Factors[1] Ronan Alignments and Intersection Cross Street.

Alignments	Carbon Monoxide					PM10[1]				
	Design Hour Volume	CSKT Preferred Alternative No Action and Lane Configuration A		MDT Preferred Alternative Lane Configurations B, C and D		Average Daily Traffic	Approaches per mile	No Action	Lane Configuration A[3]	Lane Configurations B, C, and D[4]
		Speed Limitation[2] (mph)	Emission Factor (g/veh/mi)	Speed Limitation[2] (mph)	Emission Factor (g/veh/mi)			Emission Factor (g/veh/mi)	Emission Factor (g/veh/mi)	Emission Factor (g/veh/mi)
No Action	2,663	LOS F (24)	44.32	-	-	21,135	-	8.130	-	-
Existing Alignment	2,663	LOS F (24)	44.32	posted 25	33.77	21,135	-	-	8.130	6.900
Existing Alignment Round Butte Road	807	posted 25 signal	33.77	posted 25 signal	33.77	6,406	-	8.130	8.130	8.130
Alignment 2 One-Way Couplet	2,663	-	-	posted 25	33.77	21,135	-	-	6.900	-
Alignments 3, 4 Community	1,065	posted 25	33.77	posted 25	33.77	8,454	-	-	6.900	6.900
Alignments 3, 4 Round Butte Road	323	posted 25 signal	33.77	posted 25 signal	33.77	2,553	-	-	9.500	9.500
Alignments 3, 4 Rural	1,598	LOS F (24)	44.32	LOS A (65)	32.79	12,681	5	-	2.317	2.055

GeoResearch, Inc. 1996. [1] 2020 traffic levels based on three percent annual growth rate; CO emission rates are the expected maximum during CO season (November through March); PM_{10} emission rates are maximum in the spring after the last snow melts and before roadways are cleaned. [2] Speed limitation is determined by which of posted limit or LOS corresponds to the highest emission rate; LOS F, congested conditions, is assumed to be an average of three speeds, 45, 25 and 2.5 mph. [3] Lane configuration A assumes paved approaches and curbs and gutters in the community. [4] Assumes carry-on equal to 2-lane configuration is present in driving lane and half again as much in passing lane on rural segments. ~~This table has been revised in the final EIS using traffic volumes for the year 2020,~~ the MOBILE5A model and 1995 PM_{10} silt loadings.

*CSKT preferred alternative is Lane Configuration A. MDT preferred alternative is combination of Lane Configurations B, C and D.

Table F.7.7-5 2020 Worst Case Emission Factors[1] Polson Alignments and Intersection Cross Streets.

Alignments		Carbon Monoxide							PM$_{10}$[3]		
		Design Hour Volume	CSKT Preferred Alternative No Action and Lane Configuration A		MDT Preferred Alternative Lane Configurations B, C and D		Average Daily Traffic	Approaches per mile	No Action	Lane Configuration A[3]	Lane Configurations B, C, D[4]
			Speed Limitation[2] (mph)	Emission Factor (g/veh/mi)	Speed Limitation[2] (mph)	Emission Factor (g/veh/mi)			Emission Factor (g/veh/mi)	Emission Factor (g/veh/mi)	Emission Factor (g/veh/mi)
No Action	N	2,920	LOS F (24)	44.32	-	-	23,200	5.6	3.017	-	-
	O	3,200	LOS F (24)	44.32	-	-	25,400	50	8.130	-	-
	P	1,760	LOS F (24)	44.32	-	-	14,000	7.8	3.375	-	-
Existing Alignment	N	2,920	LOS F (24)	44.32	LOS A (65)	32.79	23,200	5.6	-	2.501	2.208
	O	3,200	LOS F (24)	44.32	posted 25	33.77	25,400	-	-	6.900	6.900
	P	1,760	LOS F (24)	44.32	posted 45	18.08	14,000	7.8	-	3.170	3.170
	cross streets	480	LOS F (24) 97% delay	44.32	LOS F (24) 88% delay	44.32	3,810	-	8.130	8.130	8.130
	1st Avenue East, signal	839	posted 25	33.77	posted 25	33.77	6,660	-	8.130	8.130	8.130
Alignments 2, 3	N	1,710	LOS F (24)	44.32	LOS A (65)	32.79	13,600	5.6	-	2.501	2.208
	O	2,290	posted 25	33.77	posted 25	33.77	18,200	-	-	6.900	6.900
	P	780	LOS E (45)	19.79	posted 45	18.08	6,200	7.8	-	3.170	3.170
	cross streets	344	posted 25 60% delay	33.77	posted 25 45% delay	33.77	2,669	-	8.130	8.130	8.130
	1st Avenue East, signal	588	posted 25	33.77	posted 25	33.77	4,662	-	8.130	8.130	8.130
Alignments 2, 3	Rural	980	LOS A (56)	32.79	LOS A (65)	32.79	7,800	5	-	2.317	2.317

GeoResearch, Inc. 1996. [1] 2020 traffic levels based on three percent annual growth rate; CO emission rates are the expected maximum during CO season (November through March); PM$_{10}$ emission rates are maximum in the spring after the last snow melts and before roadways are cleaned. [2] Speed limitation is determined by which of posted limit or LOS corresponds to the highest emission rate; LOS F, congested conditions, is assumed to be an average of three speeds, 45, 25 and 2.5 mph. [3] Lane configuration A assumes paved approaches and curbs and gutters in the community. [4] Assumes carry-on equal to 2-lane configuration is present in driving lane and half again as much in passing lane on rural segments. This table has been revised in the final EIS using traffic volumes for the year 2020, the MOBILE5A model and 1995 PM$_{10}$ silt loadings.
*CSKT preferred alternative is Lane Configuration A. MDT preferred alternative is combination of Lane Configurations A, B, C and D.

The USEPA CAL3QHC model[24] was used in a screening mode which means using the single worst meteorological condition and all wind directions in place of actual site specific meteorological data. CAL3QHC models the effects of various traffic levels, differing road widths, and varying numbers of traffic lanes at intersections and on segments with free flowing traffic.

Screening models are designed to be conservative and tend to overestimate concentrations to a greater degree than do more refined models.[25] In the case of CAL3QHC, the model has only recently (September 1995) been revised to calculate PM_{10} concentrations. It has consistently predicted excessively high concentrations of PM_{10} when used in the screening mode since that time.[26]

Tables F.7.7-~~5~~6 through F.7.7-~~8~~10 summarize the maximum predicted concentrations when the modeling procedures described above are applied to the emission factors and rates presented in Tables F.7.7-1 through F.7.7-~~4~~5.

These tables have been renumbered to reflect the insertion of Tables F.7.7-2 and 7.7-7 which present emission factors and predicted concentrations at intersections. Old Tables F.7.7-5 through 7.7-8 have been changed to reflect the use of the new model CAL3QHC. Because CAL3QHC predicts excessively high concentrations of PM_{10}, it is no longer appropriate to compare these values to the NAAQS, thus the NAAQS values and the compliance status for PM_{10} have been removed from the tables.

The tabulated concentrations are those predicted to occur at the Right of Way for rural segments and ten feet from the edge of the roadway in the communities. These predicted CO concentrations are ~~then~~ compared to the applicable ambient air quality standards. The ~~maximum CO~~predicted concentrations ~~occur at the edge of the roadway and lie inside the highway ROW. The maximum PM_{10} concentrations occur 33 meters (approximately 110 feet) from the downwind side of the area source which is assumed to be the edge of the highway traffic lanes. The maximum PM_{10} concentrations lie outside the highway ROW~~include background concentrations for 2020 which are estimated to be higher than the 1994 values due to the population increase. The effects of PM_{10} emissions associated with construction are not included in the tabulated values.

CO concentrations depend on the age of vehicles, the ambient temperature, and the vehicle speed~~ which in turn depends on LOS and posted speed limits~~. These factors are expected to be the same for both No Action and Lane Configuration A, resulting in the same emission factors and predicted CO concentrations. Multi-lane roads, lane configurations B, C, and D generally permit increased vehicle speeds with improved levels of service resulting in decreased CO concentrations.~~ The effects of left turn bays on CO concentrations can be quantified if a substantially different LOS is possible as a result of the left turn bay. Carbon monoxide may decrease for those vehicles not turning and increase for those turning.~~

PM_{10} concentrations depend on the number of vehicles on the road, the weight of the vehicles including loads, and the amount of particulates on the road surface. A worst case assumption is that the same amount of sand is put onto each lane of the four-lane configurations in the rural areas as well as in the communities.~~ The cross-sectional area of the highway does not affect PM_{10} emissions because each vehicle passes a given point only once, regardless of the width of the highway. USEPA d~~ Data is available to differentiate PM_{10} emissions from road surface conditions on major highways~~,~~ and on collector streets~~, and on city streets~~ during the spring time when winter sanding material has been allowed to accumulate and during the summer and fall when carry-on is present. Carry-on is expected to have a larger impact where there are more unpaved approaches. ~~The Montana Air Quality Bureau (MAQB) data is available for community streets with left turn bays during the spring when winter sand has been allowed to~~

[24]U.S. Environmental Protection Agency, User's Guide to CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections, September 1995. EPA-454/R-92-006.

[25]U.S. Environmental Protection Agency, Office of Air and Radiation, Guideline on Air Quality Models (Revised), (EPA-450/2-78-027R), July 1986, Research Triangle Park, North Carolina 27711.

[26]Telephone conversation with Jeff Hauk, Region VIII USEPA, January 24, 1996.

~~accumulate. No data is available to quantify the effects on PM_{10} emissions of left turn bays on major highways. Sand may accumulate to some unknown degree in the turn bay on the open highway and create increased PM_{10} emissions from the turning vehicles. However, this effect is opposed by the increased flushing efficiency of the higher speeds possible for those vehicles not turning.~~

Tables F.7.7-~~5~~6 through F.7.7-~~8~~10 show the predicted concentrations of CO for the one-hour averaging period range from approximately ~~eight to 30%~~ 10 to 64% of the applicable standards. Concentrations of PM_{10} predicted by the CAL3QHC model have been found to be excessively high when the model is used in the screening mode. For that reason, the predicted concentrations are not comparable to the NAAQS for the determination of compliance status. The trend of relative concentrations across the alternatives is sufficient for the purpose of this EIS which is to evaluate the effects of the alternatives on air quality.

~~Table 7.7-5 shows the 24-hour PM_{10} values are approximately one half to two thirds of the NAAQS on the open road segments. Tables 7.7-6, 7.7-7 and 7.7-8 show that PM_{10} exceedences are predicted in the communities of Ronan and Polson during the period between the melting of the last snow and street cleaning activities when sand is used on the community throughout the winter and allowed to accumulate. Arlee remains in compliance when sand is used in the community if through traffic uses an alternate alignment. The use of chemical deicers reduces the predicted PM_{10} concentrations to approximately 70% or less of the ambient standard.~~ According to Mr. George Swartz of MDT, Missoula Division, the current practice in Ronan and Polson is to use~~d~~ only magnesium chloride, a chemical deicer, on the community streets when ambient temperatures are above zero degree fahrenheit. At lower temperatures when the chemical is not effective, clean sand is used and the clean sand is removed from the streets when temperatures reach zero. These control measures are stipulated in the Trial Technical Support Document which is being used as the Tribal Air Quality Implementation Plan and are included in a memorandum of agreement (MOA) for the Polson PM_{10} Non-Attainment Area.

It also is evident from ~~these three~~ Tables F.7.7-8 through F.7.7-10 that routing of through traffic on alternate alignments reduces the ~~maximum expected~~predicted CO and PM_{10} concentrations in the communities.

Since the standards for the shorter averaging time periods are more stringent, when these concentrations shown in the tables are within compliance as they are for CO, it is most likely the concentrations for the longer averaging periods will also be in compliance.[27] However, because the model predicts excessively high concentrations of PM_{10}, the concentrations that appear to be exceedences most likely are not, but are merely higher than concentrations at other locations. For that reason, compliance status is not tabulated and the annual average, which shows the same trend, is not presented.

Because traffic volume is expected to increase at an annual rate of three percent, all alternatives, including No Action, will include an increase in traffic related air quality emissions. These increases will impact the highway segments to a greater or lesser degree for the various alignments, lane configurations, and design options. In general, both CO and PM_{10} emissions increase with increasing traffic volume. CO emissions increase with decreasing speeds and PM_{10} emissions increase with the amount of dry particulate matter present on the roadway surface.

Total suspended particulate data gathered at five sites on the Flathead Indian Reservation between 1981 and 1989 indicate the existing air quality is good except for the non-attainment areas of Polson and Ronan. ~~Predicted PM_{10} concentrations based on the increased traffic volume do not exceed NAAQS, and none of the alternatives, including No Action, is expected to substantially impact the existing air quality except when particulate matter such as sanding material and tracked soil is found on a dry roadway.~~

[27] FHWA Technical Advisory, T6640.6.

Table F.7.7-6 2020 Worst Case Predicted Concentrations[1] Existing Alignment (Except Arlee, Ronan and Polson) ($\mu g/m^3$)

Segment	Carbon Monoxide Concentrations				Relative PM_{10} Concentrations[2]			
	NAAQS 1-Hour ($\mu g/m^3$)	Predicted 1-Hour ($\mu g/m^3$)		Status	~~NAAQS 24-Hour ($\mu g/m^3$)~~	Predicted 24-Hour ($\mu g/m^3$)		
		CSKT Preferred Alternative No Action and Lane Configuration A	MDT Preferred Alternative Lane Configurations B, C and D			No Action	CSKT Preferred Alternative Lane Configuration A[3]	MDT Preferred Alternative Lane Configurations B, C, and D[4]
A	40,000	7,180	4,317	in compliance	~~150~~	125	102	91
C	40,000	6,722	4,088	in compliance	~~150~~	85	73	68
D	40,000	6,722	4,088	in compliance	~~150~~	87	75	70
E	40,000	5,004	4,546	in compliance	~~150~~	99	71	67
F	40,000	6,722	4,088	in compliance	~~150~~	77	68	64
G	40,000	6,264	5,119	in compliance	~~150~~	83	72	67
H	40,000	5,920	3,859	in compliance	~~150~~	113	93	83
I	40,000	7,180	4,317	in compliance	~~150~~	121	99	89
K	40,000	9,813	5,348	in compliance	~~150~~	171	136	120
L	40,000	11,759	6,149	in compliance	~~150~~	232	135	127
M	40,000	10,385	5,691	in compliance	~~150~~	208	173	150

GeoResearch, Inc., 1996 [1] The smallest time averaging periods have the most stringent NAAQS. CO concentrations are at their highest during the months of November through February. PM_{10} concentrations are at their highest in communities during the winter season. [2] These values are suitable only for comparison with other relative PM_{10} concentrations presented in this document due to excessively high PM_{10} concentrations predicted by the CAL3QHC model. [3] Lane configuration A assumes all approaches are paved to the ROW and that curbs and gutters are installed in Arlee and Pablo. [4] Assumes paving and curbs and gutters as for Lane Configuration A and one and one-half times the amount of carry-on spread over the wider roadway. All configurations assume sand is applied at a constant rate in all lanes. This table has been revised in the final EIS to use traffic volumes for the year 2020 and to use the CAL3QHC model.

Table F.7.7-7 2020 Worst Case Predicted Concentrations[1] at Intersections on Existing Alignment (Except Arlee, Ronan and Polson) ($\mu g/m^3$)

Intersection	Carbon Monoxide Concentrations				Relative PM_{10} Concentrations[2]			
	NAAQS 1-Hour ($\mu g/m^3$)	Predicted 1-Hour ($\mu g/m^3$)		Status	~~NAAQS 24-Hour ($\mu g/m^3$)~~	Predicted 24-Hour ($\mu g/m^3$)		
		CSKT Preferred Alternative No Action and Lane Configuration A	MDT Preferred Alternative Lane Configurations B, C and D			No Action	CSKT Preferred Alternative Lane Configuration A[3]	MDT Preferred Alternative Lane Configurations B, C, D[4]
MT 200 Ravalli	40,000	8,668	7,523	in compliance	~~150~~	107	75	69
Main Access St. Ignatius	40,000	6,951	5,691	in compliance	~~150~~	81	72	69
~~FAS~~MTS 212	40,000	9,698	3,516	in compliance		133	109	96
Division Street Pablo	40,000	15,652	9,584	in compliance	~~150~~	227	133	124
Clairmont Road Pablo	40,000	15,652	9,698	in compliance	~~150~~	227	133	124
Old US 93 North of Pablo	40,000	15,308	8,553	in compliance	~~150~~	236	135	125
MT 35	40,000	15,766	12,217	in compliance	~~150~~	108	97	91

GeoResearch, Inc., 1996 [1] The smallest time averaging periods have the most stringent NAAQS. CO concentrations are at their highest during the months of November through February. PM_{10} concentrations are at their highest in communities during the winter season. [2] These values are suitable only for comparison with other relative PM_{10} concentrations presented in this document due to excessively high PM_{10} concentrations predicted by the CAL3QHC model. [3] Lane configuration A assumes all approaches are paved to the ROW and that curbs and gutters are installed in Arlee and Pablo. [4] Assumes paving and curbs and gutters as for Lane Configuration A and one and one-half times the amount of carry-on spread over the wider roadway. All configurations assume sand is applied at a constant rate in all lanes. This table has been revised in the final EIS to use traffic volumes for the year 2020 and to use the CAL3QHC model.

Table F.7.7-8 2020 Worst Case Predicted Concentrations[1] Arlee Alignments ($\mu g/m^3$)

Alignments	Carbon Monoxide Concentrations				Relative PM_{10} Concentrations[2]			
	NAAQS 1-Hour ($\mu g/m^3$)	Predicted 1-Hour ($\mu g/m^3$)		Status	~~NAAQS 24-Hour ($\mu g/m^3$)~~	Predicted 24-Hour ($\mu g/m^3$)		
		CSKT Preferred Alternative No Action and Lane Configuration A	MDT Preferred Alternative Lane Configurations B, C and D			No Action	CSKT Preferred Alternative Lane Configuration A[3]	MDT Preferred Alternative Lane Configurations B, C, and D[4]
No Action	40,000	8,210	-	in compliance	~~150~~	185	-	-
Existing Alignments	40,000	8,210	5,233	in compliance	~~150~~	185	123	115
Existing Alignment B Street Intersection	40,000	9,469	8,782	in compliance	~~150~~	183	122	113
Alignments 2, 3, 4 Community	40,000	2,829	2,714	in compliance	~~150~~	-	56	54
Alignments 2, 3, 4 B Street Intersection	40,000	3,401	2,829	in compliance	~~150~~	-	55	53
Alignments 2, 3, 4 Rural	40,000	5,691	4,661	in compliance	~~150~~	-	67	63

GeoResearch, Inc., 1996 [1] The smallest time averaging periods have the most stringent NAAQS. CO concentrations are at their highest during the months of November through February. PM_{10} concentrations are at their highest in communities during the winter season. [2] These values are suitable only for comparison with other relative PM_{10} concentrations presented in this document due to excessively high PM_{10} concentrations predicted by the CAL3QHC model. [3] Lane configuration A assumes all approaches are paved to the ROW and that curbs and gutters are installed in Arlee and Pablo. [4] Assumes paving and curbs and gutters as for Lane Configuration A and one and one-half times the amount of carry-on spread over the wider roadway. All configurations assume sand is applied at a constant rate in all lanes. This table has been revised in the final EIS to use traffic volumes for the year 2020 and to use the CAL3QHC model.

Table F.7.7-9 2020 Worst Case Predicted Concentrations[1] Ronan Alignments ($\mu g/m^3$)

Alignments	Carbon Monoxide Concentrations				Relative PM_{10} Concentrations[2]			
	NAAQS 1-Hour ($\mu g/m^3$)	Predicted 1-Hour ($\mu g/m^3$)		Status	~~NAAQS 24-Hour ($\mu g/m^3$)~~	Predicted 24-Hour ($\mu g/m^3$)		
		CSKT Preferred Alternative No Action and Lane Configuration A	MDT Preferred Alternative Lane Configurations B, C and D			No Action	CSKT Preferred Alternative Lane Configuration A[3]	MDT Preferred Alternative Lane Configurations B, C, and D[4]
No Action	40,000	11,759	-	in compliance	~~150~~	271	-	-
Existing Alignments	40,000	11,759	8,897	in compliance	~~150~~	271	235	219
Existing Alignment Round Butte Road Intersection	40,000	18,972	15,308	in compliance	~~150~~	292	257	242
Alignments 2 One-Way Couplet	40,000	5,691	-	in compliance	~~150~~	-	148	-
Alignments 3, 4 Community	40,000	5,920	4,890	in compliance	~~150~~	-	116	111
Alignments 3, 4 Round Butte Road Intersection	40,000	10,156	8,553	in compliance	~~150~~	-	127	117
Alignments 3, 4 Rural	40,000	8,324	6,378	in compliance	~~150~~	-	66	62

GeoResearch, Inc., 1996. [1] The smallest time averaging periods have the most stringent NAAQS. CO concentrations are at their highest during the months of November through February. PM_{10} concentrations are at their highest in communities during the winter season. [2] These values are suitable only for comparison with other relative PM_{10} concentrations presented in this document due to excessively high PM_{10} concentrations predicted by the CAL3QHC model. [3] Lane configuration A assumes all approaches are paved to the ROW and that curbs and gutters are installed in Arlee and Pablo. [4] Assumes paving and curbs and gutters as for Lane Configuration A and one and one-half times the amount of carry-on spread over the wider roadway. All configurations assume sand is applied at a constant rate in all lanes. This table has been revised in the final EIS to use traffic volumes for the year 2020 and to use the CAL3QHC model.

Table F.7.7-10 2020 Worst Case Predicted Concentrations[1] Polson Alignments and Intersections ($\mu g/m^3$)

Alignments		Carbon Monoxide Concentrations				Relative PM_{10} Concentrations[2,*]			
		NAAQS 1-Hour ($\mu g/m^3$)	Predicted 1-Hour ($\mu g/m^3$)		Status	~~NAAQS 24-Hour ($\mu g/m^3$)~~	Predicted 24-Hour ($\mu g/m^3$)		
			CSKT Preferred Alternative No Action and Lane Configuration A	MDT Preferred Alternative Lane Configurations B, C and D			No Action	Lane Configuration A[3]	Lane Configurations B, C, and D[4]
No Action	N	40,000	9,813	-	in compliance	~~150~~	107	-	-
	O	40,000	10,958	-	in compliance	~~150~~	318	-	-
	P	40,000	6,836	-	in compliance	~~150~~	84	-	-
Existing Alignments	N	40,000	9,813	5,119	in compliance	~~150~~	-	95	87
	O	40,000	10,958	10,385	in compliance	~~150~~	-	275	258
	P	40,000	6,836	4,088	in compliance	~~150~~	-	81	81
Unsignalized Intersections		40,000	25,612	21,834	in compliance	~~150~~	312	272	253
First Avenue East Intersection		40,000	21,147	19,086	in compliance	~~150~~	339	297	281
Alignments 2, 3	N	40,000	8,897	6,607	in compliance	~~150~~	-	71	66
	O	40,000	10,500	7,981	in compliance	~~150~~		208	195
	P	40,000	6,836	4,088	in compliance	~~150~~	-	81	81
Unsignalized Intersections		40,000	16,224	13,591	in compliance	~~150~~	-	206	192
First Avenue East Intersection		40,000	17,369	16,453	in compliance	~~150~~	-	216	204
Alignments 2, 3	Rural	40,000	4,775	4,088	in compliance	~~150~~	-	55	53

GeoResearch, Inc., 1996 [1] The smallest time averaging periods have the most stringent NAAQS. CO concentrations are at their highest during the months of November through February. PM_{10} concentrations are at their highest in communities during the winter season. [2] These values are suitable only for comparison with other relative PM_{10} concentrations presented in this document due to excessively high PM_{10} concentrations predicted by the CAL3QHC model. [3] Lane configuration A assumes all approaches are paved to the ROW and that curbs and gutters are installed in Arlee and Pablo. [4] Assumes paving and curbs and gutters as for Lane Configuration A and one and one-half times the amount of carry-on spread over the wider roadway. All configurations assume sand is applied at a constant rate in all lanes. This table has been revised in the final EIS using traffic volumes for the year 2020 and to use the CAL3QHC model. *CSKT preferred alternative is Lane Configuration A. MDT preferred alternative is combination of Lane Configurations A, B, C and D. model.

The cumulative impacts of increased ambient concentrations of CO and PM_{10} from increased traffic volume and those due to increased combustion of home heating fuels, particularly wood burning, are expected to occur with or without the proposed action. These expected increases are due to an increased population which is likely to occur with all alternatives including No Action. Any increase in population related to transportation improvement may result in additional emissions from traffic sources and from home heating fuels. Increased population is expected to decrease the amount of agricultural land and thereby reduce emissions from agricultural activities such as tilling and harvesting and wind erosion. The conversion of agricultural land to residential or business development will generate traffic which may increase emissions from paved and unpaved secondary roadways. The increase in traffic will be due primarily to a general increase in population, ~~not~~and to a much lesser degree to improvement of the highway. A small portion of the increased population may be due to commuters choosing to relocate to the study area. The severity of the effect on air quality depends on the traffic volume on these secondary routes, vehicle speeds, and roadway surfaces.

Mitigation

The PM_{10} control strategies discussed in the draft Technical Support Document (TSD)[28] for PM_{10} attainment on the Flathead Indian Reservation include: Street and highway sweeping on an average of once every five days; the

use of "clean" sand which contains fewer smaller particles; and the use of alternative road applicants such as ~~the~~ chemical deicer~~, magnesium chloride coated with a polymer~~.[29]

The draft TSD recommends a combination of the aforementioned strategies to reduce PM_{10} concentrations by 43% and thus bring the area into compliance. The use of chemical deicer and clean sand since the winter of 1992-93 has resulted in no PM_{10} exceedences at these two monitoring sites ~~during 1992 and the first three quarters of 1993~~between January 1992 and April 1996.

An MOA for the Polson PM_{10} Non-Attainment Area has been developed among CSKT, the city of Polson, Lake County, MDT and USEPA. The MOA requires two control measures: 1) the application of only clean sand or chemical deicer to road surfaces and 2) sweeping and cleaning driving lanes, shoulder gutters and drop drains within the Polson city limits. These are current practices for MDT on US 93. A strategy is also presented to determine the frequency of street sweeping activities. Jurisdiction of the various agencies for specific streets within the Polson city limits has not been finalized. A similar MOA is anticipated for the Ronan PM_{10} non-attainment area. These strategies are also appropriate mitigation measures for the proposed action. In general, the most effective measures for controlling emissions from paved surfaces are those which prevent material from being deposited onto the surface such as paved approaches and curbs and gutters.

The most effective mitigation measures for gaseous vehicular emissions include new car emission standards and vehicle inspection and maintenance programs. Transportation measures typically play a minor role.[30] Transportation measures have their largest effect on CO emissions which are highest at points of congestion.

MDT will coordinate with CSKT measures for mitigation of emissions and concentrations for air quality.

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[28]U.S. Environmental Protection Agency, A Technical Support Document to the Confederated Salish and Kootenai Tribes Tribal Implementation Plan for Achieving Attainment of the PM_{10} Standard in Polson and Ronan, Montana, third draft, November 1991, prepared by Mark J. Komp.

[29]Komp, pp. 55-63.

[30]Federal Highway Administration Memorandum, July 11, 1983, Subject: Distribution of Report Transportation and Air Quality: A Review of the 1982 State Implementation Plans, from Jerry A. Reagan, Chief, Noise and Air Analysis Division, Federal Highway Administration Office of Environmental Policy.

Specifications on silt content for sanding material will use "200 mesh silt" with less than 10% silt content for sand. "Hardness" of sand typically isn't included in the specifications for sand. MDT and CSKT will consider developing a procedure to test sanding material stored at highway maintenance facilities.

MDT and CSKT will consider mitigation measures to ensure capability to accomplish "clean up" of the highway, especially after the winter season:

- Mitigation measures will consider dedication of equipment to the Flathead Indian Reservation to keep clean highway shoulders.

- Equipment may include increased use of automated "grasshopper brooms" outside communities.

- Consider procedures to apply water to the highway prior to sweeping, then to finish cleaning the highway with an Elgin sweeper.

- Consider a schedule that assures a three-year turnover for sand.

- Consider monitoring quality of sand in storage with a reporting system and a regular schedule for testing.

MDT will coordinate use of additional sweepers with local governments of communities located on the reservation.

MDT will consider measures to mitigate impacts on air quality during construction:

- Use of chemical suppressants, rather than reliance on spraying water, to suppress dust.

- Construction will use a series of shorter segments in phases, rather than one long segment of highway.

- All road surfaces will have pavement when the winter season suspends construction.

- MDT and CSKT will consider special provisions for construction contracts to address specific environmental concerns.

The increased emissions from residential wood burning can be mitigated through regulation of the types of stoves permitted to be used on the reservation and the limitation of burning during inversion episodes.

F.7.7.2. No Action

Carbon monoxide concentrations range from ~~2,667 to 12,150~~5,004 to 25,612 micrograms per cubic meter ($\mu g/m^3$), well within the NAAQS of 40,000 $\mu g/m^3$. The excessively high PM_{10} concentrations predicted for the open road segments of the highway ~~are one-half to two-thirds of~~ exceed the NAAQS at Arlee and from Ronan through Polson.~~; however, PM_{10} concentrations are shown to exceed the NAAQS in the communities in the spring if winter sanding material has been allowed to accumulate on community streets. The use of chemical deicers reduces PM_{10} concentrations to 70% or less of the NAAQS.~~ While actual exceedences may or may not occur at these locations, the expected PM_{10} concentrations are two to three times higher than those expected on other segments of US 93.

Concentrations of Pb, NO_x and VOCs will generally follow the trends of the CO concentrations. Pb concentrations will continue to decrease as fewer vehicles use leaded gasoline.

F.7.7.3. Existing Alignment (Except Arlee, Ronan and Polson)

Lane configurations A (two-lane) and B, C, and D (four-lane) include wider shoulders, paved approaches on the rural segments and in the communities, and the installation of curbs and gutters in Ravalli and Pablo. These design options help prevent carry-on and erosion from depositing particulates onto US 93. Lane Configuration A (two-lane) is similar to No Action for CO impacts.

The CO concentrations shown in Tables ~~7.7-5,~~ F.7.7-6~~,~~ and F.7.7-7~~, and 7.7-8~~ Lane Configurations B, C or D are approximately ~~one~~two-thirds of the concentration with No Action and Lane Configuration A and are less than ~~one-tenth~~15% of the NAAQS on the rural segments. Smaller reductions are predicted in Ravalli where the speed is posted at 45 mph regardless of the lane configuration. Small reductions are expected at intersections also with the highest predicted concentration being approximately 30% of the NAAQS at the intersection with MT 35.

For Lane configuration A (two-lane), the excessively high predicted PM_{10} concentrations are shown to be ~~one-half to two-thirds of~~less than the NAAQS on open road segments of the highway except between Pablo and Caffrey Road. These design options show an approximate reduction in the excessively high PM_{10} concentrations of 10 to 20% on the rural segments and 25 to 40% where curbs and gutters will be installed . ~~PM_{10} concentrations are predicted to exceed NAAQS in the communities if winter sanding material is allowed to accumulate, but is 70% of NAAQS or less when chemical deicers are used.~~

Excessively high predicted PM_{10} concentrations with lane configurations B, C, and D are predicted to be within the NAAQS on all segments and all intersections with the highest concentration again predicted to occur between Pablo and Caffrey Road.

Indirect impacts due to temporary emissions of PM_{10} from construction activities will occur wherever construction occurs. These emissions will vary for each segment and proposed action with larger increases expected for locations with new ~~route~~roadbed construction and smaller increases for segments with only minor roadway improvement. Temporary emissions from construction activities will be larger for Lane Configurations B, C, and D than for Lane Configuration A. Construction activities are expected to generate the gaseous pollutants SO_x NO_x VOCs, CO, and other organic gases, and particulate emissions, including PM_{10} from the asphalt plants, the associated gravel crushers, and earth moving equipment and activities. Travel on unpaved surfaces will generate PM_{10} emissions. Impacts will be limited to the construction period and will be localized to the segment(s) under construction at the time. ~~Most of the construction will occur during the summer months when lower concentrations than those shown in Tables 7.7-6, 7.7-7 and 7.7-8 are expected from traffic sources.~~

Construction emissions from traffic can be mitigated by watering or by chemical stabilization of the unpaved sections of roadway which are used to handle traffic and by daily sweeping of the paved sections which are subject to accumulation of particulate material tracked from unpaved areas. Emissions from asphalt plants will be controlled with scrubbers and according to the control measures in the required air quality permit. Emissions from gravel crushers can be controlled by covering conveyors and stockpiles and by wetting. Erosion control measures will also mitigate wind-blown dust from disturbed areas. Wetting can control dust generated by earth moving activities. Short sections and a limited number of areas with unpaved surfaces at any one time will reduce the construction related impacts.

F.7.7.4. Arlee, Ronan and Polson Alignments

Lane configuration A (two-lane) is not substantially different from No Action for traffic related impacts for CO. Wider shoulders and the installation of curbs and gutters in Arlee and in portions of Ronan and Polson where they do not currently exist are part of lane configurations A, B, C, and D. These design options will help reduce PM_{10} impacts. ~~However, c~~Construction related emissions are expected to have a greater impact in the communities than on the other highway segments due to the proximity of homes, businesses, and the general population density.

Paving approaches and the installation of curbs and gutters reduces the predicted PM_{10} concentrations by approximately 34% for Lane Configuration A and by approximately 38% for the four-lane configurations at Arlee. The excessively high predicted PM_{10} concentrations are less than the NAAQS for all lane configurations at Arlee. Such a dramatic reduction is not predicted at Ronan and Polson because curbs and gutters exist over most of the segment under No Action.

It is assumed that Arlee Alignments 2, 3 and 4 will route 80% of the traffic around the community. Table F.7.7-~~6~~8 shows these alternate alignments will reduce ambient CO concentrations by approximately 4~~6~~5% in the community but will increase concentrations in the rural areas by approximately ~~80~~65% over the background concentrations. Alternate alignments will reduce the ~~spring~~ PM_{10} concentrations in the community by approximately one-half~~to less than the NAAQS when winter sand is allowed to accumulate. No exceedences are predicted when a chemical deicer is used~~. PM_{10} concentrations will increase in the rural areas yet the excessively high predicted concentrations are approximately one-third~~it will be less than 50%~~ of the allowable NAAQS. For alternatives 2, 3 and 4, both CO and PM_{10} concentrations are in compliance in the rural areas~~;~~ and in the community~~, CO and PM_{10} are in compliance year-round when sand is allowed to accumulate on winter streets in the community and 80% of the traffic is routed around the community~~.

Similar trends are predicted at the intersection of US 93 and B Street in Arlee.

Arlee Alignment 2 passes between the town of Arlee and the existing railroad tracks. The potential exists for larger cumulative impacts from the highway and the railroad locomotives when these sources are upwind of Arlee. Arlee Alignment 3 passes east of the schools and creates greater impacts on the school children than the other alignment routes. Children and the elderly are more likely to suffer ill effects from air pollution than is the general population. Large construction impacts for the longer route of Arlee Alignment 4 will be generated in the rural environment.

In Ronan, Alignment 2 will route all traffic through the community on a pair of one-way streets. This alternative reduces the ~~maximum ambient~~predicted concentration of CO and PM_{10} when compared to No Action, CO remains in compliance at less than ~~one-tenth~~15% of the NAAQS and the excessively high predicted PM_{10} ~~exceeds~~is within the NAAQS~~ by approximately 2 times during the early spring if sand is used to provide winter traction on the community streets and allowed to accumulate. The use of a~~when chemical deicer is used~~ reduces PM_{10} concentrations to approximately 40% of the standard.~~ Alignment 2 passes near the school and a residential center that houses senior citizens.. Children and the elderly are more likely to suffer ill effects from air pollution than is the general population. Indirectly, one-way couplets may impact receptors in addition to those along each route by introducing additional traffic to cross-connecting routes.

It is assumed that Ronan Alignments 3 and 4 will route 60% of the traffic around the community. Table F.7.7-~~7~~9 shows that ~~n~~either of these alternatives will reduce the CO concentrations by approximately 45 to 50% (depending on the lane configuration) and the PM_{10} concentrations by approximately 50% in the community. The excessively high predicted PM_{10} concentrations are within the NAAQS in the community and in the rural areas.~~change the status of the air quality in either the community or the rural areas.~~ These alternatives will reduce ambient concentrations of both pollutants in the community and will increase them in the rural areas. The rural areas will remain ~~in compliance~~well below the NAAQS for both CO and PM_{10}.

Similar trends are observed at the intersection of US 93 and Round Butte Road (MTS 211) in Ronan.

Three highway segments (N,O, and P) lie within the Polson area. Segment O represents the community while Segments N and P are considered rural highways. Alignments 2 and 3 are expected to reduce traffic by 40% on Segment N, by 30% on Segment O and not to affect traffic levels on Segment P. (Sections 6.1 and 7.1)

CO impacts on the existing alignment for any lane configuration fall within the allowable NAAQS with the highest concentrations (approximately 55 to 65% of the NAAQS) predicted at the unsignalized intersections in Polson. A wider lane configuration results in less in congestion and lower CO concentrations. Predicted CO concentrations on the rural segments near Polson are approximately 10 to 25% of the NAAQS, depending on the lane configuration.

The excessively high predicted PM_{10} concentrations fall within the NAAQS on the rural segments near Polson with four-lanes reducing the predicted concentration by approximately 10% or less. The predicted PM_{10} concentrations in the community are approximately the same or slightly higher at the intersections than in the free flowing traffic areas.

Impacts related to Polson Alignments 2 and 3 are not substantially different from each other with the southern portion of both alternate alignments being identical and the western portion of Alignment 2 passing east of the rodeo grounds while the western portion of Alignment 3 passes west of the airport. ~~CO concentrations are less than 25% of NAAQS for all alignments on all segments in the Polson area.~~ Alignment 2 or 3 reduces CO concentrations in the community by approximately 4% for the existing lane configuration and by approximately 23% for a wider lane configuration~~15 to 20%, depending on the lane configuration of Segment O~~. All alignments and all lane configurations show the excessively high predicted PM_{10} concentrations to be less than ~~66% of~~the NAAQS at all locations except on Segment O. A wider lane configuration reduces the predicted concentration by approximately 6% on Segment O and the bypass reduces the predicted concentration by approximately 24%. ~~Exceedences on Segment O are limited to the scenario which allows winter sanding material to accumulate on community streets. The use of a chemical deicer and clean sand, as is the current practice on US 93 in Polson reduces PM_{10} concentrations to 70% of NAAQS.~~ It is assumed that sand will be used during the winter on the rural Segments N and P in the Polson area and chemical deicer usage will be ~~limited to~~used on Segment O.

Impacts in the rural area due to a bypass will include increased CO and PM_{10} concentrations. The predicted CO concentration is approximately 10 to 12% of the NAAQS, depending on the lane configuration used. The excessively high predicted PM_{10} concentration is approximately one-third of the NAAQS and less than the predicted impact on any other segment of the highway for all alternatives.

Some impacts cannot be quantified by the screening level modeling effort. These include increased emissions in the communities as congestion increases. Limited parking will result in vehicles idling while waiting for a parking space or driving in a repetitive pattern looking for a parking space. Increased idling emissions will result as vehicles wait to access US 93. Traffic signals also have the effect of increasing gaseous emissions as traffic flow is interrupted. PM_{10} emissions also increase because the reduced traffic speeds do not flush particulates out of the driving lanes as effectively. If sanding material is applied where vehicles must stop, this material will be ground to respirable particulates when the roadway is dry. The use of additional chemical deicer does not impact air quality. Flashing traffic signals will create smaller impacts than will stop and go traffic signals. Slightly elevated roadways over pedestrian underpasses aid in the dispersion of vehicular emissions. Vehicular underpasses provide a tunnel where gaseous emissions may tend to accumulate.