VOLUME I

FHWA-MT-EIS-95-01-F

F 5-1(9)6, U.S. HIGHWAY 93
EVARO - POLSON
MISSOULA AND LAKE COUNTIES, MONTANA

FINAL

ENVIRONMENTAL IMPACT STATEMENT

AND

SECTION 4(f) EVALUATION

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
STATE OF MONTANA
DEPARTMENT OF TRANSPORTATION

FHWA-MT-EIS-95-01-~~F~~D

F 5-1(9)6 U.S. Highway 93
Evaro - Polson
Missoula and Lake Counties, Montana

FINAL
ENVIRONMENTAL IMPACT STATEMENT
and
SECTION 4(f) EVALUATION

Submitted Pursuant To 42 U.S.C 4332(2)(C);
49 U.S.C. 303; MEPA 2-3-104 and 75-1-101
and Executive Order 11990

U.S. Department of Transportation
Federal Highway Administration
and
Montana Department of Transportation

Cooperating Agencies

U.S. Environmental Protection Agency
U.S. Department of Health and Human Services
Confederated Salish and Kootenai Tribes
Advisory Council on Historic Preservation
U.S. Department of Housing and Urban Development
U.S. Fish and Wildlife Service
U.S. Natural Resources Conservation Service
U.S. Army Corps of Engineers
U.S. Bureau of Indian Affairs
U.S. Bureau of Reclamation

6/6/96
Date of Approval — Joel Marshik, Manager Environmental Services (Montana Department of Transportation)

6/17/96
Date of Approval — James H. Lamb, Director, Office of Program Development (Federal Highway Administration)

The following persons may be contacted for additional information concerning this document:

Joel Marshik, Manager Environmental Services
Montana Department of Transportation
2701 Prospect Avenue
P.O. Box 201001
Helena, MT 59620-1001

Dale W. Paulson
Environmental Coordinator
Federal Highway Administration
301 South Park Street, Drawer 10056
Helena, MT 59626-0056

This final environmental impact statement (EIS) is an examination of proposed improvements to U.S. Highway 93 from Evaro, Montana through Polson, Montana. This document discusses the purpose and need, alternatives, affected environment, environmental consequences, mitigation measures and comments, coordination and issues. It evaluates no action, alignment alternatives, lane configuration alternatives, transportation demand management measures, alternate highway routes and design options. A list of preparers and the final EIS circulation list are included in the document.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

2. SUMMARY

This document proposes and evaluates various alternatives to improve traffic operation and safety on U.S. Highway 93 (US 93) for a distance of 56.3 miles in Lake and Missoula counties, from Evaro, Montana (approximately 6.5 miles north of Interstate Highway 90) through Polson, Montana. Except for a one-half mile segment at the southern end in Evaro, the proposed action is contained within the Flathead Indian Reservation.

2.1. PURPOSE AND NEED FOR ~~THE PROPOSED~~ ACTION

The proposed action is needed to improve transportation on 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 and increased tourism throughout western Montana are sources of growth in traffic on US 93. The highway is important to safety, social well-being and the economy. US 93 is the major north-south transportation route in western Montana. It provides interstate, regional and local access to natural resources-based industries such as agriculture, forestry, mining, tourism and recreation.

US 93 in the area of the proposed action, and for its entire length within Montana, is functionally classified as a principal arterial. It 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: I-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 20202015. ~~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. (Figures 6.1-2 and 7.1-1)

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 20202015 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. (Tables 6.1-15 and 7.1-2)

2.2. OTHER MAJOR PROPOSED ACTIONS BY GOVERNMENTAL AGENCIES

Planned improvements to other major highways in northwestern Montana will help ensure highway traffic is appropriately distributed throughout the region. Then the most direct, efficient routes can be used by local and regional traffic. These improvements include:

- Reconstruction of US 93 from Lolo to Hamilton and from Somers to Whitefish.
- Several recent and proposed future projects on MT 83 and 200, as described in Section 5.1.5.
- Reconstruction of US 2 from Columbia Heights to Hungry Horse.

- Various improvement projects on I-90.

- Mission Valley Power operations and maintenance facility on the west side of US 93 in Pablo.

2.3. ALTERNATIVES

2.3.1. Alternatives Under Consideration

Alternatives under consideration 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.

Lane Configuration Alternatives

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 median will be included 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.

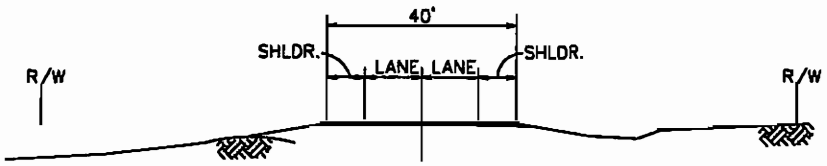
Transportation Demand Management

Transportation Demand Management (TDM) includes various measures that might help to reduce the traffic demand on the existing US 93 and thereby preserve or enhance traffic operation with highway improvement (Section 5.1.4). They include: 1) promotion and development of the use of railroads, airlines, and buslines for passenger and freight traffic; 2) development of facilities for and promotion of carpooling and ride-sharing; and 3) promoting shifts of existing and future traffic from US 93 to alternate highway routes, which are discussed in more detail in the next section.

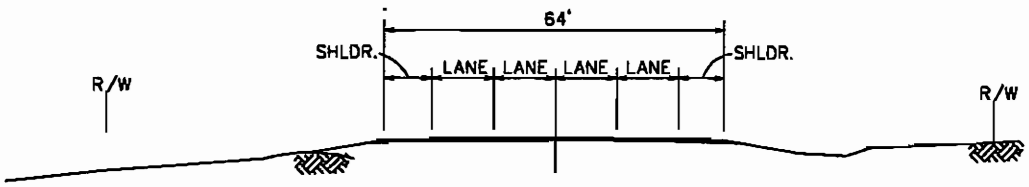
It is desirable to encourage more use of TDM, but analysis indicates TDM measures are not likely to substantially reduce existing and design year ~~2015~~2020 traffic demand and volume on US 93. Therefore they will not substantially reduce the need for highway improvement.

Implementation of TDM measures is a desirable, long-term goal, and any highway improvement should be designed to: 1) not reduce or adversely affect TDM activities already occurring; and 2) accommodate and promote increased use of TDM.

A Transit Development Plan (TDP) is being prepared ~~to identify TDM measures that will~~ by the Montana Department of Transportation (MDT) and Lake County. The TDP will determine and evaluate public transit needs and recommend measures to meet them. It is expected that measures such as park and ride facilities, bus turnouts



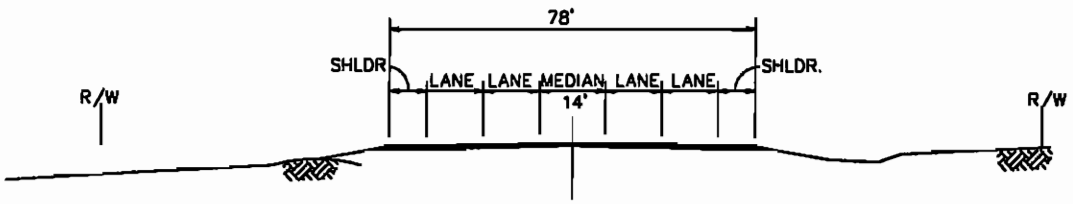
LANE CONFIGURATION A
2 LANE RDWY
MINIMUM RIGHT OF WAY WIDTH, 160 FT.



LANE CONFIGURATION B
4 LANE RDWY.
GENERAL RIGHT OF WAY WIDTH, APPROX. 180 FT.

NOTE:
EXCEPT WHERE OTHERWISE NOTED, LANES ARE 12.0' WIDE, SHOULDERS ARE 8.0' WIDE.

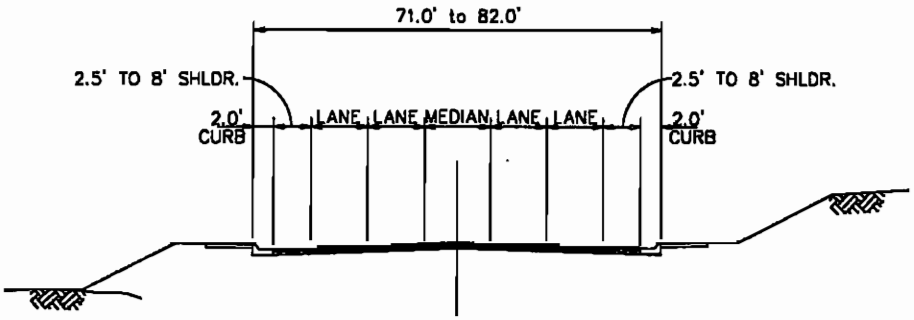
LANE CONFIGURATION ALTERNATIVES **FIGURE 2.3-1**



LANE CONFIGURATION C

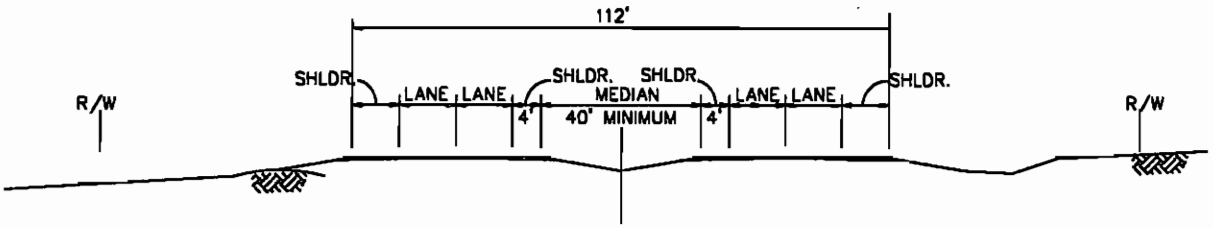
4 LANE WITH MEDIAN/LEFT TURN BAY

GENERAL RIGHT OF WAY WIDTH, APPROX. 200 FT.



LANE CONFIGURATION C

4 LANE WITH MEDIAN/LEFT TURN BAY WITH CURB & GUTTER



LANE CONFIGURATION D

4 LANE DIVIDED

GENERAL RIGHT OF WAY WIDTH, APPROX. 220 FT.

PAVEMENT WIDTH, 72' TOTAL(36' EACH SIDE)

NOTE:

EXCEPT WHERE OTHERWISE NOTED, LANES ARE 12.0' WIDE, SHOULDERS ARE 8.0' WIDE.

LANE CONFIGURATION ALTERNATIVES (CONT.) FIGURE 2.3-1

or other features may be recommended to be included in the final design of highway improvement. The results of the TDP will be available for use with the final environmental impact statement (EIS).

Alternate Highway Routes

Alternate highway routes might reduce highway traffic demand by promoting shifts of existing and future traffic from US 93 to other existing highway routes. Alternate routes that have been suggested include MT 83 in the Swan Valley and MT 200-382-28 in Lake and Sanders counties.

Alternate highway routes are not evaluated in detail in this document. Though it may be desirable to encourage more use of these alternate routes to take advantage of the better operating conditions, it is not likely enough traffic will shift to these routes to substantially reduce traffic demand on US 93.

It is likely that where substantially greater distances do not discourage them, drivers already are selecting, and will continue to select, these routes instead of using US 93. Current traffic volumes on these highways are less than one-fifth the volume on US 93, an indication of the importance of US 93 as the most direct route between Missoula and Kalispell/Glacier National Park.

Implementation of measures that will require, by law or regulation, vehicles to use these alternate routes and to improve these routes to multiple lane highways is not recommended because:

- No practical and acceptable method has been identified to shift the traffic, and
- Substantial improvement (such as additional traffic lanes) to these highways and substantially increased traffic volume may have environmental impacts equal to or greater than impacts that have been identified if US 93 is improved.

Design Options

Major design options include partial access control, wildlife crossings, frontage roads, pedestrian and bicycle facilities, truck routes and traffic signals. Section 5.1.6 presents detailed information about all design options considered with the alignment and lane configuration alternatives. After the final EIS is complete, it is recommended the participation of community teams (developed during the environmental analysis phases) be continued through project design phases. This will help ensure that local involvement is continued to help select the most appropriate design options for the proposed action.

2.3.2. The Preferred Alternatives ~~The Preferred Alternative~~

There are two preferred alternatives that have been identified. The alternative preferred by the Montana Department of Transportation 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.

2.3.2.1. The MDT Preferred Alternative

The following is a description of the MDT Preferred Alternative, which was recommended by the Interdisciplinary (ID) Team, MDT and the Federal Highway Administration (FHWA). ~~The Tribal Council of the Confederated Salish and Kootenai Tribes (CSKT) has not made a recommendation for a 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. Corridor preservation 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 indicate specific locations for each of the lane configurations in the MDT Preferred Alternative.

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 A is not recommended for other sections of the highway because it does not adequately accommodate existing and projected future traffic volumes, and it does not meet the purpose and need for the proposed action.

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). Recommendations for Lane Configuration C generally have been made where the highway passes through existing communities and where high concentrations of highway intersections and driveways occur.

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. As indicated by project biologists, it provides better opportunities for constructing safe and effective wildlife crossings.

Lane Configurations B, C and D, each providing four lanes for highway traffic, will increase the highway's capacity to several times the capacity of a two-lane highway (the existing roadway or Lane Configuration A) and will ensure the highway will accommodate projected traffic volume through the design year ~~2015~~2020.

2.3.2.2 The CSKT Preferred Alternative

Details of the CSKT Preferred Alternative are presented in Section 5.4. Following is a summary of major features of the CSKT Preferred Alternative:

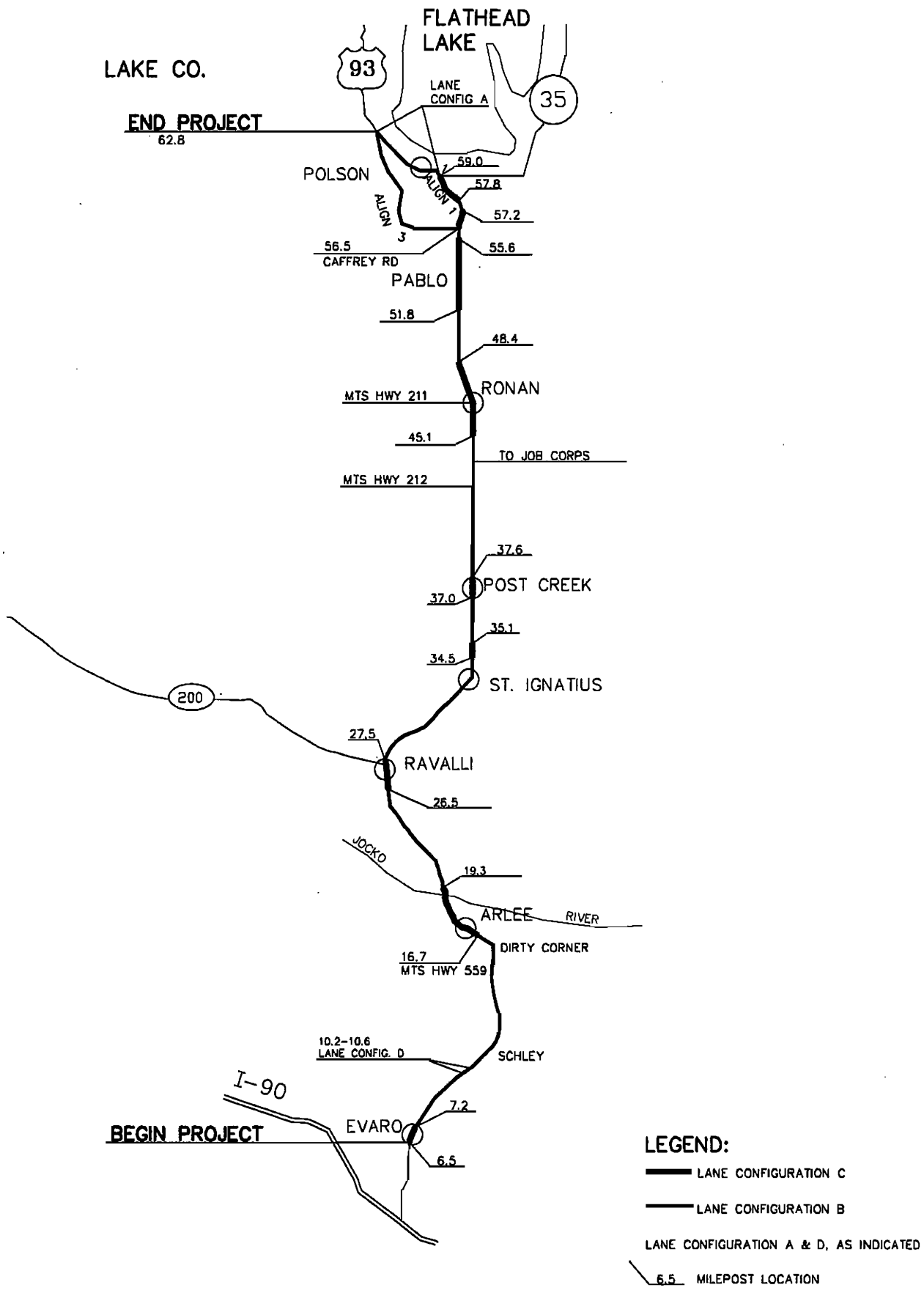
With this alternative, the existing alignment, Alignment 1, is recommended throughout the length of the proposed action. Preservation of a corridor for future highway construction is recommended in the Ronan area but not in the Arlee area. Neither an alternative route nor preservation of a corridor for 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.

Table 2.3-1 Lane Configuration of the MDT Preferred Alternative

LOCATION (Mileposts)		LANE CONFIGURATION				LOCATION DESCRIPTION
FROM	TO	A	B	C	D	
6.5	7.2			0.7		Evaro
7.2	10.2		3.0			Evaro to vicinity of Joe's Smoke Ring
10.2	10.6				0.4	Evaro wildlife corridor (Joe's Smoke Ring to Schley homesites)
10.6	16.7		6.1			Schley homesites to Jocko Road (~~MTSFAS~~ 559)
16.7	17.3			0.6		Jocko Road (~~MTSFAS~~ 559) to Arlee
17.3	18.4			1.1		Arlee
18.4	19.3			0.9		Arlee to north of Dumontier Road
19.3	26.5		7.2			North of Dumontier Road to Ravalli
26.5	27.5			1.0		Ravalli
27.5	34.5		7.0			Ravalli to north of St. Ignatius
34.5	35.1			0.6		Vicinity of Lemery/Pinsoneault roads, north of St. Ignatius
35.1	37.0		1.9			North of St. Ignatius to Post Creek area
37.0	37.6			0.6		Post Creek area
37.6	45.1		7.5			Post Creek area to area south of Ronan
45.1	46.1			1.0		Area south of Ronan
46.1	47.9			1.8		Ronan
47.9	48.4			0.5		Ronan to vicinity of Baptiste/Spring Creek roads, north of Ronan
48.4	51.8		3.4			North of Ronan to Pablo
51.8	53.6			1.8		Pablo
53.6	55.6			2.0		North of Pablo, vicinity of Courville/Light roads to North Reservoir Road/Minesinger Trail
55.6	56.5		0.9			North Reservoir Road/Minesinger Trail to Caffrey/Ford roads
56.5	57.2			0.7		Caffrey/Ford roads to highway segment with narrow width due to hill and railroad tracks
57.2	57.8		0.6			Highway segment with narrow width
57.8	59.0			1.2		Highway segment with narrow width to MT 35
59.0	61.1	2.1*				MT 35 to Flathead River bridge, Polson
61.1	62.8	1.7**				Flathead River bridge to end of proposed action, Polson
SUBTOTAL: EXISTING ALIGNMENT		3.8	37.6	14.5	0.4	
56.5	62.8		5.8			Alignment 3 around Polson
TOTALS		3.8	43.4	14.5	0.4	

Morrison-Maierle and Carter Burgess, 1994.
* No change in existing lane configuration. ** Addition of a continuous two-way left-turn center median.



LANE CONFIGURATION OF THE MDT PREFERRED ALTERNATIVE FIGURE 2.3-2

2.4. SUMMARY OF IMPACTS OF THE MDT PREFERRED ALTERNATIVE

Tables 5.2-1 through 5.2-4 present a comparison of environmental impacts for No Action and each of the alignment alternatives and lane configuration alternatives under consideration. Major environmental impacts of the MDT Preferred Alternative are summarized in following paragraphs.

- The capacity of the highway will be increased substantially, which will result in traffic operation at LOS B in the design year, instead of LOS F with No Action. Operating efficiency will be improved substantially, reducing congestion ~~and congestion will be eliminated.~~

- ~~Accident rates and frequencies are expected to decline. In particular, b~~Based on ~~similar~~ experience near the proposed action, serious accidents involving injuries and fatalities are expected to decline substantially.

- With the implementation of partial access control and land use planning and regulation, strip development and other highway-related development can be better controlled.

- Approximately 360~~370~~ acres of land will be converted to new highway ROW.

- Approximately 46 acres of farmland that is prime or unique farmland or farmland of statewide or local importance will be converted to highway ROW. Most of this conversion is caused by Alignment 3 in Polson.

- The physical prominence of the highway will increase with related barrier effects and visual effects.

- The highway will be more desirable for commuters, which may encourage population growth.

- Carbon monoxide (CO) will be substantially less and PM_{10} concentrations will be slightly less than for No Action ~~emissions will decrease. PM_{10} emissions will not differ substantially from No Action except in Polson.~~ In Polson, with construction of Alignment 3, traffic volumes in the city, as compared with No Action will be substantially reduced. Traffic operation and safety in and through Polson will be improved. Impacts on businesses during construction will be less severe, and PM_{10} emissions will be reduced in the Polson non-attainment area.

- Approximately 40 acres of wetlands will be filled or otherwise destroyed by construction of the MDT Preferred Alternative. These wetlands will be replaced by wetlands developed to provide similar or better functions and values. Replacement wetlands generally will be farther from the highway, which will be beneficial to wildlife.

- Special wildlife crossings will be constructed in the Evaro area and other areas of the proposed action. Wildlife crossings may benefit grizzly bear and other wildlife species by improving migration routes and decreasing or avoiding highway mortality.

- Direct use of land from several Section 4(f) properties will be required.

- Relocation of several buildings, including approximately five~~eight~~ residences, will be required on the existing alignment. Relocation of approximately three residences will be required on Polson Alignment 3.

- Continuation of major highway traffic through Arlee and Ronan will continue adverse traffic operation and safety conditions. Short-term impact to some businesses will occur during construction.

- Approximately 40.42 wetland acres and 7.65 acres of non-wetland riparian vegetation would be lost to construction over the 15 to 20 year construction period. Additionally, approximately 0.18 acre of non-wetland waters of the U.S. would be filled during construction of the new bridge over the Flathead River on Polson Alignment 3.

2.5. AREAS OF CONTROVERSY

Areas of controversy related to the proposed action include:

- Whether the benefits of the construction of a four-lane highway, which will improve safety and increase traffic carrying capacity by several times, outweigh environmental impacts, such as contributing to increased numbers of commuters in the growing population. A survey conducted in 1994 for CSKT, of both tribal members and non-tribal members living on the Flathead Indian Reservation, indicates agreement that serious problems exist with driving conditions on many sections and overall on the highway. Approximately 55% of both groups rated overall driving conditions as having serious problems. The survey also indicated that 63% of tribal members and 63% of non-tribal members either supported or strongly supported converting US 93 to an undivided four-lane highway with turn bays at intersections (Lane Configuration B). Overall, there was more support for a four-lane highway than a two-lane highway, but tribal members indicated more support than non-tribal members for a two-lane highway. Approximately 47% of tribal members, compared with 31% of non-tribal members, either supported or strongly supported maintaining US 93 as a two-lane highway and adding turn bays and passing lanes[1].

- Concern that construction of a substantially improved highway will contribute to changes in the rural character of the Flathead Indian Reservation.

- Concern that construction of a substantially improved highway will adversely impact traditional cultural values of the Flathead Indian Reservation.

- Whether the benefits of improved safety and traffic operation, which will occur if new highway routes are constructed around the communities of Arlee, Ronan and Polson, outweigh the adverse economic impacts that may occur to existing highway-oriented businesses.

2.6. UNRESOLVED ISSUES WITH OTHER AGENCIES

~~Major unresolved i~~Issues that require resolution include:

- A final~~draft~~ Section 4(f) evaluation has been completed (Chapter 12). A determination has been made that there are no feasible and prudent alternatives that will avoid Section 4(f) use~~; has not yet been made. This item will be completed in the final Section 4(f) evaluation that will be included with the final EIS.~~

[1]Bioeconomics, Inc. and Boyer Consulting Services, Draft, U.S. Highway 93 Corridor Use and Opinion Survey, Summary Results and Survey Methodology, 10 November 1994, Pages 10-11. The percentages do not add to 100% because some respondents indicated support or strong support for both improvement alternatives and some indicated support for neither.

- A land use study is being completed by CSKT and Lake and Missoula counties, with support from MDT, to better define existing and future land use concerns. ~~Information and recommendations from this study will be included in the final EIS.~~

- A TDP is being completed by MDT for Lake County~~; results and recommendations related to the TDP will be included in the final EIS.~~

- The proposed action has been coordinated with CSKT, which has recommended a preferred alternative that has some similarities and some differences with the MDT Preferred Alternative~~, which has not yet expressed an opinion for a preferred alternative.~~ Section 2.3.2 presents details about the MDT Preferred Alternative and the CSKT Preferred Alternative.

~~An Aquatic Lands Conservation Ordinance (ALCO) 87-A permit will be required for all stream and drainage crossings of the proposed action. The CSKT Shoreline Protection Office (SPO) will administer the ALCO permit process.~~

2.7. OTHER FEDERAL AND TRIBAL ACTIONS REQUIRED

Other federal actions that must be completed include the following:

- A Section 404 (of the Clean Water Act) permit will be required from the U.S. Army Corps of Engineers for areas where construction of the proposed action will result in discharge of dredged or fill material into streams or wetlands. A draft Section 404(b)(1) evaluation has been included in Appendix C~~, and a final Section 404(b)(1) evaluation will be included in the final EIS.~~

~~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 discussed in the final EIS.~~ The required regional analysis and conformity determination for the MDT Preferred Alternative in the Polson and Ronan PM_{10} nonattainment areas, has been completed by the Montana Department of Transportaion and approved by the Federal Highway Administration. It is included in Appendix F of this final EIS. The analyses show that, in both Polson and Ronan, the MDT Preferred Alternative (also 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.

- Floodplain permits from the local floodplain coordinators and the Federal Emergency Management Agency will be required for all stream crossings located in delineated floodplains.

- Water quality standards by the state of Montana do not apply on the Flathead Indian Reservation. On 27 February 1995, the U.S. Environmental Protection Agency (EPA) approved the application from CSKT for "treatment as a state" (TAS) to administer Section 303 of the Clean Water Act. CSKT has adopted water quality standards of reservation-wide applicability, effective 27 April 1995.

- An Aquatic Lands Conservation Ordinance (ALCO) 87-A permit will be required for all stream and drainage crossings of the proposed action. The CSKT Shoreline Protection Office (SPO) will administer the ALCO permit process. A separate ALCO permit will be needed for each action considered to be a project by the tribal SPO.

2.8. SUMMARY OF MITIGATION MEASURES

Right-of-Way and Access Control

Property that is required for construction will be subject to the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

Air Quality

- Gravel and dirt shoulders will be surfaced.
- Curbs and gutters will be added in Arlee, Ravalli, Ronan, Pablo, and Polson.
- Gravel and dirt approaches will be consolidated wherever possible and surfaced from the edge of the highway ROW.
- The proposed action will provide new surfacing throughout.

Water Quality

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

Wetlands

Replacement will 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 wetland mitigation plan has been prepared which demonstrates that losses of wetland functions and values anticipated with the proposed action will be replaced. Mitigation of the unavoidable wetland losses resulting from the improvement of the highway will be accomplished using a combination of on-site and off-site mitigation.

Riparian Areas

Mitigation for loss of riparian areas primarily will be achieved through protective purchase and enhancement of a parcel of land that contains Post Creek and is adjacent to US 93. The wetland/riparian zone bordering Post Creek is considered an extremely high value corridor for grizzly bears and other wildlife. Existing riparian and wetland vegetation along the creek will be enhanced through planting of woody vegetation and exclusion of grazing.

Fish and Wildlife

- Culverts in streams will be designed and constructed to not inhibit fish passage.

- Site specific designs will be developed for key stream crossings.

- Wildlife crossing structures are planned to help reduce impacts to wildlife, including grizzly bear and grey wolf.

Cultural Resources

A consultation process for design engineers and representatives of the Flathead and Kootenai culture committees will address culturally significant areas. Coordination with representatives of the culture committees will occur prior to the beginning of each design project and continue through the construction phase.

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 ROW 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.

Hazardous Materials

Various potential hazardous material sites exist within or adjacent to the ROW of the existing highway. Where necessary, a Phase II hazardous materials assessment will be conducted so sites of concern will be further defined or evaluated and removal or mitigation plans will be completed and implemented.

Visual

Mitigation measures to mitigate impacts to visual resources will include:

- 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.

Relocations

Federal highways are subject to provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended).

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.

Construction

An erosion control plan will be developed to avoid impacts to streams and other features during and after construction.

Inconvenience and delay to travelers on the highway will be minimized, to the extent practical, by developing and following a carefully planned traffic control plan.

U.S. HIGHWAY 93
FINAL ENVIRONMENTAL IMPACT STATEMENT

TABLE OF CONTENTS

Note: More detailed tables of contents are included at the beginning of each of the above sections.

TABLE OF CONTENTS

LIST OF FIGURES

4. PURPOSE AND NEED FOR ACTION

The purpose of the proposed action is to improve the transportation system on U.S. Highway 93 (US 93) from Evaro, Montana (approximately 6.5 miles north of Interstate Highway 90 near Missoula, Montana) through Polson, Montana (a distance of approximately 56.3 miles). It is anticipated the proposed action will be constructed with several separate construction projects.

Alternatives under consideration to improve the highway are described in Chapter 5 and are evaluated in detail in Chapters 6 and 7.

US 93 is important to local, regional and nationwide transportation; the volume of traffic is high, has been steadily increasing and is projected to continue to increase. The existing roadway has various geometric features that do not meet current guidelines and standards for safety and design. Existing level-of-service (LOS) is poor, and it is projected that traffic volume will exceed capacity by the design year ~~2015~~2020.[1] With the high volume of traffic, the accident rate is similar to the statewide accident rate, while accident numbers per mile are substantially higher than statewide averages.

The following sections provide additional detail and explain the need for improvement of the highway.

4.1. SYSTEM LINKAGE

Highway improvement that will preserve and enhance US 93 is needed because of its importance to the transportation system of Lake and Missoula counties, the Flathead Indian Reservation, western Montana, and the western United States.

Nationally, US 93 traverses the United States in generally a north-south direction from the Canadian border to near the Mexican border, passing through the states of Montana, Idaho, Nevada and Arizona.

US 93, which is the major north-south transportation route in western Montana, is functionally classified as a principal arterial and a rural primary highway. It is part of the National Highway System (NHS)~~, as established by the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991.~~ Prior to NHS~~ISTEA~~, this highway was part of Montana's Federal Aid Primary (FAP) highway system. The Confederated Salish and Kootenai Tribes (CSKT) have not agreed to the designation of US 93 as a part of the NHS.

US 93 is part of an extensive system of rural arterial routes that support the interstate highway system. Other highways in the region are: I-90; Montana highways (MT) 28, 35, 135, and 200 in Lake and Sanders counties; MT 83, which is east of US 93 across the Mission Mountains 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. US 93 provides transportation services to an area that spans six major valleys in Montana: Flathead, Mission, Jocko, Missoula, Swan, and Bitterroot. US 93 is the major transportation route providing access to Flathead Lake and Glacier National Park. There are no north-south interstate highways in northwestern Montana. (Figure 5.1-6)

[1]It is anticipated that the earliest sections of highway improvements will be completed no sooner than the year ~~1995~~2000. It is considered desirable to design highway improvements to accommodate projected traffic demand for at least 20 years after the implementation. The year ~~2015~~2020 is, therefore, considered the "design year" for the proposed action.

~~The federal and state governments operate the primary and secondary highways as part of the transportation system.~~ Lake County operates approximately 1,200 miles of rural roads with mostly gravel surfaces. In the southern part of the area of the proposed action, Missoula County maintains rural roads with gravel surfaces.[2] The CSKT Roads Program~~Bureau of Indian Affairs (BIA)~~ maintains rural roads that interconnect with county and private roads on the Flathead Indian Reservation.

4.2. TRANSPORTATION DEMAND

Improvement to the existing transportation system along US 93 is needed to safely and efficiently accommodate existing and projected future transportation demand through the design year ~~2015~~2020.

Excluding the segments of highway in the incorporated cities Ronan and Polson, US 93 has average daily traffic (ADT) that ranges from ~~5,200 at the permanent counter south of Ravalli~~5,300 south of MTS 212 to more than ~~7,900~~10,000 between Pablo and Polson. The level of ADT from Evaro through Polson generally is between two- and three-times higher than ADT for other rural primary highways in Montana, and it is six-times higher than MT 83 in the Swan Valley. Other rural primary highways in the state generally operate at LOS A or B, compared with LOS D on US 93. (Sections 4.4 and 6.1 and Figure 4.2-1)

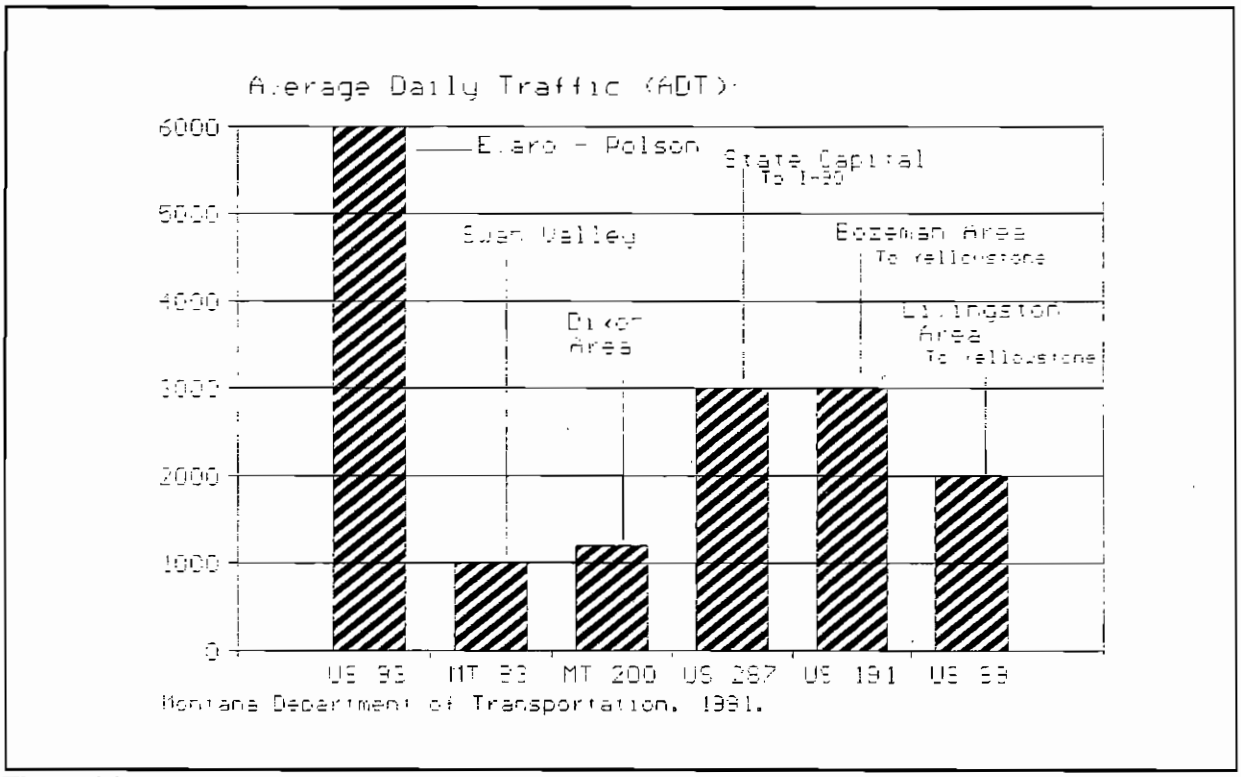


Figure 4.2-1 Average Daily Traffic (ADT) on Two-Lane Highways Outside Communities

As indicated in Section 6.1.4, average annual growth in traffic volume on US 93 has been approximately three percent during the past 20 years. Existing traffic demand is high and, as indicated in Section 7.1.1, this growth rate is projected to continue, with or without improvement of the highway, which means that traffic volume on the

[2]The Lake County Overall Economic Development Plan, 1990 Update; P. 13.

highway will approximately double by the design year ~~2015~~2020. As indicated in Section 4.4, this increasing traffic volume is currently straining the existing highway system and is projected to cause serious operational and congestion problems in the future.

The percentage of trucks in the traffic stream is between 10 and 13.7%. This percentage is expected to continue through the design year.

The increased traffic demand is a result of the growing population in the region. US 93 from Evaro through Polson provides transportation for the local area and the regional population throughout western Montana. The western part of the state has experienced a high rate of population growth since 1970. An eight-county area of western Montana, including Lake, Missoula, Flathead, Sanders, Ravalli, Mineral, Lincoln and Granite counties, had 52% of all population growth in Montana between 1970 and 1990. During that 20-year period, the population of the eight counties increased from 23 to 27% of the total population in the state.[3]

Between 1970 and 1990, the populations of Lake, Missoula and Flathead counties increased by 42%, while the overall population of Montana increased by 15%; during the 20-year period the population of the Flathead Indian Reservation increased by 37%.[4] (Figure 4.2-2 and Section 6.4)

4.3. ROADWAY DEFICIENCIES

Improvement of US 93 is needed to correct deficiencies in the existing highway to meet current design and safety standards for a design speed of 60 miles per hour (mph). As explained in Section 6.1.2, the existing highway fails to meet current safety and design standards for a design speed of 60 mph for a rural arterial highway in various categories including those described in following paragraphs. There are two horizontal curves that are

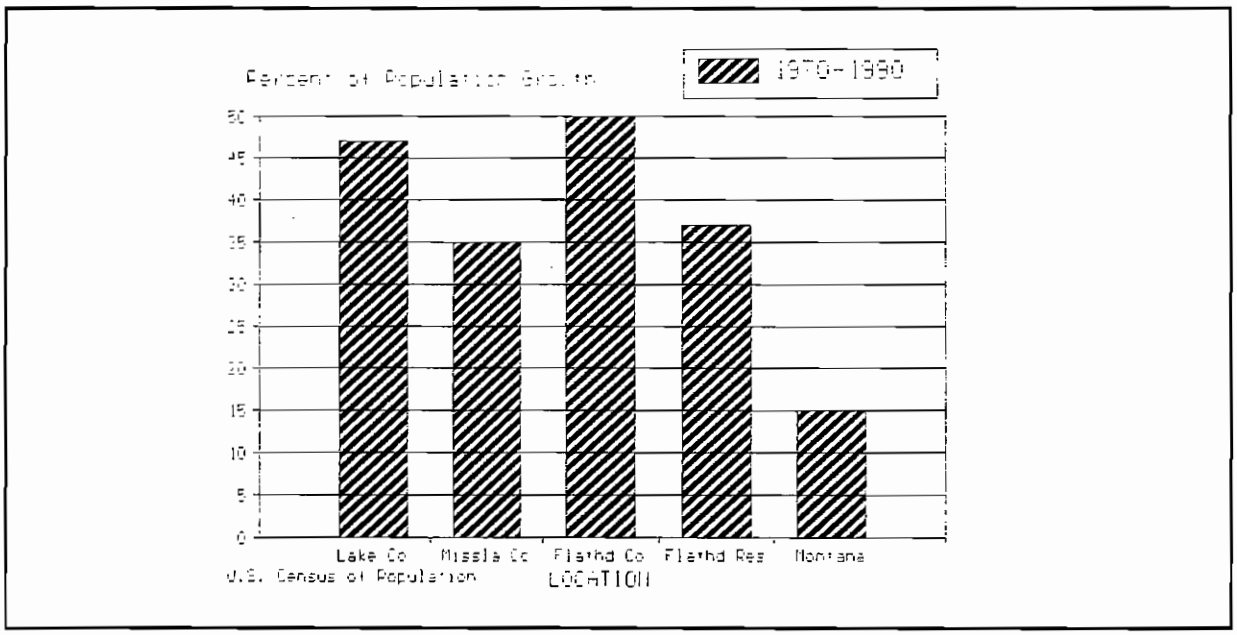


Figure 4.2-2 Rate of Population Growth

[3]U.S. Department of Commerce, Bureau of the Census. Census of Population. 1970-1990.
[4]U.S. Department of Commerce, Bureau of the Census. Census of Population. 1970-1990.

substandard.[5] These curves reduce sight distance, increase the possibility for vehicles going out of control and leaving the highway, create a speed differential in the traffic stream, increase chances for rear-end collisions~~, reduce capacity and LOS,~~ and reduce vehicle efficiency. (Table 6.1-3)

Vertical grades on four different sections of the roadway are substandard.[6] Vertical grades that are steeper than standard substantially reduce the speed of trucks, recreational vehicles (RVs) and other heavy vehicles, and they begin to reduce the speed of some passenger cars. This also affects safety by creating a speed differential in the traffic stream, increasing the potential for rear-end collisions. The speed differential also reduces capacity and LOS, and it increases driver frustration -- some drivers begin to pass where it is unsafe. (Table 6.1-4)

Twenty vertical curves do not provide adequate stopping sight distance for a 60 mph design speed.[7] Vertical curves that are inadequate for the design speed provide inadequate sight distance and therefore increase the possibility of accidents. (Table 6.1-5)

Paved roadway shoulder width (the paved area of the roadway outside the driving lanes) is generally substantially less than the eight-foot width considered standard and desirable for rural arterial highways with high traffic volumes. Space is therefore limited and not sufficient 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, there is a decrease in safety and driving comfort, or convenience.

In Polson, an inadequate storm-runoff drainage system results in run-off directly into Flathead Lake, and inadequate bridge shoulders result in accidents as vehicles attempt to pass. The current bridge over the Flathead River at Polson doesn't have a passing lane.

4.4. CAPACITY AND LEVEL-OF-SERVICE

The proposed action is needed to improve the existing poor LOS and to attain a desirable LOS through the design year ~~2015~~2020 by: 1) improving the highway to adequately accommodate existing and future traffic demand, and; 2) by participation in development of transportation demand management (TDM) measures to manage the growth of traffic.

In rural areas, desirable operation is defined as LOS B or better. In communities such as Arlee, Ronan, Pablo and Polson, desirable operation is defined as LOS C or better.

The capacity of the highway is reached when traffic operation is represented by LOS E. As traffic demand exceeds the capacity (LOS E), congestion and unstable flow occurs and flow rate decreases (LOS F).

~~LOS on the existing highway is poor (LOS D and E) throughout most of the proposed action (Section 6.1.5). Unstable traffic flow begins to occur as LOS D is approached on a two lane highway. The two opposing traffic streams begin to operate separately, as passing becomes difficult. Passing demand is high, while passing capacity approaches zero. Average platoon sizes of five to 10 vehicles are common. Turning vehicles and/or roadside distractions cause major speed reductions in the traffic stream. The percentage of time motorists are delayed approaches 75% of overall travel time.~~The existing highway is generally operating at LOS D and E.

---

[5]Three of the five horizontal curves listed on Table 6.1-3 are in developed areas in or near the city of Polson. These horizontal curves are not considered substandard because the travel speeds in this area are well below 60 mph.

[6]Four of the eight vertical grades listed on Table 6.1-4 are in developed areas in or near the city of Polson. These grades are not considered substandard because the travel speeds in this area are well below 60 mph.

[7]Eleven of the 31 vertical curves listed on Table 6.1-5 are in developed areas in or near the city of Polson. These vertical curves are not considered substandard because the travel speeds in this area are well below 60 mph.

At LOS D, passing demand is high while passing capacity is near zero. Platoons are forming in the traffic stream and the percentage of time motorists are delayed approaches 75%. At LOS E, passing is virtually impossible, platooning becomes intense and vehicles are delayed more than 75% of the time.

It is projected that, with no substantial improvement by the design year, traffic demand on the existing highway will exceed capacity and will be operating at LOS F. (Section 7.1.2.2) LOS F represents heavily congested flow with traffic demand exceeding capacity. Breakdowns in the flow of traffic, with related formation of queues and reductions in travel speed, occur frequently. Under these conditions, the capacity of the highway decreases.

Poor traffic operation and congestion on US 93 will result in the following types of conditions:

- As LOS deteriorates, frustration levels of drivers increase and some drivers begin to take chances, begin to follow other vehicles too closely and attempt to pass where it is unsafe. As a result, head-on and rear-end collisions increase.

- As indicated in Section 7.4, as the volume of traffic increases, US 93 will become more of a barrier. If the highway is not improved, there will be increased concentrations of traffic. Longer platoons of vehicles will further restrict the continuous flow of traffic. It will be increasingly difficult to have access to and from the highway for residential, commercial, industrial, agricultural, public and other open areas. Some alternatives for improvement of the highway will provide additional traffic lanes, including left-turn bays and continuous two-way left-turn center medians, to improve vehicle access to and from the highway.

- As indicated in Section 7.4, congestion caused by traffic volume that exceeds capacity disrupts neighborhoods, communities and rural areas outside communities by affecting residents' ability to meet casually and associate freely. Traffic congestion causes reduced association with neighbors, disruption of living patterns, and reduced efficiency of facilities/services.

- The increasing congestion and traffic volume that exceeds the capacity of US 93 disrupts the ability of Polson to function as a cohesive community and impedes local circulation for pedestrians and vehicles. Flathead Lake now serves as a major attribute for recreation and tourism, on which the city of Polson and CSKT are capitalizing with lake-related development such as lakeside hotels, boating and golfing. US 93 effectively bisects the central area of town from the lake, substantially reducing the ability of the town to tie into lake activities. This barrier effect of US 93 is projected to worsen as traffic volume increases. This will result in further disruption to the community, disrupting traffic and circulation, reducing the efficiency of the provision of facilities/services, and hampering the ability of Polson to capitalize on the potential of the lake for recreation and tourism.

- When traffic congestion occurs on the highway, access and travel by emergency vehicles (ambulances, fire trucks, police) are seriously hampered. Travel speeds are reduced substantially, flows are sporadic and excessive deceleration, stopping and acceleration occurs. It becomes difficult for vehicles to move off the roadway to let emergency vehicles pass. Emergency vehicles may often be forced to take less direct, alternate routes that may be substantially longer and also have low travel speeds, which could cause increases in emergency response times.

- As indicated in Section 7.5, as traffic demand increases and the highway becomes more congested, approaching unstable flows characteristic of LOS E and F, delivery of goods and services to the area and shipping of agricultural, timber and other products from the area will be hampered. The unstable flow and cyclic start and stop traffic operations will increase travel times and costs for shipping, resulting in more expensive and less reliable transportation services for the economy.

- As indicated in Section 7.7 and Appendix F, as traffic operations approach LOS E and F, air quality emissions will increase substantially because of the resulting increases in acceleration/deceleration, start/stop and vehicle idling time.

4.5. SAFETY

The proposed action is needed to improve safety and reduce the number of accidents and resulting property damage and, particularly, injuries and fatalities that have occurred on the highway in the past.

Experience with other highways near the proposed action has indicated highway improvement substantially reduces the number and severity of accidents. As indicated on Table 6.1-10, fatalities were eliminated in the first five years and injuries were reduced by two-thirds when the approximately six miles of US 93 between I-90 and Evaro was improved from two lanes to four lanes.

The accident history from Evaro through Polson, as described in Section 6.1.3 and based on information from accident reports submitted for the years ~~1987~~1990 through ~~1991~~1994, indicates that:

- Approximately ~~702~~750 accidents occurred during the five-year period.
- There were 16 fatal accidents that resulted in ~~17~~24 fatalities and ~~278~~320 accidents that resulted in injuries. ~~Seven of the fatalities were American Indians.~~
- There were substantially more accidents per mile on this roadway (~~2.49~~2.66) as compared with the statewide average (~~0.50~~.53). ~~(Figure 4.5-1)~~
- The accident rate (accidents per million vehicle miles) was slightly lower on this roadway (~~1.11~~.03) than the statewide average (~~1.26~~1.30).
- Though it is difficult to place an appropriate dollar value on a human life or a serious injury, the estimated monetary cost of accidents that occurred on the highway during the five-year period, based on average accident costs determined by the Federal Highway Administration (FHWA), is estimated to be $~~64.7~~89.4 million, or $~~12.9~~17.9 million per year.

As indicated in Section 6.1.3, research by the Montana Multi-Disciplinary Traffic Safety Task Force shows this section of US 93 as having a high number of traffic collisions and a large percentage of accidents involving older drivers.

Recommendations for improvement were made by the task force particularly to target and reduce accidents for elderly drivers that should, at the same time, benefit all drivers: Various measures for improving visibility of signs, pavement markings and signals; adding designated left-turn bays; removing or improving unsafe slopes and obstacles; reducing the number and improving the design of approaches to the highway; and other measures.

As listed on Table 6.2-4, there are approximately 681 approaches to the existing highway. These include highway and street intersections; residential, commercial and industrial driveways; farm field approaches; and others.

Junction density is particularly high in communities such as Arlee, Ronan and Polson. The number of private approaches to the highway is increasing steadily as population increases and development occurs in the area.

Some of these approaches have undesirable intersection angles with the highway, creating difficulty for drivers to see approaching vehicles and also encouraging improper turns and failure to stop or yield. Some of the approaches have grades that are too steep. This creates difficult and unsafe stopping conditions for vehicles approaching the

highway downhill and difficult starting and acceleration for vehicles approaching uphill, particularly on slick surfaces.

The density of junctions to a highway is an important contributor to the accident rate on a rural arterial highway. As indicated on Table 6.1-7, ~~241~~272 (~~34~~36%) of the recorded accidents on US 93, including the incorporated cities Ronan and Polson, involved approaches; they occurred at intersections of the highway with other roads; or they were related to intersection or driveway access.[8] ~~Excluding Ronan and Polson, 32% of accidents involved approaches, compared with 31% statewide. The percentage of accidents at intersections and related to intersections on US 93 is similar to statewide, but the percentage of accidents on US 93 involving driveway access, which primarily serves residential or business development, is more than 60% higher than statewide for rural primary highways. (Figure 4.5-2 and Sections 4.3 and 6.1)~~

It is likely that approaches contribute to other types of accidents by distracting drivers or by causing them to veer away from the approach and move closer to the roadway centerline. High junction density also contributes to substantial reductions in the capacity, service level and driving comfort of the highway.

[8]Montana Department of Transportation and Montana Department of Justice. Accident Records System. 1987-91.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

5. ALTERNATIVES

This section of the ~~draft~~final environmental impact statement (EIS) describes alternatives under consideration for the proposed action and identifies alternatives that will be evaluated in detail in later sections of the document (Section 5.1); summarizes and compares the alternatives (Section 5.2); and identifies the Montana Department of Transportation's (MDT) Preferred Alternative and the Confederated Salish and Kootenai Tribes' (CSKT) Preferred Alternative~~preferred alternative~~ and explains reasons for selection (Section 5.3).

5.1. ALTERNATIVES UNDER CONSIDERATION

The National Environmental Policy Act of 1969, as amended, (NEPA) requires evaluation of reasonable alternatives related to the proposed action, including No Action.

Alternatives were developed for the proposed action based on written and oral comments received during the public scoping process, on coordination by MDT with CSKT, local, state and federal agencies interested in the proposed action, and on engineering and environmental studies. (Chapter 10)

Alternatives that have been developed are described in the following sections and include No Action (Section 5.1.1), alignment alternatives (Section 5.1.2), lane configuration alternatives (Section 5.1.3), Transportation Demand Management (TDM) alternatives (Section 5.1.4), and alternate highway routes (Section 5.1.5). Design options that can be applied to each of the alternatives under consideration are described in Section 5.1.6.

5.1.1. No Action

With this alternative, the existing highway transportation system will receive no substantial improvement.

Although this alternative will not meet the purpose and need for the proposed action, it is evaluated in detail in accordance with NEPA and the Council on Environmental Quality (CEQ) Regulations.[1] (Chapter 4)

5.1.2. Alignment Alternatives

Various alignment alternatives are under consideration as described in the following paragraphs. Except where otherwise noted, all alignment alternatives are evaluated in detail.

5.1.2.1. Existing Alignment

This alternative consists of reconstructing the roadway in its existing corridor 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. The existing alignment, also referred to as Alignment 1, is shown on aerial photographs and maps in Appendix A.

5.1.2.2. Arlee Alignments

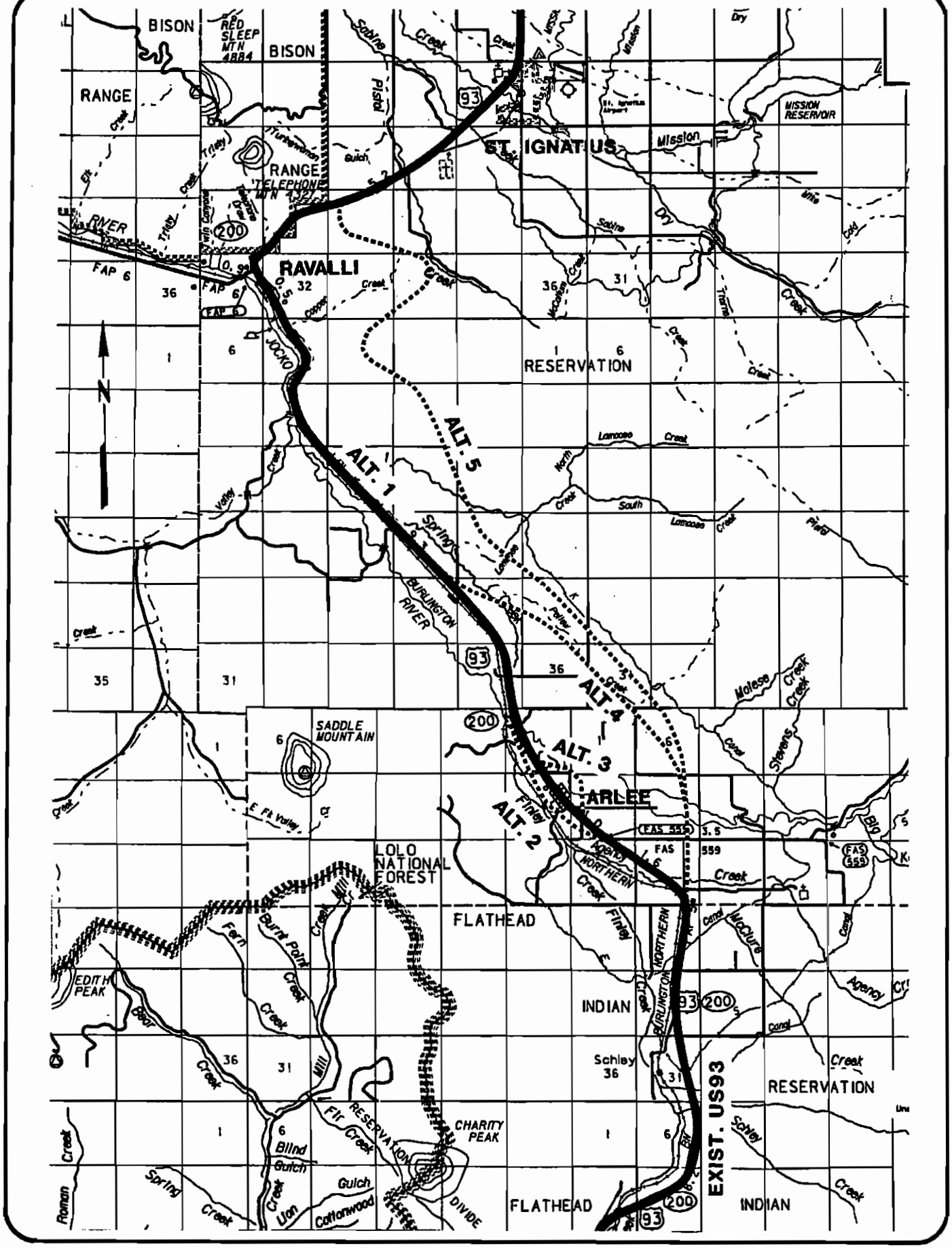
Five alignment alternatives, as shown on Figure 5.1-1 and Appendix A, are under consideration in the Arlee area:

Alignment 1, the existing alignment.

Alignment 2, an alignment west of Arlee and passing between the town and the existing railroad tracks.

---

[1]Council on Environmental Quality, Executive Office of the President, Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, 01 July 1986.



ARLEE ALIGNMENT ALTERNATIVES

FIGURE 5.1-1

Alignment 3, an alignment east of Arlee passing west of the rodeo grounds, east of the schools and southwest of the fish hatchery.

Alignment 4, an alignment that leaves U.S. Highway 93 (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.

Alignment 5, an alignment that, similar to Alignment 4, leaves US 93 at Dirty Corner (near the Missoula/Lake County line near Milepost 15.1), continues north across the Jocko River to the base of the Mission Mountains on the east side of the valley, then follows the base of the mountains to rejoin the existing highway between Ravalli and St. Ignatius. This alignment is not evaluated in detail because:

- It received substantial public opposition and only minor public support.
- It will cause substantial environmental impacts related to introducing highway traffic in an area that currently has little vehicle traffic. Related impacts will include noise, safety, visual, air quality, social and cultural resources.
- There will be substantial wetland and wildlife impacts.
- New crossings of the Jocko River and of several streams will be required.
- Large amounts of farmland will be converted to highway right-of-way (ROW). A substantial number of irrigation laterals and systems will be disrupted.
- Implementation of this alternative will create two highways through this portion of the Mission Valley -- the existing US 93 will still require maintenance to serve residences, business and communities located along its route.
- This alignment will cross hills east of Ravalli approximately 1,300 feet higher than the existing alignment. Grades will be steeper, and snow and ice accumulations will be greater.

5.1.2.3. Ronan Alignments

Four alignment alternatives, as shown on Figure 5.1-2 and Appendix A, are under consideration in the Ronan area:

Alignment 1, the existing alignment.

Alignment 2, an alignment approximately one block west of the existing alignment on First Avenue Southwest. This alignment is part of a one-way couplet and will carry southbound traffic while 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, is located 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.

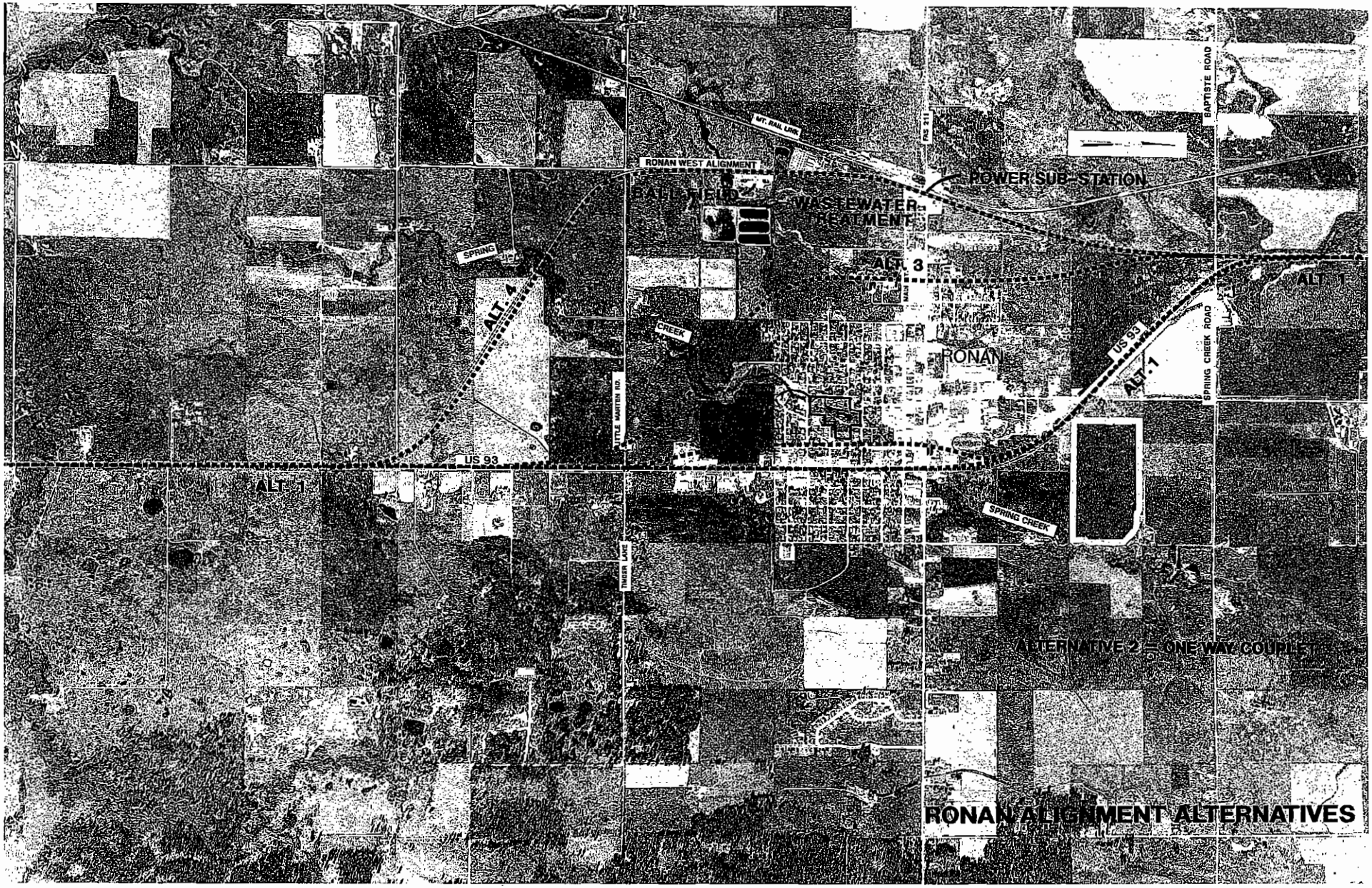

MT. RAIL LINE
RONAN WEST ALIGNMENT
BALL FIELD
WASTEWATER TREATMENT
POWER SUB-STATION
BAPTISTE ROAD
SPRING
ALT. 4
ALT. 3
ALT. 1
CREEK
RONAN
US 93
ALT. 1
SPRING CREEK ROAD
TITTLE MARTEN RD.
US 93
ALT. 1
SPRING CREEK
FINGER LAKE
ALTERNATIVE 2 — ONE WAY COUPLET
RONAN ALIGNMENT ALTERNATIVES

FIGURE 5.1-2

5.1.2.4. Polson Alignments

In Polson, objectives were developed which reflected public and agency concerns and were then used to guide the development of alternatives:

1. Maintain and enhance traffic flow.
2. Improve the safety of the transportation system.
3. Minimize negative impacts to existing residential neighborhoods.
4. Minimize negative impacts to the business community.
5. Limit construction disruption as much as possible.
6. Minimize impacts to important natural resources in the Flathead Valley.
7. Enhance and preserve recreational resources.
8. Minimize impacts of property acquisition.
9. Be responsive to long-term maintenance requirements.
10. Be responsive to future land use plans and transportation needs.

Several alignments have been developed and are under consideration as shown on Figure 5.1-3 and Appendix A:

Alignment 1, consisting of reconstructing the roadway in its existing corridor with adjustments to allow for widening, improving horizontal curves, reconstructing substandard intersections, improving vertical alignment (includes removing the road surface from the floodplain), and avoiding any important feature adjacent to the roadway. The bridge over the Flathead River will be improved or replaced.

Alignment 2, consisting of a new alignment along Caffrey Road south of Polson, then along Kerr Dam Road, across the river just east of the fairgrounds. A new bridge across the Flathead River will be constructed to continue the general Kerr Dam Road alignment straight north over the river. New intersection configurations will be needed for the intersections with Caffrey Road and US 93.

Alignment 3, which is identical to Alignment 2 for the eastern approximately 3.25 miles of the alignment along Caffrey Road. It then veers west of Alignment 2 by one-third to one-half mile, crosses the river at a point approximately 3,500 feet downstream from the Alignment 2 bridge crossing, then continues north along an alignment that is west of the airport. A new bridge across the Flathead River will be constructed.

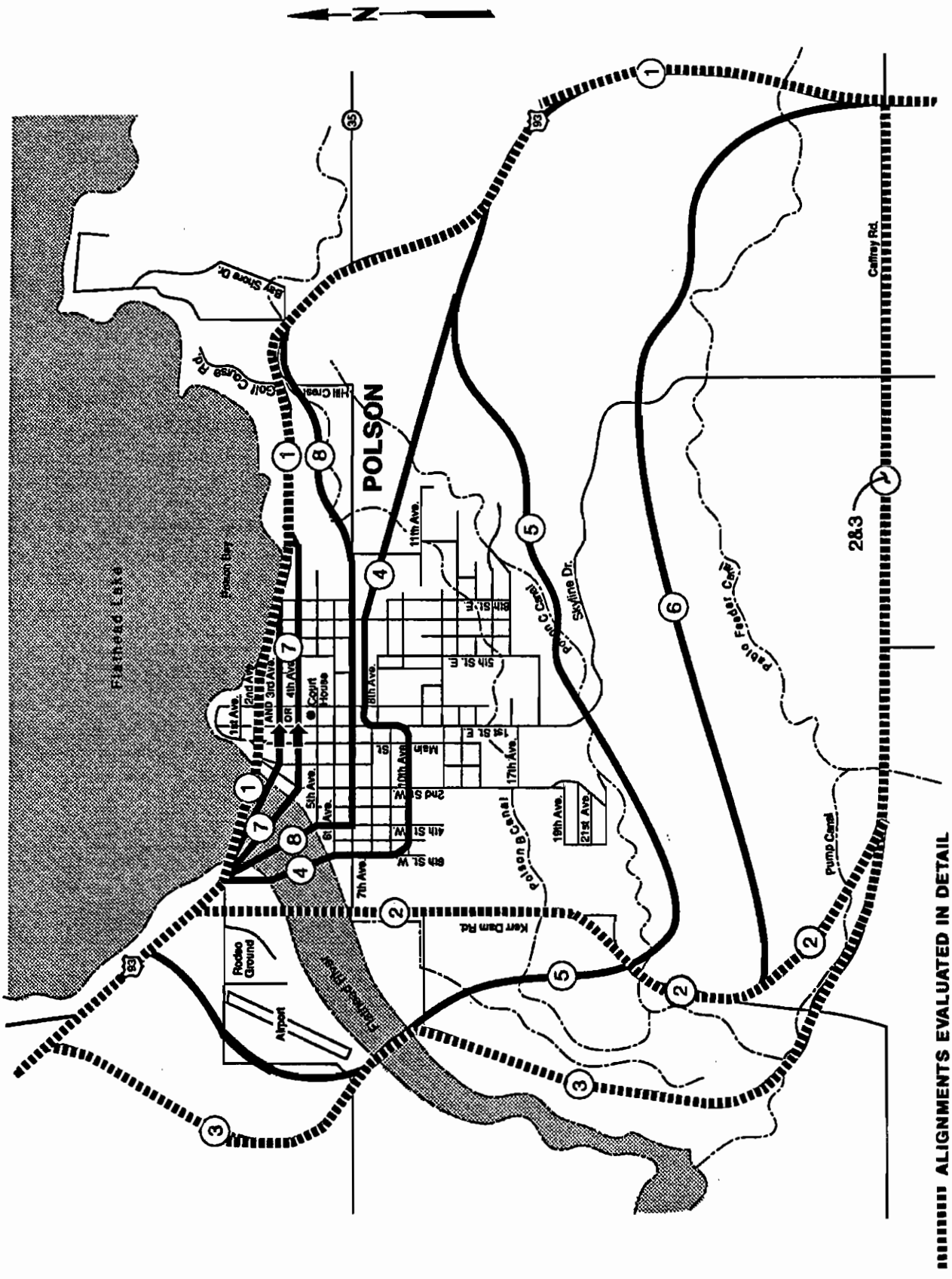
Alignment 4 (Old Mill to Eighth Avenue) is not evaluated in detail because of its circuitous, forced alignment, which will likely not meet the purpose and need; its socioeconomic impacts to residential areas on the hillside; its effects on the elementary and junior high schools; and its noise impacts. It did not meet objectives one, three and 10.

Alignment 5 (North Base of Hill) is not evaluated in detail because of its circuitous, forced alignment and six-percent grades, which will not meet the purpose and need; potential icing problems in the winter; socioeconomic impacts to residential areas; and conflict with the airport. It did not meet objectives one, two, three, nine and 10.

Alignment 6 (Top of Polson Hill) is not evaluated in detail because of its requirement for almost a mile of six-percent grade, which will not meet the purpose and need. It also would have potential icing problems. It did not meet objectives one, two and nine.

Alignment 7 (Third/Fourth Couplet) is not evaluated in detail because of its impacts on sensitive community resources such as schools, churches and the courthouse; its potential for increased pedestrian conflicts, including accidents; and its noise impacts. It did not meet objectives two, three and 10.

Alignment 8 (Railroad Alignment to Seventh Avenue) is not evaluated in detail because it will not operate well as a one-way couplet and will thus not meet the purpose and need; its impacts to the elementary and junior high schools; its effect on the fairgrounds; and its noise impacts. It did not meet objectives one, three, seven and 10.



POLSON ALIGNMENT ALTERNATIVES

FIGURE 5.1-3

5.1.2.5. Old Freight Route

This alternative (shown on the map of the proposed action in Appendix A) would consist of constructing a new roadway approximately four miles west of and generally parallel with the existing roadway along the "Old Freight Road." This alternative leaves the existing roadway near Ravalli or near St. Ignatius and passes either east or west of the National Bison Range, then continues north to the city of Polson.

This alternative is not evaluated in detail because:

- It received substantial public opposition and only minor public support.
- It will cause substantial environmental impacts related to introducing substantial highway traffic into an area that currently has little vehicle traffic. Related impacts will include noise, safety, visual, air quality and cultural resources.
- Wetland impacts will be at least equal to and possibly greater than impacts along the existing roadway.
- Large amounts of farmland will be converted to highway ROW.
- Implementation of this alternative will create two highways through this portion of the Mission Valley. Existing US 93 will still require maintenance to serve residences, business and communities along its route.
- This alternative will divert motor vehicle traffic on the existing highway away from the towns of St. Ignatius, Ronan, Pablo and Polson. St. Ignatius and Ronan have indicated opposition to any highway relocation that will divert highway traffic. As a result of and in accordance with Montana Code Annotated (MCA 60-2-211 Bypassing of Municipalities -- Consent of Municipal Governing Body), these alignments cannot be constructed by MDT without approval of the municipality.

5.1.3. Lane Configuration Alternatives

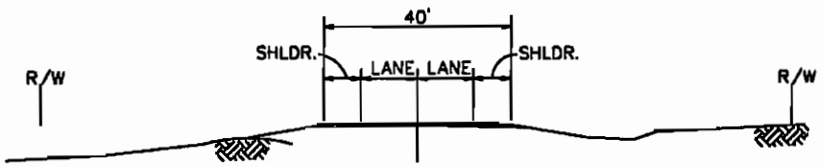
The following sections and Figure 5.1-4 describe and show lane configuration alternatives that are under consideration for each segment of the highway.

5.1.3.1. Lane Configuration A is a two-lane, two-way highway. Where needed, passing lanes will be added for short distances, designated left-turn bays will be constructed at selected intersections and continuous two-way left-turn center medians will be constructed where there are high numbers of intersections and driveways. (Figure 5.1-5)

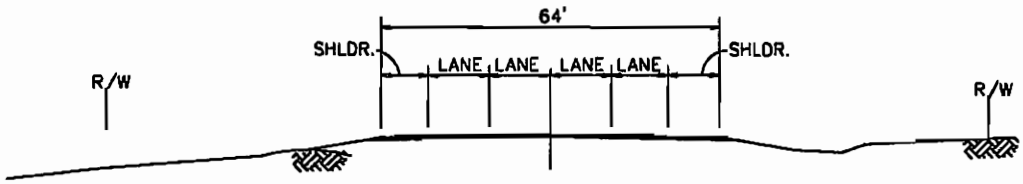
Slow-vehicle turnouts have been suggested for inclusion with this lane configuration to allow large, slow-moving trucks and recreational vehicles (RVs) to pull off the roadway and allow long traffic queues to clear. This option is not considered with this lane configuration because traffic volume is too high to allow them to operate properly.

When slow-moving vehicles pull off and stop, the high traffic volume will make it difficult and unsafe for them to reenter the highway and accelerate to reasonable highway speeds. The state of Oregon has used this concept in the past and has determined that it is not appropriate for high volume arterial highways.[2]

[2]Tabeary, Vern. Oregon Department of Transportation. Telephone Conversation. November 1993.



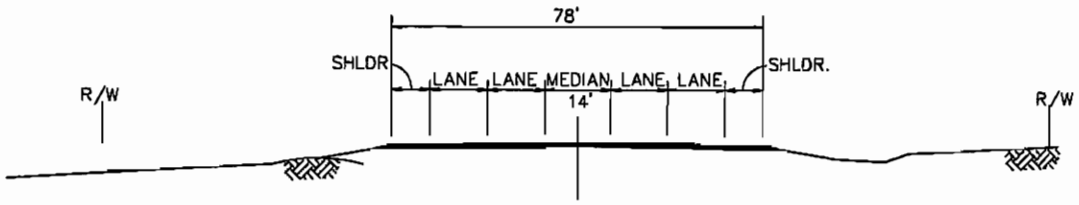
LANE CONFIGURATION A
2 LANE RDWY
MINIMUM RIGHT OF WAY WIDTH, 160 FT.



LANE CONFIGURATION B
4 LANE RDWY.
GENERAL RIGHT OF WAY WIDTH, APPROX. 180 FT.

NOTE:
EXCEPT WHERE OTHERWISE NOTED, LANES ARE 12.0' WIDE, SHOULDERS ARE 8.0' WIDE.

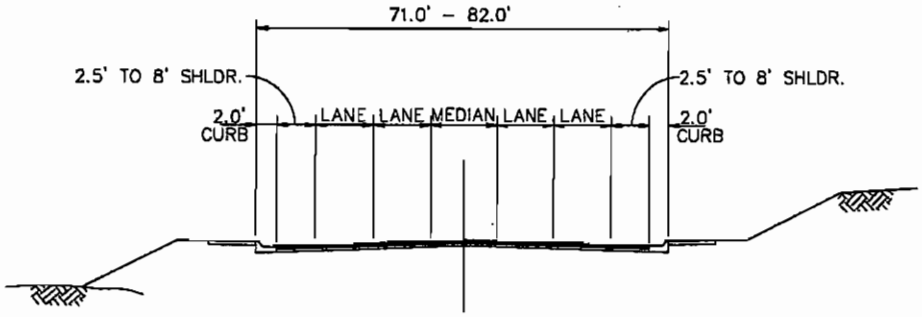
LANE CONFIGURATION ALTERNATIVES **FIGURE 5.1-4**



LANE CONFIGURATION C

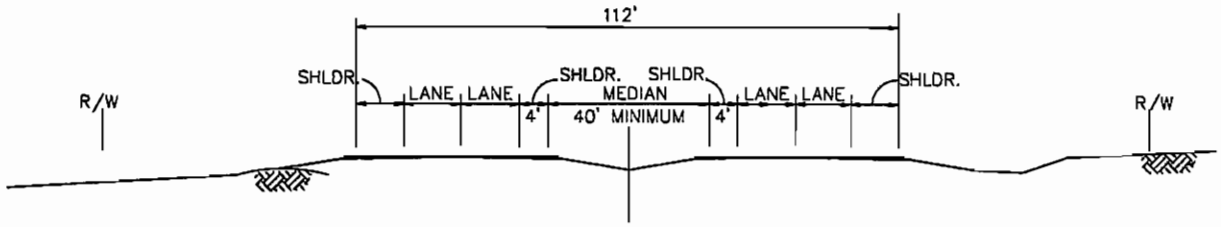
4 LANE WITH MEDIAN/LEFT TURN BAY

GENERAL RIGHT OF WAY WIDTH, APPROX. 200 FT.



LANE CONFIGURATION C

4 LANE WITH MEDIAN/LEFT TURN BAY WITH CURB & GUTTER



LANE CONFIGURATION D

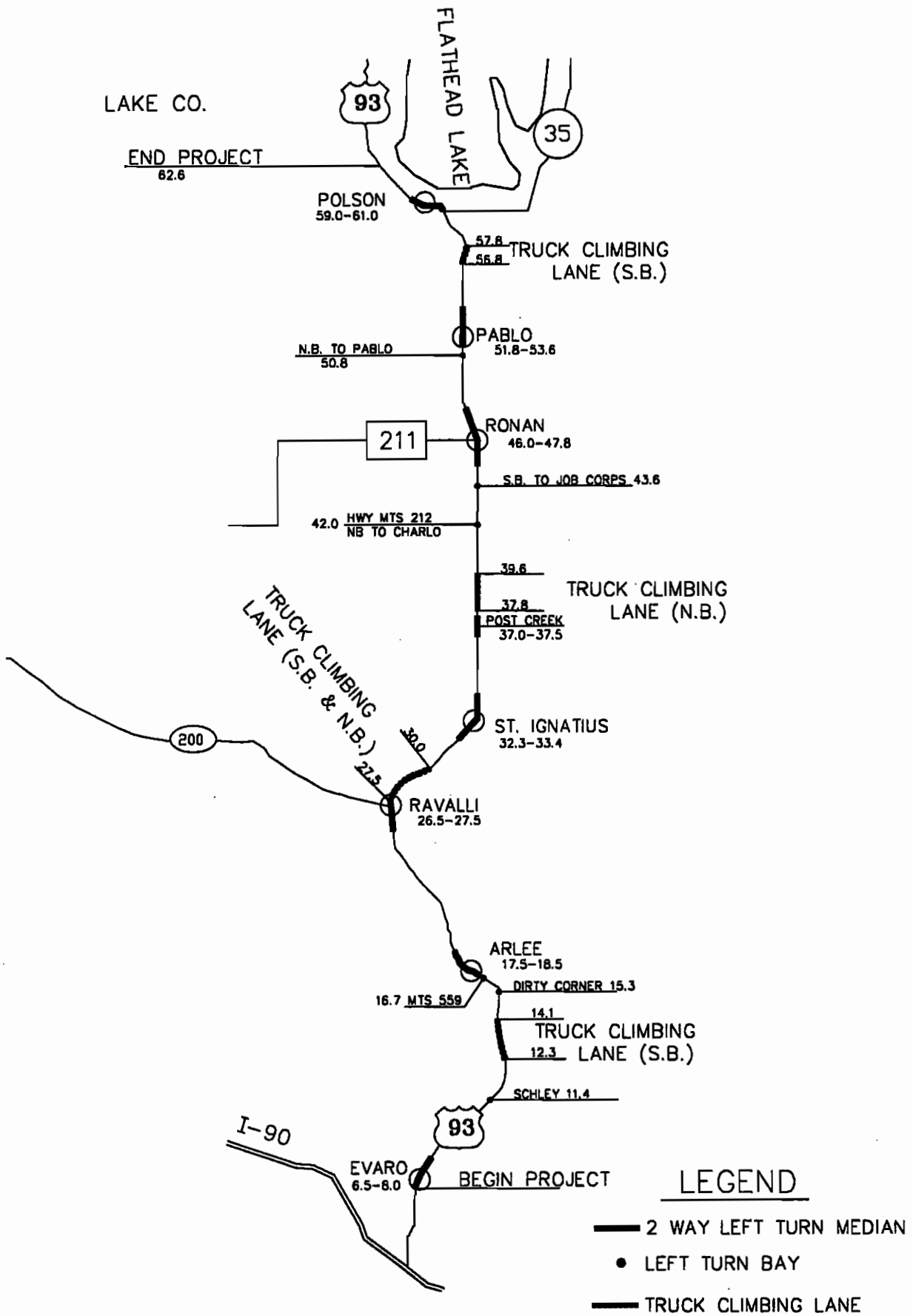
4 LANE DIVIDED

GENERAL RIGHT OF WAY WIDTH, APPROX. 220 FT.
PAVEMENT WIDTH, 72' TOTAL(36' EACH SIDE)

NOTE:

EXCEPT WHERE OTHERWISE NOTED, LANES ARE 12.0' WIDE, SHOULDERS ARE 8.0' WIDE.

LANE CONFIGURATION ALTERNATIVES (CONT.) FIGURE 5.1-4



LANE CONFIGURATION A **FIGURE 5.1-5**

5.1.3.2. Lane Configuration B is a four-lane highway with two traffic lanes in each direction. ~~As indicated in Section 5.1.6, a four-foot painted center median may be added to this configuration to separate opposing lanes of traffic.~~ Designated left-turn bays will be constructed at selected intersections.

5.1.3.3. Lane Configuration C is a four-lane highway with a continuous two-way left-turn center median.

5.1.3.4. Lane Configuration D is a four-lane highway with a divided, unpaved center median at least 40-feet wide. Designated left-turn bays will be constructed at important intersections.

5.1.4. Transportation Demand Management

Transportation Demand Management (TDM) alternatives will include various measures that might help to reduce the traffic demand on the existing US 93 and thereby preserve or enhance traffic operation with highway improvement. These alternatives also were evaluated to determine whether development of reasonable and cost-effective TDM measures will reduce or eliminate the need for highway improvement.

TDM measures could include ride-sharing (e.g., car pools and van pools), pedestrian/bicycle facilities, bus transit, rail transit (freight and passenger), air transit and alternate highway routes. Alternate highway routes are discussed in Section 5.1.5. An analysis of TDM alternatives for the proposed action has been completed[3] and is included in Appendix B.

Public comment has expressed interest in determining whether TDM alternatives could be effective in reducing traffic volume on the existing highway sufficient to eliminate the need for highway improvement, while providing adequate capacity ~~for~~and a desirable level-of-service (LOS).

TDM generally applies to traffic that uses the highway on a daily basis, primarily commuter travel or other travel that occurs on a regular basis. The Federal Highway Administration (FHWA) considers TDM alternatives to be most practical and effective in urban areas with a population of at least 200,000.[4] In 1990 the population of the immediate area served by US 93 from Evaro through Polson, with 21,100 people in Lake County and 820 in Missoula County, was approximately 10% of FHWA's base urban population for TDM.[5,6,7]

Residents of Lake County use similar means of travel to work as the overall Montana population. In 1990, the percentage of Lake County residents using a car, truck or van was slightly lower than the totals for Montana.

Fewer than one percent of workers in Lake County and the state use public transportation to ride to work.[8,9] College students (estimates of the numbers are not available) also travel on US 93 to the University of Montana in Missoula and Flathead Community College in Kalispell, either daily or several days each week. (Section 7.4.1)

Evaluation and public comment have indicated implementation of TDM options will be desirable where practical and feasible. However, even with optimum reductions ranging from 20 to 40% of vehicle traffic,[10] LOS using ~~1991~~1994 traffic volume will be improved only slightly and will generally be C and D. Currently LOS is mostly D and E (Table 6.1-15). In ~~2015~~2020, LOS with the 20 to 40% reduction of traffic will be ~~D and E~~E and F with

---

[3]Matthew J. Delich, P.E., Analysis of Transportation Demand Management Alternatives, U.S. Highway 93, Evaro to Polson, February 1993.
[4]Federal Highway Administration. FHWA Technical Advisory T 6640.8A. October 30, 1987.
[5]Ibid.
[6]U.S. Department of Commerce, Bureau of the Census. Census of Population and Housing. 1990.
[7]It should be noted people from outside the immediate area drive US 93 on a daily basis. They are not included in the above numbers.
[8]U.S. Department of Commerce, Bureau of the Census. Census of Population. 1950-1990.
[9]Morrison-Maierle. Technical Report for Social Conditions: Supplement to U.S. Highway 93 Environmental Impact Statement. 1993.
[10]The 20 to 40% reduction in vehicle traffic volumes is considered very high. Research indicates areas with successful TDM programs typically are able to reduce traffic by a maximum of only 20%.

the existing highway or with an improved two-lane highway.[11] This is a slight improvement over projected LOS ~~E and~~ F in the design year ~~2015~~2020 without implementation of TDM options (Table 7.1-~~32~~), but does not provide the desired LOS B conditions.

5.1.5. Alternate Highway Routes

These alternatives will include measures that might reduce highway traffic demand by promoting shifts of existing and future motor vehicle traffic from US 93 to other existing highway routes. Alternate routes that have been suggested include Montana Highway (MT) 83 in the Swan Valley and MT 200-382-28 in Lake and Sanders counties (Figure 5.1-6).

Alternate highway routes are not evaluated in detail. Large portions of these routes have been recently improved or are scheduled for improvement, including widening shoulders, flattening slopes, removal of unsafe roadside obstructions, improved alignment and grade, new pavement and improved signing and stripinges. Construction has been completed or environmental impacts of these improvements have been or are being evaluated in studies and environmental documents prepared specifically for these projects, as summarized below:

- MT 83, Clearwater Junction - North, Mileposts 0 to 14.7, categorical exclusion approved 3/90, construction scheduled beginning in 1993.

- MT 83, Clearwater Junction - Construction scheduled beyond 2000.

- MT 83, Seeley Lake - Inez Lake, Mileposts 14.7 to 23.1, categorical exclusion approved, construction completed in 1988.

- MT 83, Lake Inez - North, Mileposts 23.1 to 31.4, finding of no significant impact approved 3/92, construction completed in 1992~~nearing completion~~.

- MT 83, Condon - North and South, Mileposts 31.4 to 47.7, environmental assessment in-progress 3/90, construction scheduled beginning in 1994.

- MT 83, Missoula County Line - North and South, Mileposts 47.7 to 65.1, environmental assessment in-progress, construction scheduled beginning in 1996.

- MT ~~28~~/200, Hot Springs - North and South, Mileposts 16.2 to 26.1, categorical exclusion approved, construction completed in 1992~~nearing completion~~.

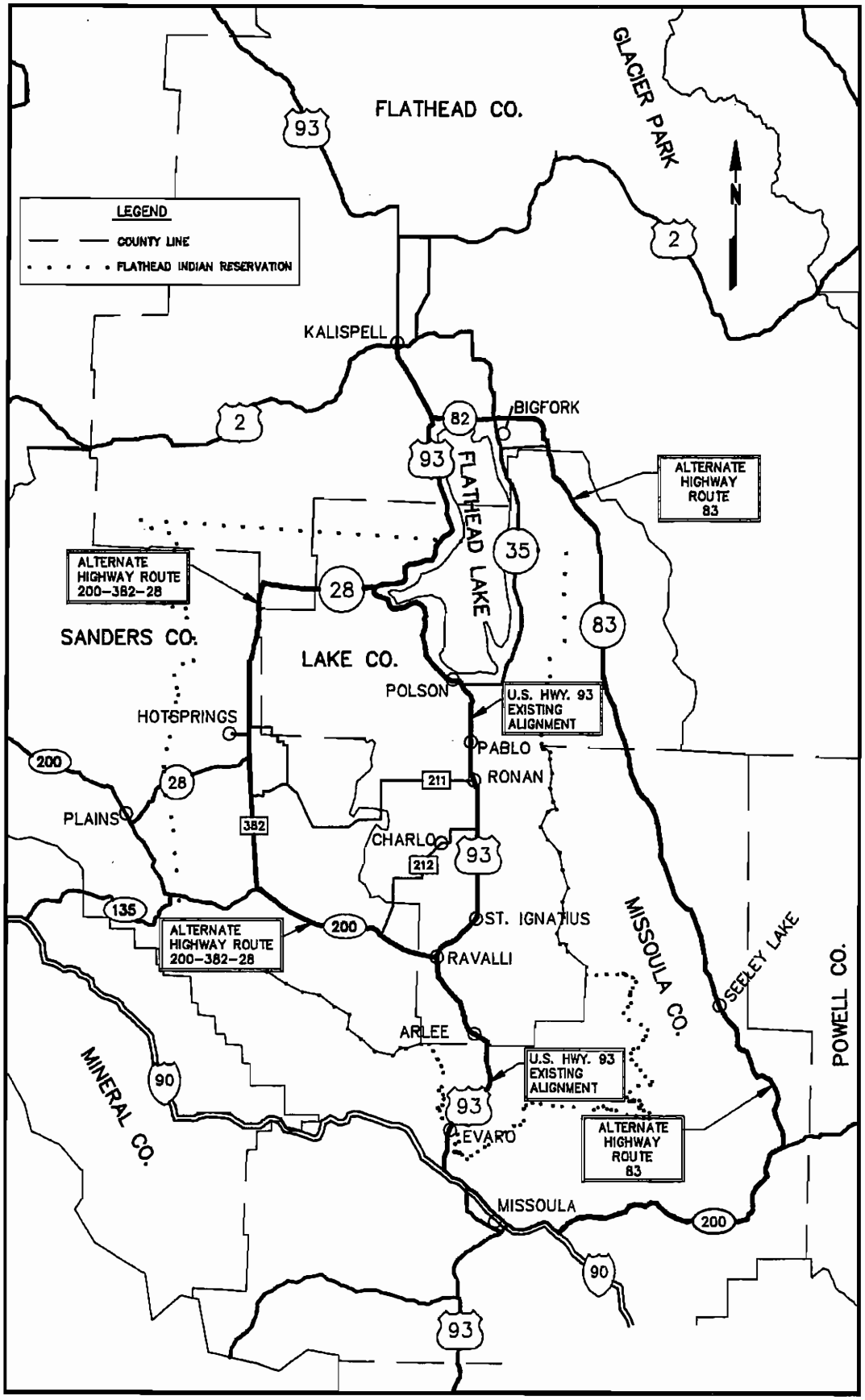
- MT ~~28~~200, Lonepine - North and South, Mileposts 26.1 to 36.1, categorical exclusion approved 2/91, construction scheduled beyond 2000~~beginning in 1998~~.

- Montana Secondary (MTS) 382, Perma Canyon - North, Mileposts 3.9 to 11.0, environmental assessment in progress, construction scheduled in 1997.

- MTS 382, three miles north of Camas Prairie - North, Mileposts 11.0 to 15.8, state-funded thin overlay, scheduled for November 1995.

- MT 200, Dixon - Ravalli, Mileposts 109.1 to 116.2, environmental assessment in progress, construction scheduled in 1998.

[11]Delich, Matthew. U.S. Highway 93 Transportation Demand Management. April 1993.



ALTERNATE HIGHWAY ROUTES FIGURE 5.1-6

MT 200, Dixon - West, Mileposts 99.2 to 109.1, environmental assessment in progress, construction scheduled beyond 2000.

MT 28, Elmo - West, Mileposts 36.1 to 46.7, state-funded seal and cover, construction completed in 1995.

Travel distances, as summarized below, are greater along these routes:

Missoula to:	Montana 83	Montana 200-382-28	US 93
Polson	--	120	66
Kalispell	144	137	115
West Glacier	170	167	149

Traffic operation on these alternate routes is currently at LOS A and B as compared with LOS D and E on US 93. This difference in LOS indicates that, on these routes, travel speeds are higher; interruptions are fewer; and safety, comfort and convenience are greater. Drivers currently may be selecting these routes for travel when distances are approximately equal and possibly, because of the substantially better operation, when travel distances are greater. (Section 6.1.4.1)

It may be desirable to encourage more use of these alternate routes to take advantage of the better operating conditions using additional highway signing, designation as special routes, public notification, advertising and education or other methods. It is not likely, however, that enough traffic will shift to these routes to reduce traffic demand substantially on US 93.

5.1.6. Design Options

The following design options will be applied, where appropriate, with the alignment and lane configuration alternatives described in Sections 5.1.2 and 5.1.3. They may be used as mitigation measures or to help meet specific transportation and safety needs:

Partial Access Control	Frontage Roads	Bus Turnouts
Pedestrian Facilities	Bicycle Facilities	Concrete Median Barrier
Four-Foot Painted Median	Wildlife Crossings	Livestock Crossings
Wildlife Fence	Traffic Signals	Sidewalk, Curb and Gutter
Landscaping	Truck Route	One-way Couplet
Auxiliary Lanes[12]	Slow-Vehicle Turnouts	Landscaped Medians
Improved Signage and Pavement Markings		

Where applicable, these design options are described and their application, benefits and impacts are explained in other sections.

Partial access control includes the condition in which the right of access to land adjacent to the highway is eliminated or restricted. This limits the conflict with through traffic by eliminating or limiting the number of private driveways and public roads entering directly onto the through traffic lanes of the highway.

[12]May include acceleration/deceleration lanes, passing lanes, designated right-turn bays, designated left-turn bays and continuous two-way left-turn center median.

Frontage roads, generally parallel with the highway, may be desirable in some areas to help reduce the number of access points to the highway.

Turnouts for historic points, scenic viewpoints, fishing and other access sites, chain-up areas, rest areas, information centers or other facilities are under consideration where needed and where they can be safely constructed and used.

Pedestrian facilities including paths, sidewalks, signals, cross-walks, overpasses and underpasses are under consideration.

Bicycle facilities including bicycle paths (incorporated into the highway typical section or constructed separately) are a design option.

A concrete median barrier will include a 2.5- to three-foot high barrier constructed between opposing lanes of traffic. The barrier will be separated from traffic lanes by approximately seven feet on each side requiring a total median width of 14 feet. This option might be effective in some areas for physically separating opposing directions of traffic and thereby improving safety.

A four-foot painted center median is an option under consideration. This option will not provide the positive physical separation of a concrete barrier, but it will help separate opposing lanes of traffic and may help improve safety.

Wildlife crossings and wildlife fence (to direct wildlife to use the crossings) are under consideration in areas where important wildlife crossings have been identified.

Where important livestock crossings exist, underpasses are under consideration. The underpasses will consist of large, oval-shaped pipe culverts.

Where important for erosion control, visual impact mitigation, noise attenuation and other mitigation needs, landscaping is a design option.

Where warranted, traffic signals will be considered with highway improvement.

In community areas, concrete curb, gutter and sidewalk may be appropriate. Required storm water disposal and treatment systems will be incorporated.

With most of the alignment alternatives, a one-way couplet concept is under consideration. This will place traffic in one direction on the existing roadway, while traffic in the opposing direction will be placed on the new roadway (on one of the alignment alternatives described in Section 5.1.2).

The truck route listed above will consist of constructing a new roadway around Arlee, Ronan or Polson (on one of the alignment alternatives described in Section 5.1.2) and designating it as a truck route. The existing roadway through the community will remain and will continue to be designated as the main route for US 93.

Acceleration/deceleration lanes may be desirable at important intersections to allow vehicles to enter or leave US 93 without affecting through traffic. These include designated right-turn bays, designated left-turn bays and, with Lane Configuration A, a continuous two-way left-turn center median with a two-lane highway. Other auxiliary lanes that are under consideration, particularly for Lane Configuration A, include passing lanes and truck climbing lanes.

In areas where Lane Configuration A is constructed, slow-moving vehicle turnouts have been suggested to allow recreational vehicles and other slower vehicles to pull off the roadway and allow backed-up traffic to pass.

It has been suggested that landscaped medians be used to improve visual quality. This will include planting and maintaining grasses and shrubs where the median can be constructed wide enough to allow it. In addition to improving visual quality, if properly designed and constructed, the landscaped median will help to separate opposing traffic lanes and thereby improve safety. Landscaped medians will include native vegetation, grasses, or other vegetation appropriate for road conditions, traffic and climate.

Research indicates: (Section 6.1.3)

- Replacement of existing signs with larger, more visible and correctly placed signs, and

- Replacement of existing pavement markings (generally four inches wide) with six-inch pavement markings will help drivers recognize them and react sooner and will thereby help to reduce accidents. As a result of this research, these improved signs and pavement markings already are being installed in the area from Evaro through Polson and should be considered for incorporation with any of the alternatives under consideration.

Members of the public have suggested increasing the level of enforcement of traffic laws to obtain better adherence to speed limits and thereby improve highway safety. Adherence to traffic laws is an important consideration and enforcement should be considered with any of the alternatives under consideration. State, local and tribal governments should continue to make sure that an appropriate level of enforcement occurs -- where traffic studies or other factors indicate stricter enforcement is warranted, it should be implemented. However, enforcement of speed limits lower than the speed the majority of drivers are comfortable with has, in the past, normally proven unsuccessful.

5.2. COMPARISON OF ALTERNATIVES

Tables 5.2-1 through 5.2-4 on the following pages compare impacts, both adverse and beneficial, of each of the lane configuration and alignment alternatives under consideration.

Table 5.2-1 Comparison of Impacts: Existing Alignment (Except Arlee, Ronan and Polson)

Sections	No Action	CSKT Preferred Alternative Lane Configuration A (Two-lane)	Lane Configuration B (Four-lane)	Lane Configuration C (Four-lane with continuous two-way left-turn center median)	Lane Configuration D (Four-lane, with divided median)	MDT Preferred Alternative Combination of Lane Configurations A, B, C and D
6.1/7.1 Traffic Operation	• No correction of deficiencies in existing geometric design. • Existing LOS D deteriorates to LOS F in most areas by the design year ~~20152020~~. • Traffic operation poor, with congestion and substantial interruption in the flow of traffic.	• Slight improvement in operation in some areas, but LOS deteriorates to F in most sections of the roadway by ~~20152020~~. • Consolidation or closure of approaches and partial access control improves traffic operation in developed areas.	• Substantial improvement in operation and capacity of highway several times greater than a two-lane highway, • LOS improves to B, which is considered desirable. • Consolidation or closure of approaches and partial access control improves traffic operation in developed areas.	• Operation similar to Lane Configuration B, with slight improvement due to reduced influence of left turns from US 93.	• Operation similar to Lane Configuration C, with more improvement because of total separation of opposing traffic lanes. • May adversely affect access to some properties because no left turns will be allowed between major intersections.	• Combines Lane Configurations B, C and D for substantial improvement in operation and capacity of highway. • Lane Configuration B will be 37.6 miles. • Lane Configuration C will be 14.5 miles. • Lane Configuration D will be 0.4 mile, wildlife corridor.
6.1/7.1 Safety	• No correction of roadway deficiencies, no reduction of approaches to highway and no improvement in safety.	• Accident reduction should occur due to correction of existing roadway deficiencies, elimination or consolidation of approaches to the highway and addition of left-turn bays at major junctions. • Safety improvement due to four-lane roadway will not be realized.	• More reduction of accidents than Lane Configuration A. • Based on experience with similar four-lane projects, substantial reductions are expected in injuries and fatalities.	• Accident reduction similar to Lane Configuration B. • Addition of the continuous two-way left-turn center median provides improvement in safety for areas with high density of approaches and frequent left turns. • The continuous two-way left-turn center median separates opposing lanes of traffic, substantially reducing head-on collisions.	• Accident reduction similar to Lane Configurations B and C. • Complete separation of opposing traffic lanes virtually eliminates head-on collisions.	• Combines elements of Lane Configuration B in areas with lower density of approaches and elements of Lane Configuration C in areas with high density of approaches to provide expectation of substantial reductions in accidents, injuries and fatalities.
6.2/7.2 Land Use	• No highway improvement to encourage change of existing pattern of land use for residential, commercial, and industrial development. •Along US 93, residential and business strip development continues. • No partial access control.	• Partial access control can combine with land use planning and regulation to control residential and business strip development. • Converts 88 acres to highway ROW.	• Partial access control similar to Lane Configuration A. • Converts 204 acres to ROW.	• Partial access control is similar to Lane Configurations A and B. • Continuous two-way left-turn center median may encourage strip development, especially without coordinated access control and land use planning and regulation. • Converts 293 acres to ROW.	•Partial access control is similar to Lane Configurations A, B and C. • Divided, unpaved center median prohibits left turns across opposing lanes of traffic, except at major intersections, which may discourage strip development. • Converts 436 acres to ROW.	• Partial access control is similar to Lane Configurations B, C and D. • For segments of highway with Lane Configuration C, continuous two-way left-turn center median may encourage strip development, especially without coordinated access control and land use planning and regulation. • Converts 217 acres to ROW.

Table 5.2-1 Comparison of Impacts: Existing Alignment (Except Arlee, Ronan and Polson) (continued)

Sections	No Action	CSKT Preferred Alternative Lane Configuration A (Two-lane)	Lane Configuration B (Four-lane)	Lane Configuration C (Four-lane with continuous two-way left-turn center median)	Lane Configuration D (Four-lane, with divided median)	MDT Preferred Alternative Combination of Lane Configurations A, B, C and D
6.3/7.3 Farmlands	• No impact for FPPA farmland. (prime or unique farmlands or farmlands of statewide or local importance).	• No impact for FPPA farmland.	• Conversion to ROW of 10.9 acres of FPPA farmland.	• Conversion to ROW of 14 acres of FPPA farmland.	• Conversion to ROW of 17 acres of FPPA farmland.	• Conversion to ROW of 11.7 acres of FPPA farmland.
6.4/7.4 Social: Community and Rural Conditions	• No change in physical prominence. • Barrier effect of highway in communities increases due to increased congestion, which disrupts pedestrian and vehicular access to residential, business and public facilities.	• Similar to No Action.	• Width and physical prominence increase. • Congestion decreases, causing less disruption of pedestrian and vehicular access to residential, business and public facilities. • Wider highway decreases buffer zones between property and highway. • Makes highway more desirable for commuters, with potential to contribute to population growth and economic development.	• Similar to Lane Configuration B.	• Similar to Lane Configurations B and C.	• Social conditions are similar to Lane Configurations B, C and D.
6.5/7.5 Economics	• More congestion increases barrier to business. • More congestion increases travel time and shipping costs. Travel for tourism more difficult and reduces opportunity to increase attraction.	• Similar to No Action. • During construction, short-term disruption of traffic restricts access to business and reduces sales. • Local business benefits by providing support services and supplies during construction.	• Less traffic congestion improves access to business. • Less congestion reduces travel time and shipping costs. Travel for tourism more convenient and improves opportunity to increase attraction. • Construction impacts similar to Lane Configuration A.	• Similar to Lane Configuration B.	• Similar to Lane Configurations B and C.	• Economics are similar to Lane Configurations B, C and D.

Table 5.2-1 Comparison of Impacts: Existing Alignment (Except Arlee, Ronan and Polson) (continued)

Sections	No Action	CSKT Preferred Alternative Lane Configuration A (Two-lane)	Lane Configuration B (Four-lane)	Lane Configuration C (Four-lane with continuous two-way left-turn center median)	Lane Configuration D (Four-lane, with divided median)	MDT Preferred Alternative Combination of Lane Configurations A, B, C and D
6.6/7.6 Pedestrians and Bicyclists	• Opportunities not realized for improvement to facilities. • As traffic volume increases, safety, comfort and convenience of non-motorized travel adversely affected.	• Eight-foot shoulder, which is adequate for most bicyclists, enhances safety, comfort and convenience of non-motorized travel.	• Similar to Lane Configuration A, but wider highway and additional lanes may be slightly more difficult for pedestrians to cross.	• Similar to Lane Configuration B.	• Similar to Lane Configurations B and C, and median provides area for pedestrians to pause, after crossing one direction of traffic, and prepare to cross opposing direction of traffic.	• Conditions for pedestrians and bicyclists are similar to Lane Configurations B, C and D.
6.7/7.7 Air Quality	• As traffic volume increases, CO concentration continues to increase. • As traffic volume increases, PM_{10} concentration continues to increase.	• Similar to No Action.	• Because of improved traffic flow, CO concentration decreases compared with No Action and Lane Configuration A. • PM_{10} concentration similar to No Action and Lane Configuration A.	• Similar to Lane Configuration B.	• Similar to Lane Configurations B and C.	• Air quality is similar to Lane Configurations B, C and D.
6.8/7.8 Noise	• Noise level within 100 feet of the highway centerline exceeds the FHWA noise abatement criterion of 67 dBA by the design year.	• Noise level in design year similar to No Action.	• Noise level generally two to three dBA higher than No Action or Lane Configuration A. • Noise level in design year exceeds FHWA noise abatement criterion within 150 feet of highway centerline.	• Similar to Lane Configuration B.	• Similar to Lane Configurations B and C.	• Noise is similar to Lane Configurations B, C and D.
6.9/7.9 Water Quality	• No impact to water quality.	• Potential for hazardous materials contamination during construction operations. • During construction, runoff from disturbed areas increases erosion and may result in temporarily increased turbidity in streams. • After construction, runoff increases slightly due to increased pavement areas.	• Similar to Lane Configuration A, but larger disturbed areas and pavement areas result in slightly greater potential impacts to runoff and streams.	• Similar to Lane Configuration B.	• Similar to Lane Configurations B and C.	• Water quality is similar to Lane Configurations B, C and D.

Table 5.2-1 Comparison of Impacts: Existing Alignment (Except Arlee, Ronan and Polson) (continued)

Sections	No Action	CSKT Preferred Alternative Lane Configuration A (Two-lane)	Lane Configuration B (Four-lane)	Lane Configuration C (Four-lane with continuous two-way left-turn center median)	Lane Configuration D (Four-lane, with divided median)	MDT Preferred Alternative Combination of Lane Configurations A, B, C and D
6.10/7.10 Wetlands	• No impact to wetlands.	• Proposed action affects ~~2021.75~~ acres of existing wetlands.	• Proposed action affects ~~3836.15~~ acres of existing wetlands.	• Proposed action affects ~~4543.03~~ acres of existing wetlands.	• Proposed action affects ~~6758.71~~ acres of existing wetlands.	• Proposed action affects 40.42 acres of existing wetlands.
6.11/7.11 Floodplains and Stream Crossings	• No change for existing stream crossing and floodplain characteristics. • No realization of opportunity to improve existing floodplain problems.	• Generally requires 12 feet additional bridge width and 50 feet additional culvert length at each crossing. • Improvement of many existing floodplain problems.	• Generally requires 36 feet additional bridge width and 74 feet additional culvert length at each crossing. • Floodplain improvement similar to Lane Configuration A.	• Generally requires 50 feet additional bridge width and 88 feet additional culvert length at each crossing. • Floodplain improvement similar to Lane Configurations A and B.	• Generally requires 76 feet additional bridge width and 114 feet additional culvert length at each crossing. • Floodplain improvement similar to Lane Configurations A, B and C.	• Combination of Lane Configurations B, C and D results in general requirements for additional bridge width and additional culvert length, as identified for each lane configuration. • Floodplain improvement is similar to Lane Configurations B, C and D.
6.12/7.12 Fish and Wildlife	• No impact to fish and wildlife habitat. • Highway collision mortality increases as traffic volume increases. • The highway continues to discourage use of habitat near the highway. • No realization of potential improvement due to improved or new crossings for mammals, turtles, ducks, fish and other wildlife.	• Highway collision mortality similar to No Action. • Potential impact to fish resulting from reconstruction of culverts and bridges. • No realization of potential improvement due to improved or new crossings for mammals, turtles, ducks, fish and other wildlife.	• Wider highway creates slightly greater potential for wildlife mortality due to highway collisions. • Potential impact to fish resulting from reconstruction of culverts and bridges. • Proposed wildlife crossings in the Evaro and other areas may substantially reduce vehicle/animal conflicts.	• Wider highway creates slightly greater potential for wildlife mortality due to highway collisions. • Potential impact to fish resulting from reconstruction of culverts and bridges. • Proposed wildlife crossing benefits similar to Lane Configuration B.	• Wider highway creates slightly greater potential for wildlife mortality due to highway collisions. • Potential impact to fish resulting from reconstruction of culverts and bridges. • Proposed wildlife crossing benefits similar to Lane Configurations B and C.	• Impacts to fish and wildlife are similar to Lane Configurations B, C and D.
6.13/7.13 Threatened and Endangered Species	• Not likely to adversely affect any threatened or endangered species.	• Not likely to adversely affect any threatened or endangered species.	• Not likely to adversely affect any threatened or endangered species.	• Not likely to adversely affect any threatened or endangered species.	• Not likely to adversely affect any threatened or endangered species.	• Not likely to adversely affect any threatened or endangered species.

Table 5.2-1 Comparison of Impacts: Existing Alignment (Except Arlee, Ronan and Polson) (continued)

Sections	No Action	CSKT Preferred Alternative Lane Configuration A (Two-lane)	Lane Configuration B (Four-lane)	Lane Configuration C (Four-lane with continuous two-way left-turn center median)	Lane Configuration D (Four-lane, with divided median)	MDT Preferred Alternative Combination of Lane Configurations A, B, C and D
6.14/7.14 Cultural Resources	• No change in cultural resources.	• Increased convenience and desirability of commuter travel, with potential to contribute to population growth and economic development, adversely affects the Native American sense of community and traditional cultural values.	• Potential impact to several eligible cultural resource properties. • Impacts on Native American sense of community and traditional cultural values similar to Lane Configuration A.	• Similar to Lane Configuration B.	• Similar to Lane Configurations B and C.	• Impacts to cultural resources are similar to Lane Configurations B, C and D.
6.15/7.15 Parks and Recreation	• Increasing traffic, with more noise and visual distraction, encroaches on areas used for recreation.	• Highway improves access to scenic/historic turnouts. • Highway improvement provides opportunity to improve access to and control use of turnouts and recreation sites.	• Opportunity to improve access and control use similar to Lane Configuration A. • With four lanes, land along edge of recreation areas converted to ROW, but public use not disrupted. • Traffic noise and visual distraction is closer to recreation sites.	• Similar to Lane Configuration B.	• Similar to Lane Configurations B and C.	• Impacts to parks and recreation are similar to Lane Configurations B, C and D.
6.16/7.16 Hazardous Materials	• Potential will remain for hazardous material spills, similar to what has occurred in the past.	• Improved roadway will improve safety and reduce potential for transportation-related spills. • Potential for construction-related contamination.	• Wider, improved roadway will substantially improve safety and reduce potential for spills. • Potential construction impact similar to Lane Configuration A.	• Improved safety and reduced potential for spills similar to Lane Configuration B. • Potential construction impact similar to Lane Configurations A and B.	• Improved safety and reduced potential for spills similar to Lane Configurations B and C. • Potential construction impact similar to Lane Configurations A, B and C.	• Improved safety, reduced potential for spills and potential construction impacts are similar to Lane Configurations B, C and D.
6.17/7.17 Visual	• Deterioration of LOS reduces comfort and visual quality for drivers and passengers. • High traffic volume interrupts views from and of the road.	• Narrower road width results in minimal change to existing landform and land cover. • Increased traffic volume and reduced LOS diminishes visual quality for drivers and passengers.	• Wider road results in more disturbance to existing landforms and land cover. • Improved comfort allows drivers and passengers to view and appreciate more scenery.	• Similar to Lane Configuration B.	• Similar to Lane Configurations B and C.	• Impacts to visual conditions are similar to Lane Configurations B, C and D.
6.18/7.18 Relocations	• No buildings require relocation.	• No buildings require relocation.	• Relocation required for two buildings.	• Relocation required for 16 buildings.	• Relocation required for 35 buildings.	• Relocation required for 11 buildings

Table 5.2-1 Comparison of Impacts: Existing Alignment (Except Arlee, Ronan and Polson) (continued)

Sections	No Action	CSKT Preferred Alternative Lane Configuration A (Two-lane)	Lane Configuration B (Four-lane)	Lane Configuration C (Four-lane with continuous two-way left-turn center median)	Lane Configuration D (Four-lane, with divided median)	MDT Preferred Alternative Combination of Lane Configurations A, B, C and D
7.19 Energy and Commitment of Resources	• No improvement in traffic operating efficiency and no related long-term decrease in energy use. • No commitment of resources required.	• Minor improvement in traffic operating efficiency and related long-term decrease in energy use. • Fossil fuels, labor and construction materials expended.	• Substantial improvement in traffic operating efficiency and related long-term decrease in energy use. • Fossil fuels, labor and construction materials expended in greater quantities than Lane Configuration A.	• Substantial improvement in traffic operating efficiency and related long-term decrease in energy use. • Fossil fuels, labor and construction materials expended in greater quantities than Lane Configurations A and B.	• Substantial improvement in traffic operating efficiency and related long-term decrease in energy use. • Fossil fuels, labor and construction materials expended in greater quantities than Lane Configurations A, B and C.	• Substantial improvement in traffic operating efficiency and related long-term decrease in energy use. • Results in expenditure of fossil fuels, labor and construction materials greater than Lane Configuration B, but less than Lane Configuration C.
7.20 Construction	• No construction-related impact or cost.	• Short-term impacts occur for air quality, noise, water quality and other environmental resources. • Serious periods of inconvenience and delay to US 93 vehicle traffic during construction. • Estimated total construction cost is approximately $38 million.	• Short-term environmental impacts similar to Lane Configuration A. • Periods of inconvenience and delay to US 93 vehicle traffic during construction, but less than Lane Configuration A. • Estimated total construction cost is approximately $72 million.	• Short-term environmental impacts and periods of inconvenience and delay similar to Lane Configuration B. • Estimated total construction cost is approximately $83 million.	• Short-term environmental impacts and periods of inconvenience and delay similar to Lane Configurations B and C. • Estimated total construction cost is generally higher per mile than Lane Configuration C.	• Short-term environmental impacts and periods of inconvenience and delay are similar to Lane Configurations B, C and D. • Estimated total construction cost is greater than Lane Configuration B, but less than Lane Configuration C.

Table 5.2-2 Comparison of Impacts: Arlee Alignments

Sections	No Action	MDT and CSKT Preferred Alternatives Alignment 1 (Existing Alignment)	Alignment 2 (West Alignment)	Alignment 3 (East Alignment)	Alignment 4 (Jocko Valley Alignment)
6.1/7.1 Traffic Operation	• As traffic volume increases, adverse operating conditions more severe, including reduced speed, frequent traffic flow interruption and high number of turns to and from highway.	• MDT Preferred Alternative is Lane Configuration C, a four-lane highway with a continuous two-way left-turn center median. CSKT Preferred Alternative is Lane Configuration A, a two-lane highway, with left-turn bays. • Similar to No Action, but if additional lanes are added, turns to and from highway improve and interruption is reduced.	• Adverse operating conditions in Arlee eliminated. Speed not reduced, interruption eliminated and through traffic not affected as much by turns to and from highway.	• Similar to Alignment 2.	• Similar to Alignments 2 and 3.
6.1/7.1 Safety	• As traffic volume increases, more conflicts and potential safety problems related to highway traffic through the community.	• Conflicts and potential safety problems related to highway traffic similar to No Action. • Improvement in safety may occur if left-turn bays are added, approaches are consolidated or eliminated or pedestrian crossings are improved.	• Conflicts and potential safety problems related to highway traffic through the community mostly eliminated. • Highway approaches substantially reduced, which substantially decreases possibility of intersection- and driveway-related accidents.	• Beneficial impacts similar to Alignment 2, but close to schools, rodeo grounds and powwow grounds, which may result in additional vehicle and pedestrian conflicts and related accidents.	• Conflicts and potential safety problems related to highway traffic through the community virtually eliminated. • Other beneficial impacts similar to Alignments 2 and 3.
6.2/7.2 Land Use	• No highway improvement to encourage change of existing pattern of land use for commercial and residential development along highway through Arlee.	• Pattern of land use changes as highway improvement encourages more commercial development along highway through Arlee. • Converts 16 to 36 acres to highway ROW.	• Pattern of land use changes with introduction of highway traffic in rural areas. Without control of land use and access along new route, new development accelerates subdivision of land. • Converts 51 to 93 acres to ROW.	• Similar to Alignment 2. • Converts 44 to 86 acres to ROW.	• Similar to Alignments 2 and 3, but more severe because of more rural and undeveloped area with some prime and unique farmlands. • Converts 139 to 192 acres to ROW.
6.3/7.3 Farmlands	• No impact for FPPA farmlands (prime or unique farmlands or farmlands of statewide or local importance).	• No impact for FPPA farmlands.	• No impact for FPPA farmlands.	• No impact for FPPA farmlands.	• Conversion to ROW of up to 9.3 acres of FPPA farmland.

Table 5.2-2 Comparison of Impacts: Arlee Alignments (continued)

Sections	No Action	MDT and CSKT Preferred Alternatives Alignment 1 (Existing Alignment)	Alignment 2 (West Alignment)	Alignment 3 (East Alignment)	Alignment 4 (Jocko Valley Alignment)
6.4/7.4 Social	• More congestion increases barrier effect on social interaction and access. • Concentrated traffic diminishes positive perception of environment.	• Similar to No Action. • Wider highway may increase barrier effect.	• Diversion of through traffic reduces congestion and barrier effect on social interaction and access. • Without control of land use and access along new route, barrier effect shifts as development and traffic increase in area of new route. • Highway crosses area planned for sewer lagoon. • Strong public opposition.	• Reduction of congestion and barrier effect similar to Alignment 2, but highway and through traffic are located closer to schools. • Strong public opposition.	• Reduction of congestion and barrier effect similar to Alignments 2 and 3, but without increased traffic through residential areas between existing alignment and new route. • Strong public opposition.
6.5/7.5 Economics	• Business on highway remains visible to all traffic. • More congestion increases barrier to business. • Continues existing drive-through traffic in short-term, but limits long-term growth of sales, earnings and employment.	• Similar to No Action. • During construction, short-term disruption of access to business.	• Travel patterns divert traffic around community. Adverse effect for existing highway-oriented business. • Long-term improvement of access to business. • Traffic on local streets is not disrupted during construction. • Strong business opposition.	• Similar to Alignment 2.	• Similar to Alignments 2 and 3.
6.6/7.6 Pedestrians and Bicyclists	• Conflicts with pedestrians, particularly school children, and safety problems become more severe as traffic volume increases. • No realization of improvement to bicycle access.	• Conflicts with pedestrians and safety problems similar to No Action. • Some improvement occurs if additional crosswalks and traffic signals are installed. • A wider highway and additional lanes may be slightly more difficult for pedestrians to cross.	• Pedestrian crossings and conflicts substantially reduced. • Crossings on higher-speed highway than existing highway.	• Similar to Alignment 2, but closer to schools. Pedestrian crossings and potential conflicts and safety problems related to rodeo and powwow grounds.	• Similar to Alignments 2 and 3, but with fewer pedestrian crossings and virtually no crossings by school children.
6.7/7.7 Air Quality	• PM_{10} concentration high in spring due to accumulated winter sanding materials; use of chemical deicer reduces PM_{10}.	• CO concentration reduced if more lanes constructed. • PM_{10} concentration similar to No Action.	• CO and PM_{10} concentrations reduced in Arlee.	• Similar to Alignment 2.	• Similar to Alignments 2 and 3.
6.8/7.8 Noise	• Noise level will nearly equal FHWA noise abatement criterion of 67 dBA within 150 feet of highway centerline.	• Noise level in Arlee similar to No Action in the design year.	• Noise level increases by as much as 26 dBA in area of new alignment and exceeds FHWA noise abatement criterion. • Noise level in Arlee on existing alignment decreases by nine dBA.	• Similar to Alignment 2.	• Similar to Alignment 2.

Table 5.2-2 Comparison of Impacts: Arlee Alignments (continued)

Sections	No Action	MDT and CSKT Preferred Alternatives Alignment 1 (Existing Alignment)	Alignment 2 (West Alignment)	Alignment 3 (East Alignment)	Alignment 4 (Jocko Valley Alignment)
6.9/7.9 Water Quality	• No impact to water quality.	• Negligible impact because no streams or water bodies are crossed.	• Similar to Alignment 1.	• Requires three crossings of an irrigation canal, so potential water quality impact slightly greater than Alignment 1. A wellhead protection area exists on public school property adjacent to this alignment.	• New highway crossings over Jocko River and several creeks required with resulting greater potential for water quality impact.
6.10/7.10 Wetlands	• No impact to wetlands.	• Approximately ~~1.1 to 2.82~~ 2.48 acres affected~~, depending on lane configuration~~.	• ~~Similar to Alignment 1~~Approximately 2.58 to 5.09 acres affected, depending on lane configuration.	• ~~Similar to Alignments 1 and 2~~Approximately 2.16 to 5.28 acres affected, depending on lane configuration.	• Approximately ~~1.8 to 2.38~~ 23 to 13 13 acres affected, depending on lane configuration.
6.11/7.11 Floodplains and Stream Crossings	• No change for existing stream crossing and floodplain characteristics.	• No change for existing stream crossing and floodplain characteristics.	• No change for existing stream crossing and floodplain characteristics.	• No change for existing stream crossing and floodplain characteristics.	• Requires new crossings of Jocko River, Agency Creek, Pellew Creek and Spring Creek. No substantial increase of historic floodplain elevations.
6.12/7.12 Fish and Wildlife	• No impact to fish and wildlife habitat.	• Negligible impact to fish and wildlife habitat.	• Similar to Alignment 1.	• Similar to Alignments 1 and 2.	• Greater potential impact than Alignments 1, 2 and 3 because of introduction of highway traffic to new areas, with conversion of wildlife habitat to pavement and ROW.
6.13/7.13 Threatened and Endangered Species	• No impact to threatened or endangered species.	• No impact to threatened or endangered species.	• No impact to threatened or endangered species.	• No impact to threatened or endangered species.	• Not likely to adversely affect any threatened or endangered species.
6.14/7.14 Cultural Resources	• No impact to cultural resources.	• Potential visual effect to one eligible historic building (24LA133).	• New traffic and development may affect traditional Native American uses.	Possible physical effect to one potentially eligible historic property.	• Potential impact to several historic properties.
6.15/7.15 Parks and Recreation	• Increasing traffic, with more noise and visual distraction, near community park.	• Places traffic, with more noise and visual distraction, closer to community park. • Provides opportunity to improve access to and control use of park.	• Diverts traffic away from existing alignment and reduces traffic near community park. • Increases traffic near Finley Creek.	• Similar to Alignment 2, but increases traffic near schools, powwow and rodeo grounds, ballfield and fish hatchery.	• Requires a new crossing of Jocko River and disrupts the natural setting used for recreation.

Table 5.2-2 Comparison of Impacts: Arlee Alignments (continued)

Sections	No Action	MDT and CSKT Preferred Alternatives Alignment 1 (Existing Alignment)	Alignment 2 (West Alignment)	Alignment 3 (East Alignment)	Alignment 4 (Jocko Valley Alignment)
6.16/7.16 Hazardous Materials	• Potential effect on human health due to transport of hazardous materials through community. • Nine existing sites near highway with moderate to high potential for contamination.	• Similar to No Action. • Nine existing sites near highway with moderate to high potential for contamination.	• Moves transport of hazardous materials outside community. • No identified sites within proposed new ROW with moderate to high potential for contamination.	• Moves transport of hazardous materials outside community, but closer to schools. • No identified sites within proposed new ROW with moderate to high potential for contamination.	• Similar to Alignment 2. • No identified sites within proposed new ROW with moderate to high potential for contamination.
6.17/7.17 Visual	• Increased traffic reduces visual quality for views from and of the road.	• Increase in traffic reduces visual quality. As pavement width increases, disturbance and visual fragmentation of the streetscape also increase.	• New alignment opens new views from and of the road. • New and wider roadways cause visual impact to rural residential areas.	• Similar to Alignment 2.	• Similar to Alignments 2 and 3.
6.18/7.18 Relocations	• No buildings require relocation.	• No buildings require relocation with Lane Configurations A and B. Four buildings require relocation with Lane Configuration C.	• No buildings require relocation.	• No buildings require relocation with Lane Configurations A, B and C. One building will require relocation with Lane Configuration D.	• One building requires relocation with Lane Configurations A, B and C. Two buildings require relocation with Lane Configuration D.
7.19 Energy and Commitment of Resources	• No improvement in traffic operating efficiency and no related long-term decrease in energy use. • No commitment of resources required.	• Traffic operating efficiency and related energy use, as compared with rural sections of the highway, will be poor due to frequent acceleration and deceleration.	• Traffic operating efficiency and related energy use similar to rural sections of highway, and substantially better than Alignment 1.	• Similar to Alignment 2.	• Slightly better than Alignments 2 and 3.
7.20 Construction	• No construction-related impact or cost.	•Short-term impacts occur for air quality, noise, water quality and other environmental resources. • Serious periods of inconvenience and delay to US 93 vehicle traffic during construction. • Short-term adverse impact to business.	• Short-term environmental impacts similar to Alignment 1. • Little or no inconvenience and delay to US 93 vehicle traffic.	• Similar to Alignment 2.	• Similar to Alignments 2 and 3, but substantially higher construction cost.

Table 5.2-3 Comparison of Impacts: Ronan Alignments

Sections	No Action	MDT and CSKT Preferred Alternatives Alignment 1 (Existing Alignment)	Alignment 2 (One-Way Couplet)	Alignment 3 (West Alignment)	Alignment 4 (West Alignment)
6.1/7.1 Traffic Operation	• As traffic volume increases, adverse operating conditions more severe, including reduced speed, frequent traffic flow interruption, high number of turns to and from highway.	• MDT Preferred Alternative is Lane Configuration C, a four-lane highway with a continuous two-way left-turn center median. CSKT Preferred Alternative is Lane Configuration A, a two-lane highway, with left-turn bays. • Similar to No Action, but if additional lanes are added, turns to and from highway improve and interruption is reduced.	• Introduces highway traffic to a new part of Ronan. • Improves LOS and makes crossing the highway less difficult.	• Adverse operating conditions in Ronan eliminated. Speed not reduced, interruption eliminated and through traffic not affected as much by turns to and from highway.	• Similar to Alignment 3.
6.1/7.1 Safety	• As traffic volume increases, more conflicts and potential safety problems related to highway traffic through the community.	• Conflicts and potential safety problems related to highway traffic similar to No Action. • Improvement in safety may occur if left-turn bays are added, approaches are consolidated or eliminated or pedestrian crossings are improved.	• Conflicts and potential safety problems and improvement related to highway traffic similar to Alignment 1. • Southbound portion of couplet results in additional conflicts with vehicles and pedestrians.	• Conflicts and potential safety problems related to highway traffic through the community mostly eliminated. • Highway approaches substantially reduced, which decreases possibility of intersection- and driveway- related accidents.	• Similar to Alignment 3.
6.2/7.2 Land Use	• No highway improvement to encourage change of existing pattern of land use for commercial and residential development along highway through Ronan.	• Pattern of land use changes as highway improvement encourages more commercial development along highway through Ronan. • Converts five to 13 acres to highway ROW.	• Similar to Alignment 1, but more severe because potential for commercial development to encroach on established residential and park areas. • Converts 18 acres to ROW.	• Pattern of land use changes with introduction of highway traffic in rural areas. Without control of land use and access along new route, potential new development accelerates subdivision of land. • Converts 54 to 84 acres to ROW.	• Similar to Alignment 3. • Converts 68 to 94 acres to ROW.
6.3/7.3 Farmlands	• No impact for FPPA farmlands (prime or unique farmlands or farmlands of statewide or local importance).	• Conversion to ROW of less than one acre of FPPA farmlands.	• Similar to Alignment 1.	• Conversion to ROW of up to 17.3 acres of FPPA farmland.	• Conversion to ROW of up to 16.1 acres of FPPA farmland.
6.4/7.4 Social	• More congestion increases barrier effect on social interaction and access. • Concentrated traffic diminishes positive perception of environment.	• Similar to No Action. • Wider highway may increase barrier effect.	• Similar to No Action and Alignment 1, and barrier effect is added in residential area with housing development for elderly and handicapped residents. • Strong public opposition.	• Diversion of through traffic reduces congestion and barrier effect on social interaction and access. • Without control of land use and access along new route, barrier effect shifts as development and traffic increase in area of new route. • Strong public opposition.	• Similar to Alignment 3. • Strong public opposition.

Table 5.2-3 Comparison of Impacts: Ronan Alignments (continued)

Sections	No Action	MDT and CSKT Preferred Alternatives Alignment 1 (Existing Alignment)	Alignment 2 (One-Way Couplet)	Alignment 3 (West Alignment)	Alignment 4 (West Alignment)
6.5/7.5 Economics	• Business on highway remains visible to all traffic. • More congestion increases barrier to business. • Continues existing drive-through traffic in short-term, but limits long-term growth of sales, earnings and employment.	• Similar to No Action. • During construction, short-term disruption of access to business.	• Most highway-oriented business is less visible to southbound traffic. • Long-term improvement of access to business. • During construction, short-term disruption of access to business. • Strong business opposition.	• Travel patterns divert traffic around community. Adverse effect for existing highway-oriented business. • Long-term improvement of access to business. • Traffic on local streets is not disrupted during construction. • Strong business opposition.	• Similar to Alignment 3.
6.6/7.6 Pedestrians and Bicyclists	• Conflicts with pedestrians, particularly school children, and safety problems become more severe as traffic volume increases. • No realization of improvement to bicycle access.	• Conflicts with pedestrians and safety problems similar to No Action. • Some improvement occurs if additional crosswalks and traffic signals are installed. • A wider highway and additional lanes may be slightly more difficult for pedestrians to cross.	• Similar to Alignment 1. • Southbound portion of couplet introduces highway traffic and resulting conflicts with pedestrians to residential area. • Pedestrians required to cross only one direction of traffic at a time.	• Pedestrian crossings and conflicts substantially reduced. • Crossings on higher speed highway than existing highway.	• Similar to Alignment 3.
6.7/7.7 Air Quality	• PM_{10} concentration exceeds NAAQS in the spring due to accumulated winter sanding materials; use of chemical deicer reduces PM_{10}.	• CO concentration reduced if more lanes constructed. • PM_{10} similar to No Action.	• CO concentration reduced. • PM_{10} similar to No Action and Alignment 1.	• CO and PM_{10} concentrations reduced in Ronan.	• Similar to Alignment 3.
6.8/7.8 Noise	• Noise level increases by approximately three dBA and will be equal to FHWA noise abatement criterion in the design year.	• Similar to No Action.	• Slight increase over existing noise level on existing alignment in the design year due to reduced traffic volume. • Noise level on southbound portion of couplet increases, but remains below FHWA noise abatement criterion.	• Noise level increases by as much as 26 dBA in area of new alignment and exceeds FHWA noise abatement criterion. • Noise level in Ronan on existing alignment decreases by five dBA.	• Similar to Alignment 3.
6.9/7.9 Water Quality	• No impact to water quality.	• Existing crossing of Spring Creek requires reconstruction, with related potential water quality impact.	• Two existing crossings of Spring Creek will require reconstruction.	• Requires new crossings of Spring Creek and an irrigation canal, so potential water quality impact slightly greater than Alignment 2.	• Requires new crossings of Spring Creek and two irrigation canals, so potential water quality impact slightly greater than Alignments 2 and 3.
6.10/7.10 Wetlands	• No impact to wetlands.	• Approximately ~~0.1 to 0.20~~ 59 acre affected~~, depending on lane configuration~~.	• ~~No impact to wetlands~~ Approximately 0.41 to 1.41 acres affected, depending on lane configuration.	• Approximately ~~0.6 to 0.82~~ 42 to 3.87 acres affected, depending on lane configuration.	• Approximately ~~1.4 to 1.86~~ 22 to 10.18 acres affected, depending on lane configuration.

Table 5.2-3 Comparison of Impacts: Ronan Alignments (continued)

Sections	No Action	MDT and CSKT Preferred Alternatives Alignment 1 (Existing Alignment)	Alignment 2 (One-Way Couplet)	Alignment 3 (West Alignment)	Alignment 4 (West Alignment)
6.11/7.11 Floodplains and Stream Crossings	• No change for existing stream crossings and floodplain characteristics.	• Requires modification of existing crossing of Spring Creek. No substantial increase of historic floodplain elevations.	• Requires modification of two existing crossings of Spring Creek. No substantial increase of historic floodplain elevations.	• Require a new crossing of Spring Creek. No substantial increase of historic floodplain elevations.	• Requires new crossing of Spring Creek. No substantial increase of historic floodplain elevations.
6.12/7.12 Fish and Wildlife	• No impact to fish and wildlife habitat.	• Negligible impact to fish and wildlife habitat.	• Similar to Alignment 1.	• Similar to Alignments 1 and 2.	• Similar to Alignments 1, 2 and 3.
6.13/7.13 Threatened and Endangered Species	• No impact to threatened or endangered species.	• No impact to threatened or endangered species.	• No impact to threatened or endangered species.	• No impact to threatened or endangered species.	• No impact to threatened or endangered species.
6.14/7.14 Cultural Resources	• No impact to cultural resources.	• No impact to cultural resources.	• Potential visual effect to three unrecorded cultural resource properties whose eligibility is undetermined.	• Potential visual effect to four unrecorded cultural resource properties whose eligibility is undetermined.	• Potential visual effect to one potentially eligible property (24LA211).
6.15/7.15 Parks and Recreation	• Increasing traffic, with more noise and visual distraction, near park and recreation areas.	• Places traffic, with more noise and visual distraction, closer to ballfield at north edge of Ronan. • Provides opportunity to improve access to and control use of recreation areas.	• Opportunity to improve access to and control use of park and recreation areas similar to Alignment 1. • Requires land for ROW along the east edge of city park.	• Diverts traffic away from city park and ballfield on existing alignment. • Increases traffic near the ballfield at the west edge of Ronan.	• Similar to Alignment 3. • Requires conversion of ballfield land to ROW.
6.16/7.16 Hazardous Materials	• Potential effect on human health due to transport of hazardous materials through community. • Nine existing sites near highway with moderate to high potential for contamination.	• Similar to No Action. • Nine existing sites near highway with moderate to high potential for contamination.	• Similar to No Action and Alignment 1. • Fifteen existing sites near highway with moderate to high potential for contamination.	• Moves transport of hazardous materials outside community. • Three existing sites near highway with moderate to high potential for contamination.	• Similar to Alignment 3. • Three existing sites near highway with moderate to high potential for contamination.
6.17/7.17 Visual	• Increased traffic reduces visual quality for views from and of the road.	• Increase in traffic reduces visual quality. As pavement width increases, disturbance and visual fragmentation of the streetscape also increase.	• Views from and of the road unchanged on northbound couplet, but adversely affected on new southbound roadway.	• New alignment opens new views from and of the road. • New and wider roadways cause visual impact to rural residential areas.	• Similar to Alignment 3.

Table 5.2-3 Comparison of Impacts: Ronan Alignments (continued)

Sections	No Action	MDT and CSKT Preferred Alternatives Alignment 1 (Existing Alignment)	Alignment 2 (One-Way Couplet)	Alignment 3 (West Alignment)	Alignment 4 (West Alignment)
6.18/7.18 Relocations	• No buildings require relocation.	• No buildings require relocation.	• Five buildings require relocation.	• Two buildings require relocation with Lane Configuration A. Lane Configurations B, C and D each require relocation of four buildings.	• Three buildings require relocation with Lane Configuration A, while Lane Configurations B, C and D require relocation of six, seven and seven buildings, respectively.
7.19 Energy and Commitment of Resources	• No improvement in traffic operating efficiency or related long-term decrease in energy use. • No commitment of resources required.	• Traffic operating efficiency and related energy use, as compared with rural sections of the highway, will be poor due to frequent acceleration and deceleration.	• Slight improvement over No Action and Alignment 1.	• Traffic operating efficiency and related energy use similar to rural sections of highway, and substantially better than Alignments 1 and 2.	• Similar to Alignment 3.
7.20 Construction	• No construction-related impact or cost.	• Short-term impacts occur for air quality, noise, water quality and other environmental resources. • Serious periods of inconvenience and delay to US 93 vehicle traffic during construction. • Short-term adverse impact to business.	• Short-term environmental impacts similar to Alignment 1. • Impact to business during construction less than Alignment 1.	• Short-term environmental impacts similar to Alignments 1 and 2. • Little or no inconvenience and delay to US 93 vehicle traffic.	• Similar to Alignment 3.

Table 5.2-4 Comparison of Impacts: Polson Alignments

Sections	No Action	MDT and CSKT Preferred Alternatives Alignment 1 (Existing Alignment)	Alignment 2	MDT Preferred Alternative Alignment 3
6.1/7.1 Traffic Operation	• As traffic volume increases, adverse operating conditions more severe, including reduced speed, frequent traffic flow interruption, high number of turns to and from highway and high traffic volume.	• MDT Preferred Alternative is Lane Configuration A, a two-lane highway with a continuous two-way left-turn center median. CSKT Preferred Alternative is Lane Configuration A, a two-lane highway, with left-turn bays. • Traffic flows more freely with additional lanes, and breaks in traffic are larger and more frequent.	• Adverse operating conditions on existing alignment greatly reduced. Speed increases and interruption is reduced on new roadway as a result of fewer highway approaches.	• MDT Preferred Alternative is Lane Configuration B, a four-lane highway. CSKT does not recommend Alignment 3 for the preferred alternative. • Similar to Alignment 2 but with fewer delays due to fewer highway approaches to new road.
6.1/7.1 Safety	• As traffic volume increases, more conflicts and potential safety problems related to highway traffic through the community.	• Conflicts and potential safety problems related to highway traffic similar to No Action. • Improvement in safety may occur if approaches are consolidated or eliminated and pedestrian crossings are improved.	• Conflicts and potential safety problems related to highway traffic through the community greatly reduced. Highway approaches substantially reduced, decreasing possibility of intersection- and driveway-related accidents.	• Similar to Alignment 2, but with fewer highway approaches, further reducing the possibility of intersection- and driveway-related accidents.
6.2/7.2 Land Use	• No highway improvement to encourage change of existing pattern of land use for commercial and residential development along highway through Polson.	• Pattern of land use changes slightly as highway improvement encourages more commercial development along the highway through Polson. • Converts 17 to 40 acres to highway ROW.	• Pattern of land use changes with introduction of highway in rural areas. • Without control of land use and access along new route, potential new development accelerates subdivision of land. • Converts 108 to 141 acres to ROW.	• Similar to Alignment 2. • Converts 140 to 179 acres to ROW.
6.3/7.3 Farmlands	• No impact for FPPA farmlands (prime or unique farmlands or farmlands of statewide or local importance).	• Requires conversion of up to 1.6 acres of FPPA farmland to ROW.	• Requires conversion of up to 29.5 acres of FPPA farmland to ROW.	• Requires conversion of up to 35.7 acres of FPPA farmland to ROW.
6.4/7.4 Social	• Increased barrier separating social interactions between north side of Polson and rest of city. • Access to business and recreation areas decreased. • Congestion could slow emergency vehicle response times. • Concentrated traffic diminishes positive perception of environment.	• Similar to No Action, except improvement for emergency vehicle response time. • Wider highway may increase barrier effect.	• Diversion of through traffic reduces congestion and barrier to social interaction and access to business and recreation areas. • Without control of land use and access along new route, barrier effect shifts as development and traffic increase in area of new route. • Less congestion improves emergency vehicle response time.	• Similar to Alignment 2.

Table 5.2-4 Comparison of Impacts: Polson Alignments (continued)

Sections	No Action	MDT and CSKT Preferred Alternatives Alignment 1 (Existing Alignment)	Alignment 2	MDT Preferred Alternative Alignment 3
6.5/7.5 Economics	• Business on highway remains visible to all traffic. • More congestion increases barrier to business. • Continues most drive-through traffic in long-term with additional travelers using MT 35. • Increased traffic discourages major tourist attractions from being developed along the shoreline of Flathead Lake.	• Similar to No Action. • During construction, short-term disruption of access to business.	• Travel patterns divert traffic around community. • Reduced potential tourist visual exposure to Polson area, and fewer businesses are visible to all traffic. • Long-term improvement of access to business in lake front area. • Traffic on local streets is not disrupted during construction.	• Similar to Alignment 2.
6.6/7.6 Pedestrians and Bicyclists	• More conflicts with pedestrians, particularly senior citizens and children. • Safety problems become more severe as traffic volume increases.	• Similar to No Action. • Some improvement occurs if additional crosswalks, traffic signals and pedestrian and bicycle paths are installed. • A wider highway may be slightly more difficult for pedestrians to cross.	• Pedestrian crossings and conflicts with pedestrians and bicyclists substantially reduced. • Crossings will be on a higher-speed highway than existing highway.	• Similar to Alignment 2, with even less potential for conflicts with pedestrians and bicyclist.
6.7/7.7 Air Quality	• PM_{10} concentration exceeds NAAQS in the spring due to accumulated winter sanding materials; chemical deicer reduces PM_{10}.	• CO concentration reduced. • PM_{10} similar to No Action.	• CO and PM_{10} concentration reduced in Polson.	• Similar to Alignment 2.
6.8/7.8 Noise	• Noise level will be 69 dBA, which exceeds FHWA noise abatement criterion of 67 dBA within 100 feet of highway centerline.	• Noise level in Polson similar to No Action in the design year.	• Noise level increases by as much as 22 dBA in area of new alignment and exceeds FHWA noise abatement criterion. • Noise level in Polson on existing alignment decreases slightly.	• Similar to Alignment 2.
6.9/7.9 Water Quality	• Storm water runoff continues to discharge directly into Flathead Lake.	• Drainage improvement potentially improves water quality, in concert with highway widening. • New bridge structure over Flathead River could have some impact to water quality.	• New crossings of Pablo feeder canal and bridge structure over Flathead River required, with related potential water quality impact. • Storm water runoff continues to discharge directly into Flathead Lake on existing alignment.	• Similar to Alignment 2.
6.10/7.10 Wetlands	• No impact to wetlands.	• Approximately ~~0.2 to 0.40~~ 15 acre affected~~, depending on lane configuration~~.	• Approximately ~~1.3 to 1.70~~ 37 to 2.26 acres affected, depending on lane configuration.	• Approximately ~~0.4 to 10~~ 08 acre affected~~, depending on lane configuration~~.

Table 5.2-4 Comparison of Impacts: Polson Alignments (continued)

Sections	No Action	MDT and CSKT Preferred Alternatives Alignment 1 (Existing Alignment)	Alignment 2	MDT Preferred Alternative Alignment 3
6.11/7.11 Floodplains and Stream Crossings	• No change to existing floodplains and stream crossings.	• If Lane Configuration B, C or D is constructed, requires new bridge north of the existing bridge over Flathead River. No substantial increase of historic floodplain elevations.	• Requires new bridge over Flathead River. No substantial increase of historic floodplain elevations.	• Requires new bridge over Flathead River. No substantial increase of historic floodplain elevations.
6.12/7.12 Fish and Wildlife	• No impact to fish and wildlife habitat.	• No impact to fish and wildlife habitat.	• Some loss of habitat may occur for wildlife, and some displacement of waterfowl may result from new roadway and bridge structure.	• Similar to Alignment 2, but with slightly less potential loss of habitat and displacement of waterfowl.
6.13/7.13 Threatened and Endangered Species	• No impact to threatened and endangered species.	• Not likely to adversely affect bald eagle. No impact to other threatened and endangered species.	• Not likely to adversely affect bald eagle. No impact to other threatened and endangered species.	• Not likely to adversely affect bald eagle. No impact to other threatened and endangered species.
6.14/7.14 Cultural Resources	• No impact to cultural resources.	• Potential impact to 10 historic properties. • Adverse effect on the NPRR Dixon-Polson branchline, which is an eligible site and has been previously recorded.	• Potential direct physical effect to one historic property, with undetermined eligibility.	• Similar to Alignment 2.
6.15/7.15 Parks and Recreation	• Increasing traffic, with more noise and visual distraction, near park and recreation areas.	• Potential impact to Municipal Golf Course and substantial impacts to Ducharme Park, Riverside Park and Lions Park. • Requires 1.4 acres of public land to convert to ROW.	• Converts from public land to ROW 16 and 20 acres of land with Lane Configurations B and D, respectively. • Converts to ROW a portion of the 7th Avenue ball fields, including part of one ball diamond.	• No impact to parks and recreation land.
6.16/7.16 Hazardous Materials	• Known contamination of soil along some portions of ROW and high potential for contamination along additional portions. • Potential effect on human health due to transport of hazardous materials through community. • Twenty-two existing sites near highway with moderate to high potential for contamination.	• Similar to No Action. • Twenty-two existing sites near highway with moderate to high potential for contamination.	• No known contamination of soil along ROW and some potential for contamination in two locations. • Moves transport of hazardous materials outside community. • Three sites near highway with moderate to high potential for contamination.	• Similar to Alignment 2. • One site near highway with moderate to high potential for contamination.

Table 5.2-4 Comparison of Impacts: Polson Alignments (continued)

Sections	No Action	MDT and CSKT Preferred Alternatives Alignment 1 (Existing Alignment)	Alignment 2	MDT Preferred Alternative Alignment 3
6.17/7.17 Visual	• No impact to existing visual character.	• Increase in visual scale of highway through town. • If Lane Configuration B, C or D is constructed, a new bridge structure will be required north of the existing bridge and will creates visual impact to Flathead River from many areas of Polson.	• Increase in views of Polson and Flathead Lake. • New and wider roadways cause visual impact to rural residential areas. • Grade changes along Kerr Dam Road require cut and fill to maintain an acceptable road grade, creating a visual impact to nearby residential areas. • New river crossing affects existing river view from many areas of Polson.	• Substantial decrease of views of Polson and Flathead Lake. • Hilly terrain prohibits a view of Flathead River until the road curves west to cross the river. • New road segments, increased road width along existing alignment, and new bridge across Flathead River have a visual impact to rural residential areas.
6.18/7.18 Relocations	• No buildings require relocation.	• May require relocation of one building and one residence. • Eliminates entirely, or reduces, substantial amounts of parking for business.	• Requires relocation of six buildings and six residences, and, additionally, may require relocation of three more buildings and three more residences.	• Requires relocation of three residences, and, additionally, may require relocation of four more buildings and three more residences.
7.19 Energy and Commitment of Resources	• Decreasing traffic operating efficiency or related long-term increase in energy use. • No commitment of resources required.	• Traffic operating efficiency and related energy use levels better than the existing conditions. • Some additional energy used by deceleration and acceleration required through installation of new traffic signals.	• Traffic operating efficiency and related energy use similar to rural sections of highway, and substantially better than Alignment 1.	• Similar to Alignment 2, with even more efficient movement on new alignment due to fewer highway approaches.
7.20 Construction	• No construction-related impact or cost.	• Short-term impacts occur for air quality, noise, water quality and other environmental resources. • Long periods of inconvenience and delay to US 93 traffic. • Adverse impact to business.	• Short-term environmental impacts similar to Alignment 1. • Minor impact to traffic during construction.	• Similar to Alignment 2.

5.3. THE MDT PREFERRED ALTERNATIVE

~~This section identifies the preferred alternative for segments of the roadway and explains reasons for selection.~~

The MDT Preferred Alternative to improve US 93 was developed by the Interdisciplinary (ID) Team,[13] which considered engineering and environmental studies; recommendations from community teams in Arlee, Ronan, Pablo and Polson; and public comment.[14] The MDT Preferred Alternative ~~of the ID Team~~ includes the recommendations of MDT, FHWA, Lake and Missoula counties and the cities of Ronan and Polson. CSKT, which also is a member of the ID Team, has made a recommendation for a preferred alternative that differs from that of the ID Team ~~has not made a recommendation for a preferred alternative.~~ The following sections describe the MDT Preferred Alternative and explain reasons for recommendations for alignment alternatives (Section 5.3.1), lane configurations (Section 5.3.2), TDM options (Section 5.3.3) and design options (Section 5.3.4).

Section 5.4 presents details about the CSKT Preferred Alternative.

5.3.1. Alignments of the MDT Preferred Alternative

Alignment 1 has been selected as the alignment alternative that is preferred throughout the area, except in Polson. Alignment 1 follows the existing highway alignment with only minor adjustments to improve the horizontal and vertical alignment of the roadway and to avoid, as much as practical, important topographic features, residences or other buildings and environmental features such as wetlands, streams and riparian areas.

Preservation of a corridor of land for future construction of the highway around Arlee and Ronan is recommended on Alignment 2 through the Arlee area and Alignment 4 through the Ronan area. Corridor preservation 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 ROW by MDT; and other public/private cooperative methods.

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. Alignment 1 will remain as a business and scenic route through Polson. On Alignment 3, access should be restricted to only intersections with Skyline Drive, Kerr Dam Road, Irvine Flats Road, US 93 at both ends and existing driveways along Caffrey Road. Signing should be provided to designate Alignment 3 as a truck route and the existing route (Alignment 1) as a business and scenic route. (Figure 5.1-3)

Specific reasons for the selection of alignment alternatives in Arlee, Ronan and Polson are discussed in the following paragraphs.

Arlee. Specific reasons for selecting Alignment 1, the existing alignment, for improvements to US 93 in the Arlee area include the following:

- Information received during the public scoping process indicates the public is strongly in favor of constructing the new roadway on its existing alignment.

- Substantial public opposition has been expressed to each of the alignments (Alignments 2, 3 and 4).

---

[13]As explained in Section 10.1.2, the ID Team is an advisory group with representatives from governmental agencies with legal jurisdiction in the area of the proposed action.

[14]As explained in Section 10.1.2, the community teams are advisory groups with representatives from governments, schools, business and citizens groups in communities.

- Alignment 2 may impact important cultural resource sites west of Arlee.

- Many residents of Arlee feel that reconstructing the roadway on its existing alignment will be most safe for pedestrians and bicyclists, particularly school children. They indicate having the lower speed traffic through the community will be much more safe than constructing a higher speed roadway west or east of the community.

- Constructing Alignment 3, just east of Arlee, may impact the public schools, the rodeo grounds and the powwow grounds.

- Constructing Alignment 4 will remove a substantial amount of farmland from production; introduce traffic and related noise, air quality and other impacts to areas currently not impacted; and require a new crossing of the Jocko River.

- Alignment 1 will have the least impact on existing highway-oriented business. Economic studies indicate that diverting traffic away from highway-oriented business may adversely affect them. Representatives of local business and many local residents feel strongly that any impact on existing business will have substantial negative impacts on the economy -- they feel some businesses will not be able to survive and many jobs will be lost.

- Less land will be converted to highway ROW than with Alignments 2, 3 or 4.

- No streams or other water bodies will be crossed, and no floodplains will be affected.

- There will be negligible impacts on threatened or endangered species and other wildlife.

- No sites that are eligible for the National Register of Historic Places (NRHP) will be impacted.

- There will be minor use of Section 4(f) property.

Ronan. Specific reasons for selecting Alignment 1, the existing alignment, for improvements to US 93 in the Ronan area include the following:

- Montana law prohibits MDT from constructing highway routes that divert motor vehicles away from an existing roadway without the consent of the governing body (MCA 60-2-211). The city of Ronan has denied consent. This effectively prohibits the construction of Alignment 3 or 4.

- Information received during the public scoping process indicates the public is in favor of constructing the new roadway on its existing alignment.

- Substantial public opposition has been expressed to each of the alignments (Alignments 2, 3 and 4).

- Constructing Alignment 2, the one-way couplet, will require the relocation of several buildings and will introduce highway traffic into residential and other areas, with related noise, air quality, safety and other impacts.

- Constructing Alignment 3 or 4 will remove a substantial amount of farmland from production and introduce traffic and related noise, air quality, safety and other impacts to areas currently without highway traffic.

- Alignment 1 will have the least impact on existing highway-oriented business. Economic studies indicate that diverting traffic away from highway-oriented business may adversely affect them. Representatives of local business and many local residents feel strongly that any impact on existing business will have substantial negative impacts on the economy -- they feel some businesses will not be able to survive and many jobs will be lost.

- Less land will be converted to highway ROW than with Alignments 2, 3 or 4.

- There will be negligible impacts on threatened or endangered species and other wildlife.

- No sites that are eligible for the NRHP will be impacted.

- There will be no use of Section 4(f) property.

Polson. Specific reasons for selecting Alignment 3, the western-most alignment, and improvements to Alignment 1, the existing alignment, in the Polson area include the following:

- Information received during the public scoping process indicates the majority of the public is in favor of constructing a new roadway on a new alignment.

- The Polson Community Team's recommendation for a preferred alternative also is for construction of Alignment 3 and improvements to the existing alignment.

- Constructing Alignment 2 will have direct impacts to a Section 4(f) site, will require the greatest number of residence relocations, will have noise impacts to the greatest number of sensitive receptors and has some potential to affect threatened and endangered species.

- Constructing Alignment 1 will not improve safety conditions substantially, will increase the barrier effect, may have direct impacts to four Section 4(f) sites, will have the greatest potential to encounter hazardous materials, will require taking a substantial amount of parking from existing businesses and will create the greatest construction related impacts to business and traffic.

- There will be negligible impacts on threatened or endangered species and other wildlife.

- One site eligible for the NRHP will be impacted.

- There will be no use of Section 4(f) property.

- Traffic operating efficiency will be greater than with Alignments 1 or 2 due to fewer highway approaches.

- The Polson City Council has voted in favor of the MDT Preferred Alternative.

5.3.2. Lane Configurations of the MDT Preferred Alternative

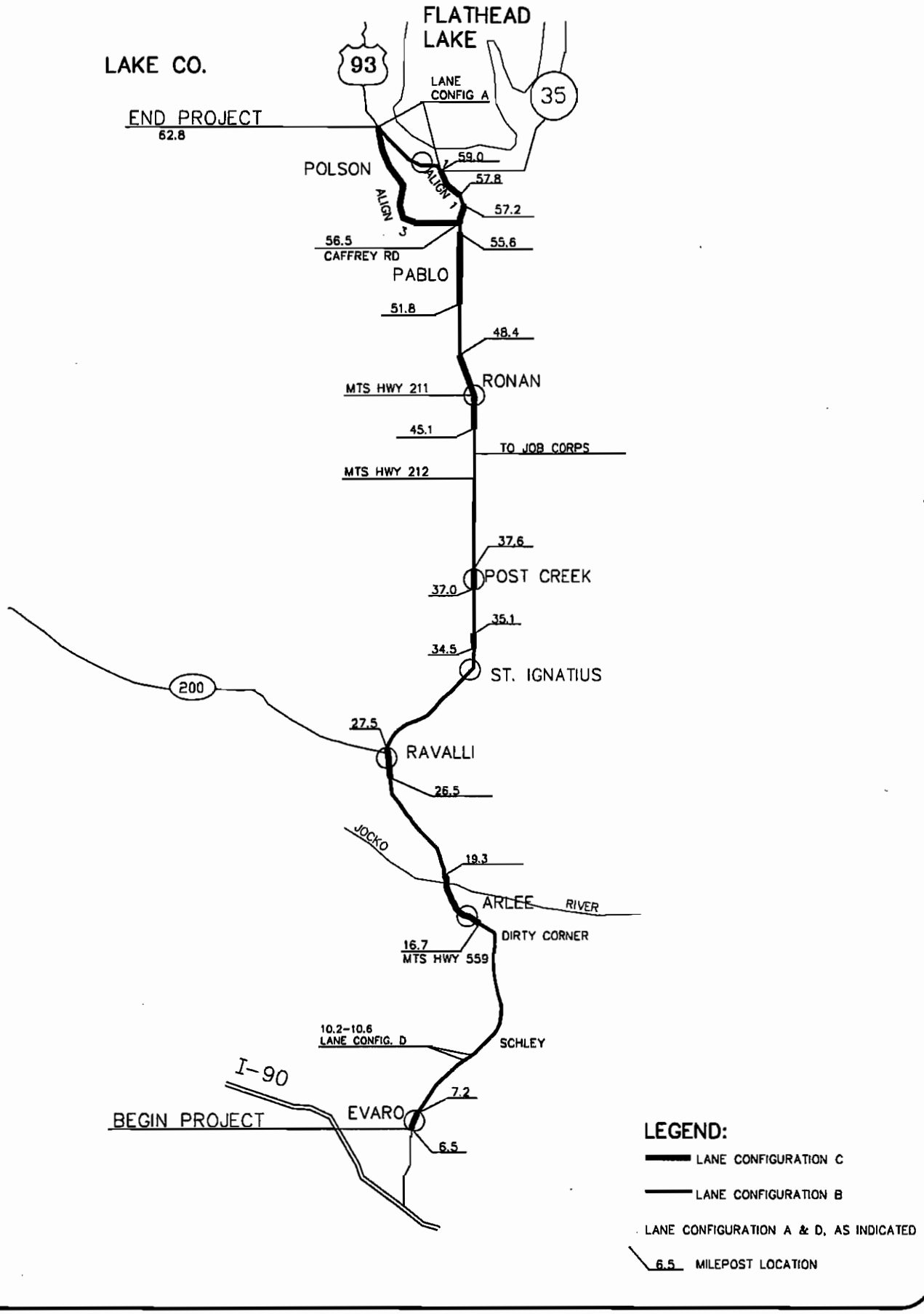
A discussion of where each lane configuration generally is most appropriate is included in following paragraphs. Specific locations where each lane configuration has been selected are shown on Table 5.3-1 and Figure 5.3-1.

Selected lane configurations shown on the table at specific locations are based on existing and projected future conditions. The locations and lengths shown are intended to be a current best estimate of the extent of each lane configuration that should be constructed. As the construction date for each segment of the proposed action nears,

Table 5.3-1 Lane Configuration of the Preferred Alternative

LOCATION (Mileposts)		LANE CONFIGURATION				LOCATION DESCRIPTION
FROM	TO	A	B	C	D	
6.5	7.2			0.7		Evaro
7.2	10.2		3.0			Evaro to vicinity of Joe's Smoke Ring
10.2	10.6				0.4	Evaro wildlife corridor (Joe's Smoke Ring to Schley homesites)
10.6	16.7		6.1			Schley homesites to Jocko Road (~~MTSFAS~~ 559)
16.7	17.3			0.6		Jocko Road (~~MTSFAS~~ 559) to Arlee
17.3	18.4			1.1		Arlee
18.4	19.3			0.9		Arlee to north of Dumontier Road
19.3	26.5		7.2			North of Dumontier Road to Ravalli
26.5	27.5			1.0		Ravalli
27.5	34.5		7.0			Ravalli to north of St. Ignatius
34.5	35.1			0.6		Vicinity of Lemery/Pinsoneault roads, north of St. Ignatius
35.1	37.0		1.9			North of St. Ignatius to Post Creek area
37.0	37.6			0.6		Post Creek area
37.6	45.1		7.5			Post Creek area to area south of Ronan
45.1	46.1			1.0		Area south of Ronan
46.1	47.9			1.8		Ronan
47.9	48.4			0.5		Ronan to vicinity of Baptiste/Spring Creek roads, north of Ronan
48.4	51.8		3.4			North of Ronan to Pablo
51.8	53.6			1.8		Pablo
53.6	55.6			2.0		North of Pablo, vicinity of Courville/Light roads to North Reservoir Road/Minesinger Trail
55.6	56.5		0.9			North Reservoir Road/Minesinger Trail to Caffrey/Ford roads
56.5	57.2			0.7		Caffrey/Ford roads to highway segment with narrow width due to hill and railroad tracks
57.2	57.8		0.6			Highway segment with narrow width
57.8	59.0			1.2		Highway segment with narrow width to MT 35
59.0	61.1	2.1*				MT 35 to Flathead River bridge, Polson
61.1	62.8	1.7**				Flathead River bridge to end of proposed action, Polson
SUBTOTAL: EXISTING ALIGNMENT		3.8	37.6	14.5	0.4	
56.5	62.8		5.8			Alignment 3 around Polson
TOTALS		3.8	43.4	14.5	0.4	

Morrison-Maierle and Carter Burgess. 1994.
*. No change in existing lane configuration. ** Addition of a continuous two-way left-turn center median.



LANE CONFIGURATION OF THE MDT PREFERRED ALTERNATIVE **FIGURE 5.3-1**

US93EIS\FIG53-1.DWG 6-04-96

refinements and revisions to these locations and lengths may be necessary, but substantial and extensive revisions are not expected.

Lane Configuration A

Lane Configuration A, the ~~modified~~improved two-lane alternative, is recommended for 3.8 miles (seven percent) of the proposed action, including in Polson on Alignment 1 and temporarily as part of the Polson truck route (Alignment 3). It is not recommended for the remainder of the proposed action because it will not meet the purpose and need for the following reasons:

- Lane Configuration A will provide no substantial improvements in the existing capacity and poor LOS of the roadway. The existing two-lane highway is generally operating at LOS D and E and is projected to operate at LOS ~~E and~~ F by the design year ~~2015~~2020. Lane Configuration A will provide only minor improvements in LOS and capacity. It also is projected to generally operate at LOS ~~E and~~ F in the design year. Construction of passing lanes or truck climbing lanes "where needed" will improve LOS in the direction of the additional lane, but will not improve and may actually be detrimental to LOS of the opposing traffic lane.

  As indicated in Section 4.4, acceptable operation for a highway of this type is considered to be LOS B. Construction of any of the four-lane configurations (Lane Configuration B, C or D) will increase the highway's capacity to three-to-four times existing levels or Lane Configuration A levels. A four-lane highway will ensure the highway facility will accommodate projected traffic volumes through the design year ~~2015~~2020.

- Lane Configuration A will not help to substantially reduce head-on collisions and rear-end collisions, which generally are more serious and cause more serious injuries and damage. For example, studies of accident records have indicated injury accidents were reduced to approximately one-third and fatalities were eliminated in the first five years after the six-mile section of US 93 from Interstate Highway 90 to Evaro was improved from two lanes to four lanes.

Lane Configuration B

Lane Configuration B, the four-lane undivided highway alternative with no continuous two-way left-turn center median, is recommended for most of the length of the proposed action, approximately 37.6 miles (67%) on the existing alignment and, when warranted by traffic volume, 5.8 miles on Alignment 3 at Polson ~~(70%)~~. It includes areas where:

- There are currently lower numbers of approaches to the highway and consequently not a large demand for left turns from the highway, and

- Construction of a wider roadway to include a continuous two-way left-turn center median (Lane Configuration C) or a divided highway (Lane Configuration D) will: 1) cause substantial, otherwise avoidable, environmental impacts or 2) require unreasonable construction costs.

~~Wherever Lane Configuration B is recommended, it will include the design options of constructing a four-foot wide painted center median and designated left-turn bays.~~

A survey conducted in 1994 for the Confederated Salish and Kootenai Tribes, of both tribal members and non-tribal members living on the Flathead Indian Reservation, indicates agreement that serious problems exist with driving conditions on many sections and overall on the highway. Approximately 55% of both groups rated overall driving conditions as having serious problems. The survey also indicated that 63% of tribal members and 63% of non-tribal members either supported or strongly supported converting US 93 to an undivided four-lane highway with turn bays

at intersections (Lane Configuration B). Overall, there was more support for a four-lane highway than a two-lane highway, but tribal members indicated more support than non-tribal members for a two-lane highway. Approximately 47% of tribal members, compared with 31% of non-tribal members, either supported or strongly supported maintaining US 93 as a two-lane highway and adding turn bays and passing lanes[18].

Lane Configuration C

Lane Configuration C, the four-lane highway alternative with a continuous two-way left-turn center median, is recommended for 14.5 miles (25%) of the proposed action, including areas where:

- In communities and where there are currently higher numbers of approaches to the highway and consequently a large demand for left turns from the highway.

- The density and use of approaches and the density of development adjacent to the highway are such that substantial reductions in the number of current approaches by implementation of partial access control and construction of frontage roads is not practical.

- A substantial amount of development already has occurred, and it is considered desirable to accommodate this development by providing many opportunities for left turns, and

- Construction of a wider roadway to include a continuous two-way left-turn center median can be accomplished without: 1) causing substantial, otherwise avoidable, environmental impacts or 2) requiring unreasonable construction costs.

Lane Configuration D

Lane Configuration D, the four-lane highway alternative with an unpaved center median at least 40-feet wide, is recommended on 0.4 mile (one percent) of the proposed action. This is in the area of the Evaro wildlife corridor. It will provide better opportunity to construct safe and effective wildlife crossings.

Polson Area. The lane configurations selected in Polson are explained in the following paragraphs:

Alignment 1, MT 35 to the Flathead River bridge - Similar to Ronan, Arlee and Evaro, there is a high demand for left turns from the highway. Lane Configurations B and C were not selected because of the extensive impact to business parking, relocation of several buildings, and encroachment into Flathead Lake and Ducharme Park. Alignment 3 is expected to provide relief for through traffic movements and provide for a higher speed facility with few access points. Therefore, for this segment on the existing alignment, US 93 is recommended to remain in the existing lane configuration (two lanes with a continuous two-way left-turn center median).

Various Transportation System Management (TSM) improvements are recommended for this section including adding designated left-turn bays, traffic signals, asphalt overlay, intersection and safety improvement and pedestrian and bicycle improvement.

Alignment 3 - Lane Configuration B has been selected by the ID Team on Alignment 3 to carry traffic volume in the design year ~~2015~~2020. Because of current lower traffic volume, Lane Configuration A with

[18]Bioeconomics, Inc. and Boyer Consulting Services. Draft, U.S. Highway 93 Corridor Use and Opinion Survey - Summary Results and Survey Methodology. 10 November 1994. Pages 10-11. The percentages do not add to 100% because some respondents indicated support or strong support for both improvement alternatives and some indicated support for neither.

passing lanes is recommended for initial construction on Alignment 3, along with acquisition of ROW for future construction of Lane Configuration B.

5.3.3. Transportation Demand Management

TDM alternatives under consideration for the proposed action are described in Section 5.1.4.

Studies, evaluations and public/agency comments received to-date indicate that:

- Implementation of TDM measures is a desirable, long-term goal, and any highway improvement should be designed to: 1) not reduce or adversely affect TDM activities already occurring and 2) accommodate and promote increased use of TDM.

- Incorporation of TDM is not likely to substantially reduce existing and design year ~~2015~~2020 traffic demand and volume on US 93. TDM will, therefore, not substantially reduce the need for highway improvement.

A transit development plan (TDP) being prepared for Lake County may identify measures that can be included in the final design of highway improvement. ~~The results of the TDP will be available for the final EIS.~~

5.3.4. Design Options of the MDT Preferred Alternative

Design options under consideration for the proposed action are described in Section 5.1.6. Recommendations for the application of some of the more prominent and more readily identifiable design options are described in following paragraphs. Others will be more appropriately addressed during the design phase of the proposed action. After the final EIS is complete, it is recommended participation of community teams (developed during the environmental analysis phases) be continued through project design phases. This will help ensure that local involvement is continued to help select the most appropriate design options. With this concept, a team will be organized for each of the anticipated six or more construction projects, and each team will consist of representatives of local and tribal governments, business, schools and possibly other community organizations. Each team will meet several times during design phases with project engineers and designers to review construction plans as they are developed and provide local suggestions and information.

Arlee Design Options

The Arlee Community Team identified a preferred alternative as follows:

1. Improve the existing alignment through Arlee.

2. The highway should have two lanes for traffic, with a continuous two-way left-turn center median. (As indicated in Section 5.3.2, the MDT Preferred Alternative, which was recommended by the ID Team, is Lane Configuration C, a four-lane highway with a continuous two-way left-turn center median.)

3. Include an eight-foot shoulder, but prohibit on-street parking. (If Lane Configuration C is constructed, 2.5 foot wide shoulders will be used with no on-street parking.)

4. Include sidewalk, curb and gutter.

5. Install a pedestrian-activated traffic signal at the intersection of "B" Street (Butch Larsen/Taclman) and US 93. Install advance traffic signal warning lights north and south of the traffic signal.

6. Educate school children to cross the highway only at the traffic signal crossing. The Arlee schools should provide crossing guards at the traffic signal crossing.

7. Do not develop a process for a transportation "corridor preservation" plan for the community. The community team indicated there is not a "general charge" from the Arlee community to develop land use planning and regulation in the Arlee area. The community team indicated land use planning and regulation should be developed with the authority available for the Confederated Salish and Kootenai Tribes and Lake County.

8. Develop a plan for posting highway signs that state US 93 through the Flathead Indian Reservation is not a "super highway." Highway signs also should state a 55 miles per hour (mph) speed limit[16] is enforced, and the highway route is located to route traffic through communities.[17]

Ronan Design Options.

The Ronan Community Team identified a preferred alternative as follows:

1. Improve the existing alignment through Ronan.

2. The highway through Ronan should have a lane configuration similar to the lane configuration of the highway outside town. If the overall highway has two lanes, the highway in Ronan should have two lanes, possibly with a continuous two-way left-turn center median. If the overall highway has four lanes, the highway in Ronan also should have four lanes, with a continuous two-way left-turn center median.

3. Include sidewalk, curb and gutter.

4. Include pedestrian-activated traffic signals at three locations:

   - Round Butte Road (MTS 211)

   - Eisenhower Street

   - Buchanan Street

   The current traffic signal is located at Round Butte Road. A flashing signal and pedestrian crossing currently is located at Eisenhower Street, which is in the southern part of Ronan.

5. Educate school children to cross the highway only at the signalized crossings.

6. Provide bicycle access with a signed route through Ronan.

7. Develop a process for a transportation "corridor preservation" plan for the community. The city of Ronan has been developing a comprehensive plan since late-1993, and it has indicated a corridor should be located farther west than either Alignment 3 or Alignment 4.[18]

---

[16]The Arlee Community Team provided their recommendations regarding a 55 mph speed limit prior to the removal of federal mandates for speed limits. Montana has not enacted legislation to establish formal, posted daytime speed limits.

[17]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.

[18]Montana Code Annotated, 76-2-310.

8. Begin to plan for a truck route or bypass, as long as those plans are to not construct an alternative highway route at the present time.

9. Schedule construction of the highway through the Ronan area as one of the last construction projects. That will allow some time to consider the rates of growth for population and traffic volume.

Pablo Design Options. ~~Several specific design options are recommended in Pablo, as developed by the Pablo community team. These options include frontage roads, access control, raised medians, additional median width to accommodate the raised median, designated left turn bays, approach consolidation, traffic signals, lighting, concrete curb and gutter and pedestrian crossings.~~

The Pablo Community Team discussed the following options:

Option 1 - 30-Foot Wide Raised Curb Median. This was unanimously selected as the team's preferred alternative with some minor modifications discussed below.

Option 2 - 14-Foot Wide Painted Median. Adequate for vehicles but unsafe for pedestrians.

Option 3 - Pedestrian Underpasses. Undesirable - the area has ground water problems, and the roadway would have to be raised four to five feet. It will be difficult to determine the number required and the most advantageous locations. It will be difficult to get pedestrians to use them.

Option 4 - Vehicular Underpass. This option received the most negative reaction. Drainage and ground water problems will require raising the roadway about 18 feet, which will be a visual detriment with access problems.

Following are the modifications to Option 1 preferred by the Pablo Community Team:

1. Use a curb and gutter typical section rather than the rural type which had been planned. This generally tends to slow traffic and gives better expectation of signals in the area.

2. Retain the frontage road on the west side from Second Street to the approach near the Third Street location. This should be kept as near US 93 as possible.

3. Representatives of the schools suggested that the frontage road on the east, from College Street, (right of Station 1071+50) north to Clairmont Street, is not required and would not be desirable. They recommended an approach, opposite the Third Street approach, that would tie to their existing roadway network and would be the least disruptive. A minor amount of work will be required to connect the access between the college and Two Eagle River School along the present ROW line. The access road on the east side of the college that was constructed in the fall of 1992 could possibly be extended to the Two Eagle River School parking lot providing two means of access.

4. The frontage road on the east will then connect the approach opposite Division Street northerly to College Street (Station 1071+50). An approach was suggested at that location, but there is only about 550 feet between it and Division Street, which is inadequate for any left-turn bays.

5. The convenience store - gas station opposite Division Street has considerable large truck traffic, for which the above recommendations may pose difficulties for turning movements and access to and from US 93. Access for this location should be carefully studied. In addition, a 60 unit housing development is being developed in this area.

6. A landscaped median probably is not feasible for this area. Landscaping outside the clear zone between the highway and frontage roads and on the fill slopes may be possible but the responsibility for maintenance would have to be defined.

7. If the east-side frontage road is eliminated from College to Clairmont streets, a foot or bike path will be appropriate.

Polson Design Options. Several specific design options are recommended in Polson:

1. Recommend improvements to existing US 93 within two-to-five years, including but not limited to: adding turn lanes, signalization, asphalt overlay, intersection and safety improvements and pedestrian and bicycle improvements.

2. Acquire ROW adequate for a four-lane highway for Alignment 3, which will cross Flathead River south of the airport, then continue northward along an alignment west of the airport.

3. Construct a two-lane highway with truck climbing lanes as soon as possible.

4. Provide signage on Alignment 3 as a truck route and the existing route as a business and scenic route.

5. Incorporate access management and land use planning and regulation.

6. Provide for a highway connection back to Polson at Irvine Flats Road.

7. Provide adequate design of intersections of Alignment 3 with existing US 93.

8. Provide a grade separation at the intersection with Kerr Dam Road on Alignment 3.

9. Construct an additional two lanes on Alignment 3 when needed in the future.

Auxiliary Lanes. Existing public roads and highways intersecting US 93 have been evaluated to determine the need for left-turn bays. The evaluation was based on existing and projected future left-turn volumes from US 93, accident history, sight distance and other geometric considerations, growth potential, wetland impacts and other potential environmental impacts. Based on this evaluation, it is estimated that left-turn bays should be constructed at approximately 46 of the existing intersections (outside areas recommended for Lane Configuration C, as listed on Table 5.3-2). It is recognized that, as final design progresses, more detailed information will become available, and it is possible that the number of left-turn bays required may change.

Access Control. Partial, or limited, access control is recommended for the entire length of the highway except for short distances as the highway passes through the following communities: Evaro, Arlee, Ravalli, St. Ignatius, Post Creek, Ronan, Pablo and Polson. Partial access control features and benefits are described in Section ~~6.1~~7.1.3.2.

Table 5.3-2 Existing Intersections To Have Left-Turn Bays

Milepost	Intersection	
	Description	Left-Turn Bay Direction
8.60	Unnamed Road	Southbound to Eastbound
9.30	Whispering Pines Road	Northbound to Westbound
9.9	Joes Smoke Ring	Northbound to Westbound
10.10	Coriacan Road	Southbound to Eastbound
11.20	Schley Homesites	Northbound to Westbound and Southbound to Eastbound
12.05	Unnamed Road at East Finley Creek	Southbound to Eastbound
12.20	Sheep Ranch Inn	Southbound to Eastbound
13.05	McClure Road	Northbound to Westbound and Southbound to Eastbound
13.40	Doney Road	Northbound to Westbound
14.05	Mountain Home Lane	Southbound to Eastbound
15.10	South Couture Loop	Northbound to Westbound
15.20	Dirty Corner	Southbound to Eastbound
15.85	Unnamed Road	Southbound to Eastbound
15.95	Private Drive	Southbound to Eastbound
16.10	Private Drive	Southbound to Eastbound
16.20	Coombs Lane	Northbound to Westbound
16.55	Cottonwood Lane	Northbound to Westbound
16.70	Jocko Road	Southbound to Eastbound
17.20	Lumprey Road	Northbound to Westbound and Southbound to Eastbound
18.70	Saddle Mountain Road	Northbound to Westbound
18.95	Private/Commerical Drive(Bar/feed/store/campground)	Northbound to Westbound and Southbound to Eastbound
19.00	Dumontier Road	Southbound to Eastbound
19.80	White Coyote and Detwiler Roads	Northbound to Westbound and Southbound to Eastbound

Morrison-Maierle, Inc. 1994. This table has been added to the final EIS.

Table 5.3-2 Existing Intersections To Have Left-Turn Bays (Cont'd)

Milepost	Intersection	
	Description	Left-Turn Bay Direction
20.00	Montana Naturals	Southbound to Eastbound
21.25	Rentfro Road and Scott Lane	Northbound to Westbound and Southbound to Eastbound
22.75	South Valley Creek Road	Northbound to Westbound
25.00	North Valley Creek Road	Northbound to Westbound
29.15	Bison Range Viewpoint	Northbound to Westbound and Southbound to Eastbound
30.40	Old Freight Road	Northbound to Westbound
30.55	Pistol Creek Road	Southbound to Eastbound
31.20	Old U.S. 93	Southbound to Eastbound
31.60	Blood Ranch Lane	Northbound to Westbound
32.30	Sabine Road and Road to Mission Church	Northbound to Westbound and Southbound to Eastbound
32.70	Commercial Drive and Mountain View Road	Northbound to Westbound and Southbound to Eastbound
33.10	Lower Crossing Road and Airport Road	Northbound to Westbound and Southbound to Eastbound
35.10	Pinsoneault and Lemery Roads	Northbound to Westbound and Southbound to Eastbound
36.10	Hawkins and Ashley Lake Roads	Northbound to Westbound and Southbound to Eastbound
37.10	Dublin Gulch and Red Horn Roads	Northbound to Westbound and Southbound to Eastbound
38.10	Post Creek Road (East and West)	Northbound to Westbound and Southbound to Eastbound
39.10	Leon and McDonald Lake Roads	Northbound to Westbound and Southbound to Eastbound
40.10	Olsen and Gunlock Roads	Northbound to Westbound and Southbound to Eastbound
40.95	Private Drive (Allentown)	Southbound to Eastbound

Morrison-Maierle, Inc. 1994. This table has been added to the final EIS.

Table 5.3-2 Existing Intersections To Have Left-Turn Bays (Cont'd)

Milepost	Intersection	
	Description	Left-Turn Bay Direction
41.10	Recreation Site Road and Eagle Pass Trail	Northbound to Westbound and Southbound to Eastbound
42.10	Highway 212 and Kicking Horse Road	Northbound to Westbound and Southbound to Eastbound
42.35	Commercial and Private Drives (Countryside Cafe)	Northbound to Westbound and Southbound to Eastbound
43.10	Duck Road	Northbound to Westbound
43.60	Mollman Pass Trail	Southbound to Eastbound
44.10	Beaverhead Lane and Private Drive/Rest Area	Northbound to Westbound and Southbound to Eastbound
45.10	Private Drive (Industrial)	Southbound to Eastbound
45.35	Bouchard Road	Northbound to Westbound
45.50 to 45.70	Unnamed Roads and Drives	Southbound to Eastbound
48.30	Baptiste and Spring Creek Roads	Northbound to Westbound and Southbound to Eastbound
50.10	Mud Creek Lane	Northbound to Westbound and Southbound to Eastbound
50.90	Old U.S. 93	Northbound to Westbound and Southbound to Eastbound
54.10	Skylark Lane	Northbound to Westbound
54.50	Grover Road and Mud Lake Trail	Northbound to Westbound and Southbound and Eastbound
55.00	Lake County Gravel Pit Road and Commercial Drive	Northbound to Westbound and Southbound to Eastbound
55.50	North Reservoir Road and Minesinger Trail	Northbound to Westbound and Southbound to Eastbound
56.50	Caffrey and Ford Roads	Northbound to Westbound and Southbound to Eastbound

Morrison-Maierle, Inc. 1994. This table has been added to the final EIS.

Traffic Signals. Traffic signals will be considered when counts and studies indicate they are warranted by traffic and pedestrian volumes and characteristics, including the following locations:

- Arlee - "B" Street (Butch Larsen/Taelman) (existing flashing yellow light)
- Ronan - Round Butte Road (existing signal)
- Pablo - Division Street
- Polson - MT 35 (Installed in 1995)
- Polson - First Street East (existing signal)
- Polson - Main Street
- Polson - Bayshore Drive/Golf Course Entrance

It is anticipated that, during future stages of project development, warrants for additional signals may be determined. These intersections include:

- Pablo - Clairmont / Pablo West Road
- Ronan - Eisenhower Street (existing flashing yellow light)
- Ronan - Buchanan Street
- Polson - 4th Avenue East (Super 1 Foods)
- Polson - 8th Street East
- Polson - Alignment 3 (Caffrey Road)
- Polson - Alignment 3 (End of Proposed Action)

Some other important intersections may warrant the installation of traffic signals in the future. As highway improvement occurs, intersections where signalization appears likely to be required should be designed and constructed to allow the installation of the signals when traffic volume and characteristics indicate they are warranted.

Pedestrian Facilities. The following pedestrian facilities are recommended at this time:

- When signals are installed at the signal locations listed above, include push-button actuated pedestrian signals. Also install crosswalks.
- In Arlee, Ronan and Polson, construct five-foot concrete sidewalks on both sides of the highway adjacent to the back of the concrete curb and gutter at the shoulder of the roadway.
- In all other areas, construct eight-foot paved shoulders.
- Shoulders will be widened where appropriate to allow school buses to pull out of traffic lanes to load and unload students.

Other recommended pedestrian facilities may be identified with the final design and additional information from community teams.

Bicycle Facilities. The following bicycle facilities are recommended at this time:

- In ~~all~~rural areas ~~except Arlee~~, construct eight-foot paved shoulders with a three-foot "rumble strip" to provide adequate width for bicycle travel and effectively separate it from highway traffic.

- Through the Arlee, Ronan and Polson areas, if roadway shoulders narrower than six feet are constructed, develop designated bicycle routes through the community and away from the highway on existing streets with appropriate signing, pavement marking and other safety features.

- Perpetuate the existing bicycle/pedestrian path between the town of Arlee and the tribal housing complex at the north end of town.

Other recommended bicycle facilities likely will be identified with the final design and additional information from community teams.

Four-Foot Painted Center Median. Use of this painted median is not recommended. ~~in all areas where Lane Configuration B (a four-lane highway with no continuous two-way left-turn center median) is constructed. This will~~It is not wide enough to effectively help separate opposing traffic lanes, help reduce opposing headlight glare and ~~may~~ help reduce head-on collisions. Its use does not justify the substantial construction cost and the adverse additional environmental impacts that would occur.

Wildlife Crossings.

The following recommendations are made for the Evaro wildlife crossings:

- Construct Lane Configuration D from Mileposts 10.2 to 10.6,

- Construct 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.[19]

- ~~Construct two wildlife underpasses — one at Milepost 10.3, which will include a three-span structure with a 60-foot center span, and one at Milepost 10.5, which will include a structure with a single 60-foot span and vertical abutments — taking advantage of the 40-foot Lane Configuration D divided, unpaved center median to provide an opening in the structures to avoid any "tunnel effect" in lighting.~~

- Implement other mitigation measures recommended in the "Evaro Corridor Wildlife Use Study" completed by CSKT including:

  Fencing the highway ROW with 10-foot high fences located 150 feet from the outer edge of the borrow pit on both sides of the highway to facilitate wildlife movement toward the overpass;

[19]Morrison-Maierle Environmental Corporation, Biological Assessment, F 5-1(9)6, U.S. Highway 93, Evaro through Polson, 11 October 1996.

Establishing vegetation outside fences to provide security for animals approaching the overpass. Planting of trees and shrubs to screen animals from traffic would be proposed if natural vegetation has been removed or is sparse;

Constructing one-way gates in the fences on both sides of the highway to facilitate escape of animals trapped inside the fences;

Managing vegetation between the fences and the highway to provide escape and security cover for animals that become trapped inside the fences.

Constructing game trails, if necessary, to direct animals toward the overpass;

Closing and revegetating dead-end roads leading off the highway in the immediate vicinity of the overpass; and

Supporting the joint effort of the Confederated Salish and Kootenai Tribes and Missoula County to develop land use planning and regulation for the Evaro area.

~~Drift and exclusion fencing and one-way gates,~~

~~Signing at either end of the corridor,~~

~~Closure of dead-end roads, and rerouting through roads from other accesses,~~

~~Vegetation management inside and outside the fencing,~~

~~Joint effort by tribal and local governments for effective land use planning and regulation.~~

Other recommended wildlife crossing measures include an expanded bridge structure at Post Creek to allow larger animals to follow the stream across the highway and, if workable and practical designs can be developed, crossings for turtles in the Ninepipe refuge area.

Concrete Curb and Gutter

In the communities of Arlee, Ravalli, Ronan, Pablo and Polson, concrete curb and gutter is recommended at the edge of the roadway to coordinate with the more urban settings, to help control entrances to the highway, to control drainage and to reduce the amount of ROW required for construction.

5.4. THE CSKT PREFERRED ALTERNATIVE

Section 5.4 presents the CSKT Preferred Alternative. The Tribal Council of the Confederated Salish and Kootenai Tribes submitted its preferred alternative with a cover letter dated 29 February 1996.

9100.82 020 F

THE CONFEDERATED SALISH AND KOOTENAI TRIBES
OF THE FLATHEAD NATION
P.O. Box 278
Pablo, Montana 59855
(406) 675-2700
FAX (406) 675-2806

RECEIVED
MAR - 5 1996
MORRISON—Maier

February 29, 1996

Mr. Joel Marshik
Manager, Environmental Services
Montana Department of Transportation
2701 Prospect Avenue
Box 201001
Helena, Montana 59620-1001

RE: U.S. HIGHWAY 93 EVARO TO POLSON PROJECT, TRIBES' PREFERRED ALTERNATIVE

Dear Mr. Marshik:

Please accept the materials accompanying this letter as a statement of the Confederated Salish and Kootenai Tribes ("Tribes") preferred alternative for the U.S. Highway 93 Evaro to Polson Project ("Project"). This statement is submitted with the intent that the selected alternative will be included within the Final Environmental Impact Statement for the Project and identified as a preferred alternative.

The Federal Highway Administration ("FHWA") is the lead agency with oversight responsibility for assuring that this Project complies with the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. 4321 - 4370b. FHWA has prescribed policies and procedures for implementing NEPA at 23 CFR 771, as amended, and is also subject to the regulations of the Council on Environmental Quality ("CEQ") at 40 CFR 1500 - 1508. As lead agency in this process, FHWA retains ultimate responsibility for preparing the Environmental Impact Statement ("EIS"), assuring its adequacy and identifying the preferred alternative(s).

The Montana Department of Transportation (MDT) operates as agent for the FHWA for compliance with these laws. FHWA has assigned MDT with the responsibility for preparing the EIS for the Project. As the document preparer, MDT is obligated to "identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement . . . " 40 CFR 1502.14(e) (1995). The CEQ requires that the EIS "must be objectively prepared and not slanted to support the choice of the agency's preferred alternative over the other reasonable and feasible alternatives." 46 Fed. Reg. 18026 (Mar. 23, 1981) (NEPA's Forty Most Asked Questions, Question 4c).

The Tribes operate as a cooperating agency in this NEPA process. The Tribes' cooperating agency status is due to their unique interest in the Flathead Indian Reservation as the Tribal homeland and the Tribes' special expertise in all issues affecting the Reservation. The Tribes, consistent with CEQ guidance, want this document incorporated into the Final EIS as a preferred alternative:

> A lead agency, of course, has the ultimate responsibility for the content of an EIS. But it is supposed to use the environmental analysis and recommendations of cooperating agencies with jurisdiction by law or special expertise to the maximum extent possible, consistent with its own responsibilities as lead agency. [citations omitted].
>
> If the lead agency leaves out a significant issue or ignores the advice and expertise of the cooperating agency, the EIS may be found later to be inadequate. Similarly, where cooperating agencies have their own decisions to make and they intend to adopt the environmental impact statement and base their decisions on it, one document should include all of the information necessary for the decisions by the cooperating agencies. . . .
>
> Because the EIS is not the Record of Decision, but instead constitutes the information and analysis on which to base a decision, disagreements about conclusions to be drawn from the EIS need not inhibit agencies from issuing a joint document, or adopting another agency's EIS, if the analysis is adequate. Thus, if each agency has its own "preferred alternative," both can be identified in the EIS. 46 Fed. Reg. 18026 (Mar. 23, 1981) (NEPA's Forty Most Asked Questions, Question 14b).

It is the Council's intent that this statement of preferred alternative to be the final definitive statement by the Tribes on this matter for the purposes of the present NEPA process. The Tribes will review the Draft Final EIS with regard to this statement and comment as necessary. The Tribes encourage MDT to go forward with preparing the Draft Final EIS. However, because the Tribes are a cooperating agency with a preferred alternative which conflicts with the preparer's preferred alternative, the Tribes request that FHWA involve the Tribes directly with drafting the record of decision for this NEPA document. Please direct any questions that you might have regarding this Tribal statement of preferred alternative or the NEPA process to Joe Hovenkotter, Attorney, Tribal Legal Department at (406)675-2700 ext. 460.

Sincerely,

Rhonda Swaney
Chairwoman - Tribal Council

CC: Dale Paulsen, FHWA
John Glueckert, Mayor, City of Polson
Brad Peterson, Morrison-Mairle
Jeanette LoStracco, Carter-Burgess

CONFEDERATED SALISH AND KOOTENAI TRIBES
STATEMENT OF PREFERRED ALTERNATIVE

HIGHWAY 93 - EVARO TO POLSON PROJECT

(1) Alignments of the Preferred Alternative

Alignment 1 has been selected as the alignment alternative that is preferred throughout the area. Alignment 1 follows the existing highway alignment with only minor adjustments to improve the horizontal and vertical alignment of the roadway and to avoid, as much as practical, important topographic features, residences or other buildings and environmental features such as wetlands, streams and riparian areas.

(2) Lane Configurations of the Preferred Alternative

Lane Configuration A, the modified two-lane alternative, is recommended for all 56.3 miles of the proposed action, including all segments of the highway located within Reservation communities.

(3) Transportation Demand Management (TDM)

TDM alternatives include the construction of park and ride lots, State subsidy of locally administered vanpools, and completion of a feasibility study of light rail commuter transit between Reservation communities.

Park and ride lots should be constructed at strategic sites in Arlee, St. Ignatius, Ronan, Pablo, and Polson. Each park and ride lot should abut the highway and include sufficient lighting to provide a baseline level of safety, a shelter to protect waiting riders from the wind and rain. Each park and ride lot should be connected with a pedestrian/bike path(s) leading to town centers and high density residential areas. Park and ride lots will be maintained by MDT as a component of the highway facility.

The State of Montana should provide sufficient resources, either in the form of cash subsidy or vehicles, to support regional vanpooling. The vanpools would be administered by local and Tribal government. The target group of highway users for the vanpool is daily commuters travelling to/from Reservation communities.

MDT should conduct a study of the feasibility of constructing light rail facilities and/or utilizing existing railroad tracks for light rail for transit of commuters between Reservation communities.

(4) Alternate Routes

MDT should encourage use of other north-south routes through Western Montana including

Highways 28, 83, 135, 141, 200, and 382. Signs at major highway junctions north and south of the Highway 93 Corridor through the Flathead Reservation recommending alternative routing should be installed at Garrison, Bonner, Ravalli, Perma, Plains, Kalispell, Elmo and Bigfork.

MDT should include a warning for travellers on all roadmaps MDT produces, in whole or in part, that show any or all segments of the road included in this Project. The warning should state that within the Flathead Indian Reservation U.S. Highway 93 is a heavily travelled two-lane roadway. The warning should encourage through travellers to select an alternate north-south travel route through Western Montana. The warning should be situated on the map so it will be readily apparent to persons studying portion of the map which includes the U.S. Highway 93 corridor.

(5) Design Options of the Preferred Alternative

Design options for the proposed action are described in Section 5.1.6 of the Draft EIS. Recommendations for the application of some of the more prominent and more readily identifiable design options are described in the following paragraphs:

Arlee Design Options. This design option includes the segment of highway located within the Arlee community between PowWow Road and "A" Street. Lane configuration A is recommended with a raised landscaped 20 - 30 foot-wide median. Left turn bays and crosswalks, for both northbound and southbound lanes, should be constructed at the "A", "B", "C" and "D" Street intersections and the PowWow Road/Couture Loop intersection. A pedestrian operated crossing signal should be installed at the "B" Street intersection. Sufficient signage to warn highway traffic of these new design options should be integrated into the design.

Preservation of a corridor of land for future construction of the highway around Arlee is not recommended.

Ronan Design Options. This design option includes the segment of highway located within the city limits of the incorporated municipality of Ronan. Lane configuration A is recommended with a raised landscaped 20 - 30 foot-wide median. Left turn bays for northbound lanes, should be constructed at the intersections with Round Butte Road (Highway 211), Main Street, Adams Street, Eisenhower Street and Dayton Street. Left turn bays, for southbound lanes, should be constructed at the intersections with Terrace Lake Road, Adams Street, Cleveland Street, Eisenhower Street and Garfield Street. The existing stop signal at the intersection with Round Butte Road (Highway 211) should be maintained. Crosswalks and pedestrian operated crossing signals should be installed at the intersections with Round Butte Road (Highway 211) and Eisenhower Street. Sufficient signage to warn highway traffic of these new design options should be integrated into the design.

Preservation of a corridor of land for future construction of the highway around Ronan is recommended west of Ronan.

Pablo Design Options. This design option includes the 2.3 mile segment of highway located within the Pablo community between Division Street and the S & K Housing Office

(mileposts 51.9 - 54.2). The Pablo Design Option includes the following components:

- Lane configuration A with a raised landscaped 20 - 30 foot-wide median.
- Stop signals (which include pedestrian operated crossing signals) and crosswalks at the Division Street and Claremont/Pablo West Roads intersections.
- Left turn bays for northbound lanes at Division Street, the point where Pablo's Third Street will intersect when extended, Pablo West Road and Light Road.
- Right turn bays for northbound lanes at Division Street, Claremont Road and Courville Trail.
- Left turn bays for southbound lanes at Courville Trail, Claremont Road and Division Street.
- Right turn bays for southbound lanes at Light Road, Pablo West Road, the point where Pablo's Third Street will intersect when extended and Division Street.
- The Division Street intersection will either (a) remain as placed and MDT will acquire right-of-way through Joe's Jiffy Stop to access a reverse frontage road serving the Salish and Kootenai College; (b) be realigned to approximately 100 meters south of its existing location ; or (c) be realigned to approximately 50 meters north of its existing location to access both a reverse frontage road serving the Salish and Kootenai College on the east and a short connecting road to Division Street on the west.
- Two-way frontage roads will be built (a) on the east side of the Highway between Claremont Road and Courville Trail; (b) on the west side of the Highway between Old Highway 93 and the S & K Housing Office; and (c) if necessary on the west side of the Highway between Pablo West Road and the access to the Pablo Branch of Ronan State Bank.
- All private approaches accessing the Highway will be closed.
- A pedestrian/bicycle path will be constructed on the east side of the highway between Division Street and Courville Trail. A pedestrian/bicycle path will be integrated into the design of the frontage road west of the highway between Light Road and S & K Housing.
- Sufficient signage to warn highway traffic of these new design options and to provide clear direction to all travellers attempting to access government and tourist facilities.
- Install sufficient lighting at intersections and areas of pedestrian activity so that approaching vehicles and pedestrians will be visible to highway traffic at all times.

Polson Design Options. This design option includes the segment of highway located within the incorporated municipality of Polson. Lane configuration A is selected because it minimizes impacts to business parking, existing buildings, Ducharme Park and Flathead Lake shorefront. The Council concurs with the Transportation System Management improvements recommended for Polson by the ID team in the Draft EIS at pages 5-40 through 5-43.

Preservation of a corridor of land for future construction of the highway around Polson is not recommended.

Auxiliary Lanes. Access related auxiliary lanes should be constructed in accordance with design standards and specifications included within the Memorandum of Agreement for Access

Management Planning (see discussion on Access Control for additional details).

Auxiliary lanes in the form of climbing/passing lanes for traffic travelling up grades should be located as follows:

- Schley Grade southbound, for a distance of 2 miles between the Sheep Ranch Inn (milepost 12.1) and Mountain Home Lane (milepost 14.1);
- Ravalli Hill northbound, for a distance of 1.8 miles between the Highway 200 junction in Ravalli (milepost 27.7) and a point located approximately ¼ mile north of the Ravalli Hill Summit (milepost 29.5);
- Bison Range Grade southbound, for a distance of approximately 1.7 miles between a point located approximately ¼ south of the Old Highway 93 junction (milepost 31.2) to a point located approximately ½ mile north of the Ravalli Hill Summit (milepost 29.5) (the start point should be located so that the safest design can be achieved for the Old Highway 93 junction);
- Post Creek Hill northbound for a distance of 1.8 miles between a point located approximately ¼ mile north of the Post Creek Road intersection (milepost 38.4) and a point located approximately ¼ mile north of the Gunlock/Olsen Roads intersection (milepost 40.2);
- Polson Hill southbound for a distance of 1.8 miles between a point located approximately ¼ mile south of the Caffrey/Ford Roads intersection (milepost 56.3) and the point where the existing climbing lane presently begins (milepost 58.2).

Exact locations for the climbing lane transition points may vary slightly to include safety factors such as proximity of intersections, stopping distance, access management standards and sight distance requirements. Climbing lane transition points should be well signed. The short segment between the ends of Ravalli Hill northbound and Bison Range Grade southbound climbing lanes should be of sufficient distance so that there will not be opposing traffic completing transition movements in both directions at the same location.

Access Control. MDT and the Tribes will continue working cooperatively to establish a Memorandum of Agreement for Access Management Planning for inclusion within the Final EIS. The MOA will identify procedures, design standards and specifications which will facilitate the maximum level of access control possible under State, Tribal and Federal law for this preferred alternative. The Tribes see this as a critical unresolved issue due to approximately ⅓ of all accidents on the Highway 93 corridor being access related and correspondingly, the crucial factor for attenuating this situation will be access control regardless of lane configuration.

Traffic Signals. Present conditions warrant maintenance or installation of signals at the following locations:

- Arlee - "B" Street (existing signal).
- Ronan - Round Butte Road (Highway 211) (existing signal).

- Eisenhower Street (flashing yellow).
- ♦ Pablo - Division Street (stop signal).
- Pablo West Road/Claremont Road (stop signal).
- ♦ Polson - Highway 35 (existing signal).
- Fourth Avenue East/Super One Foods (stop signal).
- First Street East (existing signal).
- Main Street (stop signal).

Other intersections may warrant the installation of traffic signals in the future. As highway improvement occurs, intersections where signalization appears likely to be required should be designed and constructed to allow the installation of the signals when warranted by traffic and pedestrian volume and characteristics. Particular intersections for consideration include but are not limited to Buchanan Street in Ronan and Bayshore Drive/Golf Course in Polson.

Pedestrian Facilities / Bicycle Facilities The Council concurs with the preferred alternative as described in the Draft EIS at page 5-42 with following exceptions and additions:

(a) Where the Draft EIS calls for the construction of eight-foot paved shoulders, the Tribes recommend the construction of ten-foot paved shoulders. The ten-foot shoulder should be constructed with a three-foot rumble strip at the inside edge to separate traffic from pedestrian and bicyclists travelling on the remaining seven-foot smooth outer shoulder.

(b) In areas where sidewalks are to be constructed, the sidewalks should be constructed on both sides of the highway where reasonably possible. Sidewalks located in areas where ten-foot shoulders are not constructed should be separated from the curb by a minimum distance of between two to eight feet to enhance pedestrian safety and security.

(c) As noted in Section (3) of this statement, pedestrian/bike paths leading to town centers and high density residential areas should be constructed so that they connect with park and ride lots. Pedestrian/bike paths should also be constructed alongside the highway in areas with a high probability of use.

Four-Foot Painted Center Median The Council does not object to the ID Team's rejection of the four-foot painted median. However, the center median should consist of more than simple striping. Raised or inset reflective markers that clearly delineate the center line in all weather and roadway conditions should be installed in addition to conventional striping.

Concrete Curb and Gutter. The Council concurs with the preferred alternative as described in the Draft EIS at page 5-43.

Bus Turnouts. Bus turnouts should be built where there are known concentrations of users.

(6) Wetlands Mitigation

The following wetlands protection guidelines are recommended for all wetlands that are located within the project area:

(a) Follow the sequencing requirements per the Memorandum of Agreement for Mitigation of Unavoidable Impacts to Wetlands by Highway Construction entered into by the Tribes and MDT on June 1, 1993. Those sequencing requirements in order of priority are:

1. Avoiding the impact altogether by not taking a certain action or parts of an action;
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
5. Compensating for the impact by replacing or providing substitute resources or environments.

(b) Establish a wetlands mitigation bank.

The purposes of the wetlands mitigation bank are avoiding and minimizing the loss of wetlands and riparian areas within the Flathead Indian Reservation due to direct and indirect highway construction impacts, and obtaining full and effective mitigation for unavoidable losses of wetlands and riparian areas and their functions and values.

The banking instrument should be signed by the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, MDT and the Tribes.

The Tribes should serve as bank manager, will hold title to all bank lands in perpetuity, and will maintain and operate bank properties. The U.S. Army Corps of Engineers should serve as bank auditor. MDT should serve as purchaser of bank lands and engineer for design of mitigation site plans. All signatory parties should serve on the Flathead Reservation Interagency Wetlands Group for purposes of providing recommendations, review and oversight for all scientific and technical activities of the wetlands mitigation bank.

The wetlands mitigation bank rules should be developed in accordance with federal law and regulatory guidance from the U.S. Environmental Protection Agency and U.S. Army Corps of Engineers.

The wetlands mitigation banking prospectus, instrument and conceptual plan should be included within the Final EIS.

(c) Maintain wetland hydrology by incorporating highway design features that protect and maintain the natural hydrologic regime particularly for those wetlands located downslope (generally west) of the highway that receive water from sources upslope (generally east)

of the highway.

(d) Minimize fill by incorporating highway design features such as minimum toe slopes in wetlands areas.

(e) Revegetate exposed areas with native wetland/riparian species to reduce erosion, minimize sedimentation, provide habitat and reduce invasion by noxious weeds. Implement additional stabilization/control measures at perennial stream crossings where needed.

(f) Minimize the horizontal extent of maintenance activities which are damaging to wetlands such as brush removal, mowing, and use of herbicides.

(7) **Site Specific Wetlands Mitigation**

(a) Ninepipe / Kicking Horse / Duck Haven Wetlands Complex

(i) Pingo Berms: Protection of pingo berms is critical to the maintenance of pond hydrology. Pingo berms broken during construction should be restored to their original contours. Cross-highway drainage should be eliminated by construction of an artificial berm between the open water area and the roadbed where a portion of the pingo is within the highway right-of-way. Several pingo berms were breached during construction of the existing highway. This past damage should be repaired during construction of the present project by restoring the original contours of the berms.

(ii) Ponds H36, H37 and I3: Pothole ponds H36 - H37 (identified as two potholes by MDT) and I3 (identified as one pothole by MDT) were bisected during construction of the existing highway. The current project provides an opportunity to restore original hydrologic characteristics and animal travel routes to these bisected potholes. The filled roadbed should be replaced with a causeway or other structure that spans the ponds and allows normal circulation of water, passage of a high level of ambient sunlight and provides a minimum 45 foot-width of riparian bank for turtle, brooding waterfowl and other terrestrial animal passage.

(iii) Fill slopes: To minimize area of wetlands impacted, highway design in this area should incorporate guardrails with 1:6 slope walls and no median.

(b) Riparian Wetlands Associated with Perennial Streams (Finley Creek, East Fork Finley Creek, Schley Creek, Jocko River, Jocko Springs, Mission Creek, Sabine Creek, Post Creek, Crow Creek, Ronan Springs Creek, Mud Creek, and unnamed streams A3, A5, A10, H9 and H11).

Wetlands mitigation needs are incorporated into stream crossing designs developed by Tribal fish and wildlife biologists and discussed herein in section 8, Fish Passage, below.

(c) Riparian Wetlands Associated with Ephemeral Streams (Matt Creek, unnamed streams A9 and I14.

Install culverts to maintain cross-highway flow of streams and riparian wetlands located on the west side of the highway.

(d) Riparian Wetlands Associated with Ephemeral Drainages A12, A13, A14, A18, C11, C12, C13, C14, F1, F3, F4, F5, H2, H3, H4, H5, H6, H7, H13, H21 and K3.

Install culverts to maintain cross-highway flow of streams and riparian wetlands located on the west side of the highway. Remove existing blockages to ephemeral drainages.

(e) Wetlands Associated with Ponds or Depressions Outside of the Ninepipe/Kicking Horse/duck Haven Complex Area (Avocet Pond and unnamed ponds/depressions D5, H14, I17, K1, and K2).

Maintain individual pond/depression hydrology by restoring any berms broken during construction. Restore to original contours when possible. Eliminate cross-highway pond drainage by constructing barriers between adjacent ponds and between pond and highway right-of-way.

(f) Wetlands Located in Borrow Pits

These small and biologically simple wetlands provide the important function of trapping and filtering chemicals and sediment transported by highway runoff. Many of these wetlands will eventually reestablish naturally along any newly constructed highway segments. However, wetlands should be reconstructed where borrow pits discharge into Reservation surface waters so that the trapping and filtering function which protects water quality will be restored as soon as possible.

(8) Stream Crossings / Fish Passage / Wildlife Crossings

In general, extension and maintenance of existing culverts and bridges identified in Table 6.11-1 of the Draft EIS will continue to facilitate adequate fish passage. Exceptions are:

(a) Evaro Corridor (milepost 10.2 - 10.6): A two-lane tunnel/underpass should be constructed for traffic. This configuration would underlay an overhead wildlife crossing structure. General components are described in the following list and further construction details of this design option are documented in Appendix 1 to this document.

- Construction of the overpass structure spanning the highway with a width of not less than 50 meters.
- Contouring and vegetating the surface of the wildlife crossing structure and areas adjacent to the structure to enhance the likelihood of selection as an animal migration route across the highway corridor.
- Construction of ten foot high drift fences leading east and west from the wildlife crossing structure on both sides of the highway right-of-way.
- Construction of one-way gates in the drift fences to facilitate movement of animals out of the highway corridor.
- Management of the vegetation between the drift fences and the highway to provide hiding and escape cover for animals that enter the right-of-way.
- Alteration of existing wildlife trails to facilitate animal crossing.
- Installation of animal crossing warning signs along the highway between Evaro (milepost 7.2) and Dirty Corner (milepost 15).
- Closure and revegetation of all access approaches within 500 meters of either end of the wildlife crossing structure.

(b) East Fork, Finley Creek (milepost 12.2): Presently this site is a perched culvert and does not afford upstream fish passage. Because of native species preservation concerns above this site, this culvert should remain perched to provide a barrier to upstream fish passage by nonnative species.

(c) Agency Creek (milepost 15.7): A larger pipe/culvert should be installed to adequately accommodate flood flows. Agency Creek eventually flows into Finley Creek. It is not desirable to provide fish passage from Finley Creek to Agency Creek because of native species preservation concerns in Agency Creek. Therefore, the new pipe/culvert should be designed to prevent upstream fish passage by nonnative species.

(d) Jocko River (milepost 19.0): The existing bridge should be reconstructed at its existing location to minimize potential impact to fish resulting from new construction of a different alignment. Reconstruction should incorporate qualities so that the roadway is wide enough to include ten-foot shoulders and so that the structure would not impede the flows of a one-hundred year flood.

(e) Jocko Spring Creek (milepost 23.3): The creek was rerouted from its natural channel to flow through the existing S-shaped 90° bend / culvert / 90° bend / channel / 90° bend / culvert / 90° bend configuration that winds across both the highway and railroad rights-of-way. This current condition should be improved by providing a direct crossing of the highway and the railroad approximately 100 meters south of the present highway culvert so that the creek will be restored to its natural channel west of the railroad. As with all stream crossings, it will be important to adequately protect newly constructed stream channels from erosion and provide adequate separation between the highway and the stream and to revegetate disturbed areas.

(f) Ravalli Canyon (mileposts 24.7 - 29.5): Ravalli Canyon is an important crossing site for big game and other species. The topography, width of the canyon, and the existence of the highway, river and railroad preclude crossing structures. In the alternative, wildlife crossing signs should be posted throughout Ravalli Canyon and on Ravalli Hill.

(g) Mission Creek (milepost 32.4): The current structure should be replaced with a bridge of sufficient height and length to allow human foot travel alongside the stream bank under the highway. However, Mission Creek is utilized as a travel corridor by deer, black bear and mountain lion. If possible, to diminish the risk of human/animal conflict in the town of St. Ignatius, the design of the bridge should not encourage use of the underpass by deer, black bear and mountain lion.

(g) Post Creek (milepost 37.8): Post Creek is utilized as a travel corridor by deer, bear, and other species. Use of this travel corridor by animals is to be encouraged. A new bridge should be constructed of sufficient height and length at this stream crossing to provide an average underpass clearance of not less than nine vertical feet a minimum horizontal clearance of not less than 45 feet to either side of the stream.

(h) Ninepipe / Kicking Horse / Duck Haven Wetlands Complex (mileposts 39.5 - 44.5): To reduce roadkill of painted turtles, passage structures should be constructed at locations with high roadkill mortality. Passage designs known to be used by turtles should be utilized. Additional design consideration and study of turtle passage structures is needed prior to installation of turtle passage structures. A cooperative study of turtle passage design, similar to the painted turtle population dynamics study would be beneficial. A pilot project at the Scenic Turnout (milepost 44) should be conducted involving the installation of alternative designs for turtle passage structures to evaluate effectiveness of each design prior to selection for final construction design.

(i) Ronan Spring Creek (milepost 47.0): The size and surface clearance in the present structure is inadequate to accommodate flood flows and creates a drowning hazard for humans and other creatures travelling in or alongside the creek. A new culvert system should be installed which will adequately accommodate flood flows and will provide safe passage for humans and other creatures travelling in or alongside the creek.

In addition to these exceptions, at each location where roadside borrow pits/ditches drain into streams, MDT should design and construct catchment basins which are suitable for intercepting hazardous materials which may be spilled by transporters using the highway. Such catchment basins should be suitable for the placement of booms and other spill response equipment.

(9) Cultural Resources

All project activities shall be done in compliance with the Tribes Cultural Resource Protection Ordinance, 95. The Tribal Cultural Preservation Office is the Tribal agency with authority for

corresponding with MDT with regard to protecting cultural resources threatened by highway construction projects on the Flathead Reservation. The Tribal point of contact is the Preservation Officer. Construction projects which might affect any cultural resource, including but not limited to, religious sites, archeological resources, burial sites, human skeletal remains, traditional cultural properties, historic resources, cultural items, and/or food and medicinal plants located on protected lands shall apply to the Tribal Cultural Preservation Board for a permit.

MDT shall consult with the Preservation Officer at the earliest phases of any construction project. The Preservation Officer will assist MDT with the permit process as required, and will coordinate a consultation process between design engineers and the Cultural Resource Protectors or other representatives from the Flathead and Kootenai Culture Committees. Coordination with these representatives will occur no later than the initiation of preconstruction design and continue through the construction phase. 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 culture committees. The culture committees will present their findings from this preliminary field visit to Tribal elders. A second field visit will be held, during which representatives of the culture committees will provide information and feedback from the elders to the design team. This process of consultation will continue through the construction period and may require additional field visits. The Preservation Officer will monitor the project area during the construction phase to assure compliance with all permit terms and conditions and will coordinate with the construction officer and the culture committees to assure adequate on-site review and consultation.

Mitigation of the impacts to traditional values of the Salish and Kootenai people shall be addressed with three types of action:

(a) Using Salish, Kootenai and English languages for highway signs including but not limited to:

(i) Major highway signs which denote the boundary crossing for traffic entering and leaving the Flathead Indian Reservation with the content of the sign message to be determined cooperatively by MDT and the Tribes;

(ii) Community signs located on the highway right-of-way for Arlee, Ravalli, St. Ignatius, Ronan, Pablo, and Polson; and

(iii) Official directional signs located on the highway right-of-way identifying Tribal governmental and tourist facilities.

(b) Establishment of two visitor information centers to be located and designed cooperatively by the Tribes and MDT. MDT shall provide funding sufficient for hiring necessary independent architectural contractors, to be selected by the Tribes, for assistance with this mitigation activity.

(c) MDT shall provide sufficient ongoing funding to support a program to be administered by the Tribes, for the life of the project for:

(i) training Kootenai and Salish language teachers so that a sufficient number of such teachers with credentials sufficient to satisfy certification requirements of the Montana Department of Public Instruction are available to teach Salish and Kootenai language classes in all Reservation schools; and

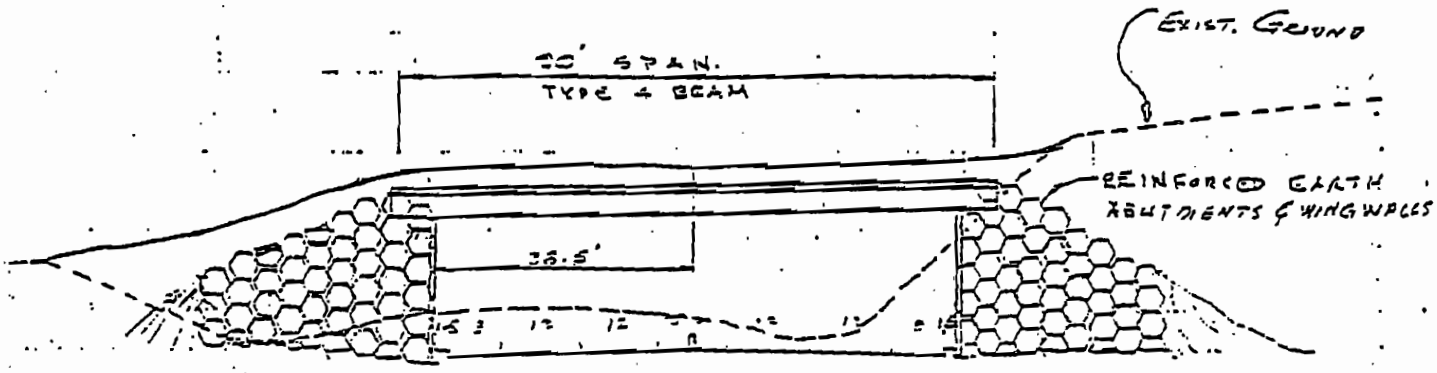
(ii) conducting Kootenai and Salish language immersion camps so that school age Tribal-member children have the opportunity to participate in such a camp for a period of not less than two weeks each year.

APPENDIX #1

EVARO WILDLIFE CROSSING STRUCTURE

	DATE 1-18-93	PROJ NO.	
CHK	DATE	PAGE 6	OF

WILDLIFE OVERPASS



STRUCTURE:

EARTHWORK: 15,000 C.Y. @ $3	$45,000
SPEC BACKFILL 7,500 C.Y. @ $5	37,500
RE-EARTH ABUTMENTS 25' x 240 = 5,500 S.F. x 2 x $25	275,000
4 TYPE 4 BEAMS @ 90' = 360' x 300 x $150	675,000
DECK 8" x 30' x 300' ÷ 27 = 670 C.Y. @ $250	222,500
LIGHTING:	150,000
VENTILATION.	200,000
DRIFT FENCE - 4,000' @ $10	40,000
BLEND SCAPING; SEED & PLANT - $500; 200 SHRUBS & SMALL TREES @ 25	10,500
SUBTOTAL	1,750,500

GLADED ROADWORK.	
EXCAVATION. 12,000 C.Y. @ $3	36,000
SURFACING 20 STA @ $2250	45,000
DRAINAGE	20,000
TRAFFIC CONTROL	150,000
MEDIAN WIDENING - 1000' (INT=5m SURF=75m) = 12,500	12,500
GLADED BARRIER 700' @ $25 = 17,500	17,500
	281,000
TOTAL	2,187,500
10% CONT.	218,800
15% CONST. ENG.	281,000
TOTAL	2,767,300

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

6. AFFECTED ENVIRONMENT

Flathead Indian Reservation

The Flathead Indian Reservation is a rural area, bordered on the south by Missoula County and the city of Missoula, which form Montana's second largest urban trade center. The reservation is bordered on the north by Flathead County, the fourth largest county in Montana.[1]

Except for a one-half mile segment at the southern end in Evaro, the proposed action is contained within the Flathead Indian Reservation. The proposed action is located in the eastern part of the reservation, and it spans approximately three-quarters of the north-south distance of the reservation. Figure 5.1-6 shows the location and external boundaries of the Flathead Indian Reservation.

The Flathead Indian Reservation is home to two major Salish-speaking tribes, the Salish and the Pend d'Oreilles, and one band of the Kootenai Tribe. Tribal elders say the tribes originate from an ancestral Salish-speaking tribe, which divided into a number of different bands. The bands later became tribes and migrated throughout their territory of aboriginal lands that spanned the Northwest, from British Columbia to Montana and beyond.[2]

The tribes hold values for the natural environment and apply their values to present-day philosophy about natural resources. In the past, the land and its associated resources have defined the culture and history of the Salish and Kootenai Tribes. Today the land of the reservation provides a cultural and spiritual link with the past, while providing the primary sources of revenue for the general fund of the tribal government.[3]

The Tribes recognize the overall importance of the land and its resources. They have been buying back fee (private) lands on the reservation to increase the tribal land base. They also have sought to protect the tribal land base by establishing wilderness and primitive areas and by developing regulations and resource management plans designed to conserve tribal resources. In an ideal future, tribal members would prefer to see reservation lands used in a sustainable manner compatible with environmental and cultural resource protection.[4]

For the Tribes and tribal members, prudent use and management of natural resources is important to provide a healthy natural environment essential to maintain tribal culture and spirituality. A clean environment also is important to the physical and mental well-being of individual tribal members.[5]

Geographic Area and Climate

U.S. Highway 93 (US 93) from Evaro through Polson is located in the wide basin at the base of the Mission Mountain Range. There is a narrow canyon approximately three miles long near Evaro at the southern end of the area, another canyon approximately seven miles long near Ravalli, a grade approximately two miles long in the Post Creek area, and Polson Hill has 2.5 miles of grade near Polson at the northern end of the area. The remainder of the alignment is relatively level.

The area is sheltered by mountains and has lighter winds and more stable atmospheric conditions than open terrain. The average wind speed for the area is 6.5 miles per hour (mph) as recorded at Glacier International Airport.[6]

---

[1] Flathead Reservation Comprehensive Resources Plan. Volume I, Existing Conditions. 1994. Page 4-2.
[2] Ibid. Pages 2-2 and 3-2.
[3] Ibid. Page 4-7.
[4] Ibid. Pages 4-7 and 4-9.
[5] Ibid. Page 4-9.
[6] U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 1991 Local Climatological Data Annual Summary with Comparative Data, Kalispell, Montana, National Climatic Data Center, Ashville, North Carolina 28801-2733

The climate of the area is dominated by Pacific maritime weather. Winters are cold and cloudy, while summers are sunny and cool. Occasionally, weather fronts of the Pacific maritime and continental origin collide over the high mountains of the continental-divide country and result in high intensity rainfalls.

Average annual precipitation varies from 80 inches in the Mission Range to 16 to 30 inches west of the Mission Range. The average precipitation from the years 1941 through 1970 ranges from 13 inches at Missoula to 16 inches at St. Ignatius and Kalispell.[7] The heaviest rainfall typically occurs in late-spring and early-summer. July and August are the hottest and driest months.

Analysis Segments

The highway corridor, which is approximately 56.3 miles in length from Evaro through Polson, has been divided into the following segments for analysis: (Table 6.1-1)

Segment A begins in Evaro near the south boundary of the Flathead Indian Reservation and ends just south of Arlee, approximately where the speed limit decreases. The terrain is considered to be rolling due to a combination of horizontal and vertical curves. Thirty percent of this segment is striped as no passing. It is approximately 10 miles long, and there is a 1.8 mile-long southbound passing lane section with an average grade of 3.5%.

Segment B is within the town of Arlee. The posted speeds are 35 and 45 mph. There are numerous, closely spaced intersections and access points which create side friction for through traffic. US 93 has the right-of-way (ROW) through Arlee with minor streets having stop sign control. The terrain is level.

Segment C begins just north of Arlee and ends just south of Ravalli Canyon. It is a mix of rolling and level terrain. Thirty-eight percent of this segment is striped as no passing.

Segment D lies within Ravalli Canyon. It ends at the location where the speed limit decreases on the south side of the community of Ravalli. Due to a combination of vertical and horizontal alignments, this segment is considered to be rolling terrain. Seventy-eight percent of this segment is striped as no passing.

Segment E lies within the community of Ravalli. It is posted at 45 mph. The north terminus is at the base of Ravalli Hill just north of the intersection of US 93 and Montana Highway (MT) 200. The terrain is considered to be level.

Segment F begins just north of MT 200, includes Ravalli Hill and extends to the old US 93 intersection near St. Ignatius. The cross section just north of MT 200 has two lanes northbound and one lane southbound with an average grade of six percent for 1.6 miles. The section just south of old US 93 includes a southbound passing lane extending for approximately 1.1 miles at approximately a three-percent grade. It is striped as 100% no passing.

Segment G begins at the south access road to St. Ignatius (old US 93) and extends to approximately 0.5 mile north of the north approach to St. Ignatius (Airport Road). The terrain is considered to be rolling. It is striped as 35% no passing.

Segment H begins approximately 0.5 mile north of the north approach to St. Ignatius (Airport Road) and ends at the Montana Secondary (MTS)~~Federal-Aid Secondary (FAS)~~ 212 intersection. It is striped as approximately 55% no passing. The terrain is considered to be rolling.

[7]U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Monthly Normals of Temperature, Precipitation, and Heating and Cooling Degree Days 1941-70, National Climatic Data Center, Ashville, North Carolina, 28801-2733.

Table 6.1-1 Highway Analysis Segments and Characteristics

Location	Segments By Milepost		Miles	Year Built	Year Improved	# of Lanes	Type of Roadway	Pavemnt Width (Feet)	Shldr Width (Feet)	Traffic Control	
	From South	To North								Speed Limit (mph)*	No Passing Zones
SEGMENT A: Evaro to Arlee											
Evaro to Dirty Corner	6.5	15.0	8.5	1964	1976	3	Rural	36-40'	2	55	30%
Dirty Corner to Arlee	15.0	16.7	1.7	1940	1976	2	Rural	30-41'		55	38%
SEGMENT B: Arlee	16.7	18.2	1.5	1940	1976	2	Rural	44'	10	35/45	100%
SEGMENT C: Arlee to Ravalli Canyon	18.2	24.7	6.5	1956	1960	2	Rural	30-32'	3-4	55	38-78%
SEGMENT D: Ravalli Canyon to Ravalli	24.7	26.5	1.8	1956	1960	2	Rural	32'	4	55	38-78%
SEGMENT E: Ravalli	26.5	27.5	1.0	1956	1960	3	Rural	44'	4	45	100%
SEGMENT F: Ravalli Hill	27.5	31.2	3.7	1956	1960/ 1983/ 1989	3	Rural	32-48'	6	55	100%
SEGMENT G: St. Ignatius	31.2	33.5	2.3	1956	1983	2	Rural	32'	4	55	35%
SEGMENT H: St. Ignatius to MTS 212	33.5	42.1	8.6	1950-1956	1983	2	Rural	28-32'	2-4	55	55%
SEGMENT I: MTS 212 to Ronan	42.1	46.1	4	1966	--	2	Rural	40'	3	55	24%
SEGMENT J: Ronan	46.1	47.6	1.5	1966-1970	1983	3	Urban	44'	4	25,35,45	100%
SEGMENT K: Ronan to Pablo	47.6	50.8	3.2	1970	--	2	Rural	40'	8	55	18%
SEGMENT L: Pablo	50.8	54.7	3.9	1958	--	3	Rural	32-44'	4	55	100%
SEGMENT M: Pablo to Caffrey Road	54.7	56.5	1.8	1958	1974	2	Rural	32'	4	55	35%
SEGMENT N: Caffrey Road to MT 35	56.5	59.0	2.5	1958	1982	3	Rural	39-44'	2-4	45,55	100%
SEGMENT O: Polson - MT 35 to Flathead River Bridge	59.0	61.0	2.0	1958	--	3	Urban	44-59'	0-4	25,35	100%
SEGMENT P: Polson to End of Proposed Action	61.0	62.8	1.8	1958	1986	2	Rural	24-32'	0-4	45,55	100%
TOTAL:	--	--	56.3	--	--	--	--	--	--	--	60%

Montana Department of Transportation, Environmental Assessments for: Evaro-Dirty Corner; Dirty Corner-Ravalli; Ravalli-North; Ronan-Polson; 1990.
MTS is Montana Secondary Highway/FAS is Federal Aid Secondary highway.
*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.

Segment I begins at ~~MTSFAS~~ 212 and ends just south of Ronan. It has a mix of rolling and level terrain and is striped as 24% no passing.

Segment J is within the community of Ronan. It is posted at 45 mph and has a continuous two-way left-turn center median through Ronan. There are many intersections and accesses, with stop sign control, which create side friction. There is a traffic signal in Ronan at ~~MTSFAS~~ 211. The terrain is considered to be level.

Segment K is between the communities of Ronan and Pablo. It is predominantly level with 18% striped as no passing.

Segment L is within the community of Pablo and includes a continuous two-way left-turn center median. There are some intersecting streets and driveways which cause some side friction. The intersecting streets have stop sign control. The terrain is considered to be level.

Segment M begins just north of Pablo and ends at Caffrey Road. It is approximately 1.8 miles long and is striped as 35% no passing. The terrain is considered to be rolling.

Segment N is comprised of a three-lane cross section on Polson Hill, and there are two lanes in the southbound direction. The grade is approximately 5.5%.

Segment O in Polson is composed of two subsegments. The first extends from MT 35 to Second Street East. It is a three-lane cross section with the third lane used as a continuous two-way left-turn center median. A short 4.5% grade exists east of the golf course for 0.2 mile. Three streets (Seventh Avenue, Fourth Avenue and Third Avenue) intersect at skews less than 75%, resulting in sight distance problems. Curb and gutter is provided along some of the segment. The posted speed is 35 mph. There are numerous approaches and intersections along this segment.

The second subsegment extends from Second Street East to the Flathead River bridge. Parallel parking is provided on both sides of the roadway. A traffic signal exists at First Street East. The posted speed is 25 mph, with two lanes of traffic and a third lane provided for left turns. Ten approaches and intersections exist along this segment.

Segment P extends between the Flathead River bridge and the end of the proposed action at Milepost 62.8. This segment is posted at 45 mph and 55 mph[8]. It is considered to be a two-lane rural highway.

6.1. TRAFFIC OPERATION AND SAFETY

6.1.1. General Traffic Characteristics

US 93 from Evaro through Polson, along with the parts of US 93 in the Kalispell-Whitefish and Lolo-Hamilton areas, have the highest levels of traffic on rural primary highways in Montana.

The annual average daily traffic (ADT) for US 93 in these areas is more than 5,000 vehicles each day, compared with levels ranging from less than 1,000 to the highest levels of approximately 3,000 vehicles per day. This means the ADT in the area is at least two-thirds higher than ADT on other rural primary highways in the state.

[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.

US 93 in the area of the proposed action also has a poor level-of-service (LOS) rating. While most rural primary highways have an LOS rating of A, B or C, this highway's LOS is mostly D and E. ~~This means~~ With LOS D, traffic is frequently congested, with long platoons of vehicles that cause time delays as much as 75% of the time a vehicle is on the road. With delays, driver frustration increases causing unsafe driving practices. With LOS E, traffic is delayed more than 75% of the time, passing becomes impossible and platooning becomes intense when slow-moving vehicles are encountered.

Interstate, regional and local travel contributes to the existing and projected future traffic demand on US 93 in the area of the proposed action.

US 93 traverses the United States in generally a north-south direction from near the Mexican border to the Canadian border and passes through the states of Arizona, Nevada, Idaho and Montana.

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).~~

This highway is part of an extensive system of rural arterial routes that support the interstate highway system for statewide and regional travel. Other highways in the region are: 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 MTS~~Federal Aid Secondary (FAS)~~ 211, 212, 382 and 559 in Lake and Sanders counties. (Figure 5.1-6)

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, forest and mining, tourism, and recreation.

The existing highway is generally a two-lane rural highway with normally uninterrupted traffic flow. In rural areas between communities, there are, on average, approximately 10 approaches or intersections per mile, no designated pedestrian crossings, and no schools located on or near the highway. Approximately 12% of businesses are located along US 93 outside communities~~only a few businesses~~. At Pablo, Two Eagle River School and Salish Kootenai College are adjacent to highway frontage.

Traffic operation on US 93 through existing communities, particularly through Arlee, Ronan and Polson but also through Ravalli, St. Ignatius and Pablo, is different than on rural sections of US 93 and has the following characteristics:

- Speed limits are 35 mph in Arlee, 45 mph in Ravalli, 25 mph in Ronan and 25 mph in Polson as compared with 55 mph on the remainder of the highway. Speed limits have been set by the Montana Transportation~~Highway~~ Commission (MTC~~MHC~~) based on prevailing speeds (the 85th percentile speed) through the area.[9]

- There are high numbers of approaches and intersections -- approximately 18 per mile in Arlee, 26 per mile in Ronan and 50 per mile in Polson compared with an average of approximately 10 per mile, outside communities.

[9]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 high traffic volumes in Arlee, Ronan and Polson created by US 93 traffic cause congestion. This results in increased air and noise pollution, pedestrian conflicts and a barrier effect through communities caused by difficulty crossing the highway for pedestrians and vehicles.

- There are pedestrian crossings with signals -- a flashing warning light at "B" (Butch Larsen/Taelman) Street in Arlee; a traffic signal at Round Butte Road in Ronan; a traffic signal at MT 35 in Polson; and a traffic signal at First Street Southeast in Polson.

- There are schools in the communities with a high number of school children crossing the highway both at designated crossings and at other areas.

- Due to the schools, the tribal complex, several businesses and other features along the highway in Pablo, there are high numbers of pedestrian crossings and vehicle approaches with related safety and congestion problems.

- There are concentrations of businesses, particularly highway- oriented businesses. These business areas generate relatively high numbers of pedestrians, vehicle parking, driveways and approaches.

- Left and right turns from the highway and left and right turns onto the highway are frequent.

- The above conditions create an environment in these communities where traffic slows and flow is often interrupted. Conflicts with pedestrians, entering vehicles and turning vehicles are frequent, and problems occur for safety, operation and efficiency.

6.1.2. Existing Highway Conditions

The existing highway is generally a two-lane, two-way highway facility. The year each segment was built, the year most recent improvement occurred, the number of lanes, pavement and shoulder widths, speed limits and percent of no passing zones are listed on Table 6.1-1.

6.1.2.1. Existing Lane Configuration

Some areas have passing lanes and continuous two-way left-turn center medians, as summarized in Table 6.1-2. Separate designated left-turn bays and right-turn deceleration lanes are provided at some important intersections. The roadway is asphalt paved and the roadway surface is generally in good condition and is well maintained by the Montana Department of Transportation (MDT). Signing and pavement markings are in generally good condition and meet current standards.

6.1.2.2. Railroad Interaction

The Montana Rail Link (MRL) railroad crosses or is adjacent to and parallel with US 93 in some areas:

- Milepost 6.5 to 7.3 - Evaro area.

- Milepost 9.7 - US 93 crosses over the railroad on a 174-foot long concrete bridge.

- Mileposts 13.4 to 15.4 - Dirty Corner area.

- Mileposts 19.1 to 27.1 - Jocko River to MT 200.

- Mileposts 56.6 to 59.5 - Polson Hill.

Table 6.1-2 Summary of Existing Auxiliary Lanes

Milepost		Item	Direction
From	To		
12.3	14.1	Passing Lane	Southbound, Evaro Hill
16.6		Left-Turn Bay, Jocko Road	Southbound
27.4		Left-Turn Bay, Montana Highway 200	Northbound
27.5	29.2	Passing Lane	Northbound, Ravalli Hill
29.2	30.0	Passing Lane	Southbound, Ravalli Hill
31.1		Right-Turn Deceleration Lane, Old U.S. Highway 93	Northbound
32.7	33.1	Two Left-Turn Bays	Southbound, St. Ignatius
43.6		Left-Turn Bay, Road to Job Corps Center	Southbound
46.1	47.8	Continuous Two-Way Left-Turn Center Median	Both, Ronan
50.7		Left-Turn Bay, Old U.S. Highway 93	Northbound
51.8	53.6	Continuous Two-Way Left-Turn Center Median	Both, Pablo
56.8	57.8	Passing Lane	Southbound, Polson Hill
59.0	61.0	Continuous Two-Way Left-Turn Center Median	Both, Polson
60.0	60.9	Parallel On-Street Parking	Both, Polson

Morrison-Maierle, 1993.

This railroad line is designated as a mainline by MRL.

6.1.2.3. Horizontal Geometric Design

Existing geometric design of the roadway is compared with American Association of State and Transportation Highway Officials (AASHTO) guidelines[10] and MDT standards as follows:

- Horizontal degree of curvature of the roadway alignment generally meets the current 60 mph design standard of 4° 45' (a radius of 1,200 feet) with the exceptions listed in Table 6.1-3.[11]

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

[11]Three of the five horizontal curves listed on Table 6.1-3 are in developed areas in or near the city of Polson. These horizontal curves are not considered substandard because the travel speeds in this area are well below 60 mph.

Table 6.1-3 Summary of Substandard Horizontal Curves

Milepost		Degree Of Curvature	Radius Of Curvature	Design Speed	Location
From	To				
25.3	25.5	5° 30'	1,050 feet	55 mph	In Ravalli Canyon, south of Ravalli
27.5	27.7	7° 00'	820 feet	50 mph	Between MT 200 and the base of Ravalli Hill, just north of Ravalli
59.1	59.2	7° 00'	879 feet	50 mph	Just west of MT 35
59.4	59.6	7° 00'	829 feet	50 mph	Just west of MT 35
59.6	60.0	8° 00'	716 feet	45 mph	In Polson, just east of Flathead River

Morrison-Maierle. 1993.
Substandard horizontal curves, based on a design speed of 60 mph, include those with a degree of curvature of more than 4° 45' (Radius less than 1,200 feet).

Problems associated with substandard horizontal curves include:

- To negotiate the curve, vehicles are required to reduce speeds below normal travel speeds. This increases the chances for rear-end collisions~~, reduces operation levels, or level of service (LOS)~~ and reduces vehicle efficiency.
- Vehicles that do not reduce speed at the curve will be subject to the possibility of losing control and going off the roadway. This problem is increased when the roadway is snow covered or icy.
- Sight distance is reduced or impaired.

6.1.2.4. Vertical Geometric Design

Vertical grades are generally flatter than the MDT maximum design standard of four percent, except as listed in Table 6.1-4.[12] Vertical grades that are steeper than standard introduce the following problems:

- In addition to trucks, recreational vehicles (RVs) and other heavy vehicles, grades steeper than standard begin to cause a speed reduction for some passenger cars while others continue at normal highway speeds. This causes additional speed differentials in the traffic stream and increases the chances for rear-end accidents.
- The passing demand is increased, LOS is reduced and cost increases to operate vehicles.

[12]Four of the eight vertical grades listed on Table 6.1-4 are in developed areas in or near the city of Polson. These grades are not considered substandard because the travel speeds in this area are well below 60 mph.

Table 6.1-4 Summary of Vertical Grades Steeper Than Design Standards

Milepost		Length (Miles)	Percent Grade	Location
From	To			
18.8	19.1	0.3	4.8	Jocko River Crossing
27.7	29.0	1.3	6.0	Ravalli Hill
38.7	39.1	0.4	4.8 to 5.9	Post Creek Hill
57.3	57.8	0.5	5.0 to 5.5	Polson Hill
59.6	59.8	0.5	4.5	Along golf course, in Polson
60.1	60.2	0.1	4.2	East of Super 1 Foods, in Polson
60.6	60.8	0.2	4.6	East of Second Avenue, in Polson
62.0	62.6	0.6	4.3 to 4.8	West of Flathead River Bridge

Morrison-Maierle. 1993.
Design standard for maximum vertical grade is four percent. Grades below maximum are always desirable.

- Vertical curves (a curve in the vertical alignment of the roadway designed to effect a gradual change between different vertical grades) generally meet stopping sight distance requirements (based on 60 mph design speed in rural areas and a 40 mph design speed in communities), except as summarized in Table 6.1-5.[13] Stopping sight distance is defined as the length of roadway ahead, visible to the driver, and required to enable a vehicle traveling at or near the design speed to stop before reaching a stationary object in its path. Vertical curves that do not meet standards provide a lesser sight distance, reduce the time available for a driver to react and avoid the object and, therefore, increase the possibility of collision.

- Paved shoulder width (the area outside the driving lanes), as shown on Table 6.1-1, is generally less than the eight-foot width required for rural arterial highways with high traffic volumes. Space is, therefore, limited 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, or convenience, are decreased.

6.1.2.5. Intersections and Approaches

As listed on Table 6.2-4, there are approximately 681 approaches to the existing highway. These include highway and street intersections; residential, commercial and industrial driveways; farm field approaches; and others. The number of private approaches to the highway is increasing steadily as development occurs and as population

[13]Eleven of the 31 vertical curves listed on Table 6.1-5 are in developed areas in or near the city of Polson. These vertical curves are not considered substandard because the travel speeds in this area are well below 60 mph.

Table 6.1-5 Vertical Curves Not Meeting Design Standards

Design Speed	Number of Curves
Less than 60 mph and greater than or equal to 55 mph	20
Less than 55 mph and greater than or equal to 50 mph	6
Less than 50 mph	5

Morrison-Maierle, 1993.

increases. ~~Access is currently controlled through driveway and approach regulations where access is managed by MDT through application of road approach standards and permit requirements. No formal full or partial access control has been implemented on the existing highway. Land owners desiring to construct a driveway approach need only obtain a permit from the Missoula District Engineer of MDT after demonstrating that it will be constructed properly and will not create a particular safety hazard.~~

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 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. Purchase of partial access control will maintain existing access. It will consider consolidation of approaches, and it will purchase access rights for existing approaches on every parcel of land adjacent to highway ROW.

Some of the existing approaches have undesirable intersection angles with US 93 -- desirable angle of intersection is defined as a driveway or roadway that approaches the main highway at an angle nearly perpendicular (within 15° is desirable). Improper intersection angles create difficulty for drivers to see approaching vehicles and also encourage improper turns and failure to stop or yield. Some of the approaches have grades that are too steep -- approach grades should be three percent or less adjacent to the highway (within 75 feet for public approaches and 25 feet for private approaches) and 10% maximum away from the highway. Grades that are too steep create difficult stopping conditions for vehicles approaching the highway downhill and difficult starting and acceleration for vehicles approaching uphill, particularly on slick surfaces.

The density of junctions to a highway is a major contributor to the accident rate on a rural arterial highway. As indicated on Tables 6.1-6 and 6.1-7, ~~241~~272 (~~34~~36%) of the recorded accidents on US 93 occurred at intersections or were intersection or driveway related. It is likely that approaches contribute to other types of accidents by distracting drivers or by causing them to shy away from the approach and move closer to the roadway centerline.

High junction density also contributes to substantial reductions in the capacity, service level and driving comfort of the highway.

Table 6.1-6 Accidents By Year.

Segment	Location	Length (miles)	1990	1991	1992	1993	1994	Total	Accident Severity	Accident Rate
A	Evaro To Arlee	10.2	33	22	29	24	36	144	1.54	1.17
B	Arlee	1.5	1	8	2	8	7	26	1.35	1.54
C	Arlee to Ravalli Canyon	6.5	19	8	13	9	16	65	1.62	0.89
D	Ravalli Canyon to Ravalli	1.8	5	2	3	4	8	22	1.55	1.09
E	Ravalli	1.0	4	4	1	1	3	13	1.75	1.14
F	Ravalli Hill	3.7	7	7	7	10	4	35	1.73	0.90
G	St. Ignatius	2.3	6	7	5	9	4	31	1.70	1.28
H	St. Ignatius to MTS 212	8.6	12	18	19	15	26	90	1.69	1.00
I	MTS 212 to Ronan	4.0	3	8	5	9	13	38	1.57	.63
J	Ronan	1.5	2	0	1	5	2	10	1.68	.36
K	Ronan to Pablo	3.2	7	5	4	7	5	28	1.43	.56
L	Pablo	3.9	7	12	9	13	19	60	1.61	1.00
M	Pablo to Caffrey Road	1.8	4	1	8	1	6	20	1.65	.68
N	Caffrey Road to MT 35	2.5	6	7	14	12	9	48	1.64	1.16
O	Polson - MT 35 To Flathead River Bridge	2.0	23	9	34	22	17	105	1.43	2.57
P	Polson to End of Proposed Action	1.8	0	2	2	6	5	15	1.79	0.722
Total		56.3	139	120	156	155	180	750	1.57	1.03[1]

Montana Department of Transportation. Accident Records System. ~~1987-91~~1990-94. [1] Weighted average, excluding incorporated cities, Ronan and Polson.

This table has been revised in the final EIS using accidents for 1990-94.

Table 6.1-7 Number of Accidents by Various Factors

For the following categories of accidents, the base of total accidents for the five-year period ~~1987-91~~1990-94 is ~~702~~750. ~~Combined single-vehicle and multiple-vehicle accidents involved 1,136 drivers.~~

BY MONTH

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
53	57	63	40	62	64	78	81	49	64	66	73

BY DAY OF WEEK

Sat	Sun	Mon	Tue	Wed	Thu	Fri
137	99	106	82	101	118	107

BY TIME OF DAY

0000 to 0600	0600 to 0900	0900 to 1200	1200 to 1500	1500 to 1800	1800 to 2100	2100 to 2400
103	80	93	125	184	101	64

BY LIGHT CONDITIONS

Daylight	Dawn-Dusk	Dark Unlighted	Dark Lighted
482	188	41	39

BY ROAD CONDITIONS

Dry	Wet	Snowy	Icy	Slushy	Natural Debris
555	69	58	50	18	1

BY WEATHER CONDITIONS

Clear	Rain	Snow	Fog	Overcast
427	46	62	11	204

(Continued)

This table has been revised in the final EIS using accidents for 1990-94.

Table 6.1-7 Number of Accidents by Various Factors (Continued)

For the following categories of accidents, the base of total accidents for the five-year period ~~1987-91~~1990-94 is ~~702~~750.

BY COLLISION TYPE

Head-On	Rear-End	Angle	Side-Swipe, Meeting	Side-Swipe, Passing	Backed Into	Other
29	175	141	24	40	4	337

BY DRIVER'S AGE

Under 15	15-19	20-29	30-39	40-49	50-59	60-69	70 & Over
7	168	256	287	219	134	66	91

RELATED TO:

Alcohol	Pedestrians	Animals
88	9	49

BY INJURY SEVERITY AND COST OF ACCIDENTS

Fatal Accidents	Injury Accidents	Property Damage Accidents	Total Accidents	Fatalities	Injuries	Accident Cost[1] ($1000)
24	320	406	750	27	596	89,430

BY RELATIONSHIP TO A JUNCTION

Non-Junction	Intersection	Intersection Related	Driveway Related
478	96	104	72

VEHICLES INVOLVED IN ACCIDENTS BY REGISTRATION

Montana	Other U.S. States	Canada
1047	122	4

Montana Department of Transportation. Accident Records System. 1990-94.

[1] Accident costs are computed based on average costs for each type of accident based on injury severity as reported in: Federal Highway Administration, The Costs of Highway Crashes, FHWA-RD-91-005, June 1991.

This table has been revised in the final EIS using accidents for 1990-94.

6.1.2.6. Bridge Locations

The following is a summary of bridges located on the existing highway:

- Milepost 9.7, 174-foot long concrete bridge over the railroad. This concrete bridge is in relatively good condition and can accommodate up to a 28-foot roadway.
- Milepost 19.0, 104-foot long concrete bridge over the Jocko River. This bridge is in good condition and can accommodate up to a 30-foot roadway.
- Milepost 37.8, 51-foot long concrete bridge over Post Creek. This bridge is in good condition.
- Milepost 40.8, a timber bridge at Ninepipe Reservoir. This bridge is not in good condition.
- Milepost 57.1, concrete bridge over the Pablo Feeder Canal. This bridge is in good condition and can accommodate a 45.5-foot roadway.
- Milepost 61.0, 1,536-foot-long concrete bridge over the Flathead River. This bridge is in good condition.

All other stream and drainage crossings are currently in pipe culverts or box culverts.

6.1.2.7. Public Perception of Existing Highway Conditions

A survey conducted in 1994 for the Confederated Salish and Kootenai Tribes (CSKT), of both tribal members and non-tribal members living on the Flathead Indian Reservation, indicates agreement that serious problems exist with driving conditions on many sections and overall on the highway. Approximately 55% of both groups rated overall driving conditions as having serious problems.[14].

6.1.3. Accident History

Tables 6.1-6 and 6.1-7 summarize accidents reported to the Montana Department of Justice for ~~1987-1991~~ 1990-1994 by the various law enforcement agencies that investigate accidents (tribal, county and state).

Table 6.1-8 compares the occurrence of some of the various accident types for the years ~~1987~~1990 through ~~1991~~1994 listed in Table 6.1-7 with statewide averages for all US highways in Montana ~~the primary highway system recorded~~ during the years ~~1979~~1990 through ~~1991~~1994. ~~Occurrence rates on this highway are generally similar to statewide averages with the following exceptions~~The following is a list of some of the differences:

- A higher percentage of accidents involved fatalities -- 3.2% on this highway compared with 2.2% statewide.
- A higher percentage of accidents occurred during daylight hours.
- A smaller percentage of accidents occurred involving slick roads on this highway (snowy or icy) -- ~~20~~14.4% compared with ~~42~~23.0% statewide.

[14]Bioeconomics, Inc. and Boyer Consulting Services, Draft, U.S. Highway 93 Corridor Use and Opinion Survey: Summary Results and Survey Methodology, 10 November 1994. Pages 10-11.

Table 6.1-8, Accident Comparison With Statewide

Category	Item	Total of All Accidents		Percent of All Accidents	
		US 93, Evaro - Polson 1990-1994	NHS Primary Rts. 1992-1994(State)	US 93, Evaro - Polson 1990-1994	NHS Primary Rts. 1992-1994(State)
Light Condition	Daylight	482	3,553	64.3	57.8
	Dawn, Dusk, Dark, Unlit	229	2,397	30.5	39.0
	Dark, Lited	39	197	5.2	3.2
Road Condition	Dry	555	4,100	74.0	66.7
	Wet	69	522	9.2	8.5
	Icy/Snowy	108	1414	14.4	23.0
	Slushy	18	111	2.4	1.8
Weather Condition	Clear	427	3,258	56.9	53.0
	Raining	46	320	6.1	5.2
	Snowing	62	658	8.3	10.7
	Fog	11	49	1.5	0.8
	Overcast	204	1,863	27.2	30.3
Injury Severity	None	406	3,578	54.1	58.2
	Injury	320	2,434	42.7	39.6
	Fatal	24	135	3.2	2.2
Collision Type	Head-On	29	154	3.9	2.5
	Rear-End	175	934	23.3	15.2
	Angle	141	965	18.8	15.7
	Sideswipe Meeting	24	166	3.2	2.7
	Sideswipe Passing	40	264	5.3	4.3
	Backed Into	4	25	0.5	0.4
	Other	337	3,639	45.0	59.2
Relationship to Junction	Non-Junction	478	4,309	63.7	70.1
	Intersection	96	701	12.8	11.4
	Intersection Related	104	830	13.9	13.5
	Driveway Access	72	313	9.6	5.1
	Total Accidents	750	6,147	100.0	100.0
	Length (miles)	56.3	3,859	--	--
	Annual Accidents per Mile	2.66	0.53	--	--

Montana Department of Transportation, Accident Records System, 1990-1994.
This table has been revised in the final EIS using accidents for 1990-94.

~~There were more accidents per mile on this roadway -- 2.49 accidents per mile per year compared with 0.72 statewide.~~

~~A higher percentage of accidents occurred during foggy weather -- four percent compared with one percent statewide.~~

- A higher percentage of accidents were related to driveway access -- ~~eight~~9.6% compared with ~~four~~5.1% statewide.

- A higher percentage of accidents were head-on collisions and rear-end collisions -- 3.9 and 23.3% compared with 2.5 and 15.2%, respectively.

During the period ~~1979-91~~1990-1994, the accident rates (the number of accidents that occur with each million miles of vehicle travel) for ~~various sections of US 93 outside Ronan and Polson, ranging from 0.65 to 2.29, did not vary greatly from the statewide average of 1.72~~US 93 in the area was 1.03 compared with a statewide average of 1.30. Accident severity (measuring injury and fatalities in accidents), ~~ranging from 1.29 to 1.68, did not vary greatly from the statewide average of 1.54~~was 1.57 on this highway compared with 1.52 statewide.[15]

Table 6.1-9 compares accidents by the driver's age and indicates that drivers under age ~~20~~30 were involved in a slightly lower percentage of the accidents on US 93 than on similar highways statewide and that drivers over the age of ~~50~~30 were involved in a slightly higher percentage.

Research by the Montana Traffic Safety Task Force[16] shows this section of US 93 as having an unusual amount of traffic collisions and that about 20% of the accidents involved older drivers, age 60 and over. The research indicated that communities along the corridor "have very high percentages of older citizens" (Section 6.4). Based on this research, further study was completed and a report was prepared[17] to identify improvements and programs to reduce the number of accidents. Recommendations for improvements were made particularly to target and reduce accidents for elderly drivers which should, at the same time, benefit all drivers. Recommendations include:

- Increase the width of all pavement markings, including edge markings and centerlines, from four inches to six inches.

- Replacement of most signs to achieve: 1) proper location and placement; 2) larger, more visible sign faces; 3) correction of incorrectly installed or poorly placed sign supports; and 4) higher reflectivity for greater visibility at night.

- Replacement of existing mailbox posts with breakaway posts.

- Better maintenance of signing, pavement markings and other traffic control devices.

- Installation of additional designated left-turn bays.

- Install lighting at some approaches and intersections.

- Widen the existing paved shoulder in several areas.

---

[15]Montana Department of Transportation. Accident Records System. ~~1987-91~~1990-94.

[16]This task force includes representatives from the Montana Department of Transportation, the Montana Highway Patrol, the Highway Traffic Safety Division of the Montana Department of Justice and the Federal Highway Administration.

[17]Multi-disciplinary Traffic Safety Task Force, State of Montana, Highway Traffic Collision Countermeasures on U.S. Highway 93 Corridor, FAP 5 Milepost 0 to Milepost 59.3, January 1992.

- Reduce side slopes of approaches to reduce pitching and rolling of errant or out-of-control vehicles leaving the roadway.

- Increase the size and quantity of roadside delineation.

- Eliminate roadside informational pull-outs and incorporate the information into the newly constructed information center located just north of Ravalli.

- Improve or provide better warning signs and delineation at substandard horizontal curves.

- Install a traffic flasher and additional approach lanes at Division Street in Pablo.

Implementation and construction of some of these recommendations ~~is being planned and construction is scheduled for~~ occurred in 1994. Others are more extensive and expensive and may best be implemented with other highway improvements.

Table 6.1-9 Accidents by Driver's Age, Comparison with Statewide ~~(1990-1994)~~

Driver's Age	Percent Of All Accidents	
	This Area[1]	US Highways Statewide[2]
Under 15	1%	1%
15 to 19	14%	16%
20 to 29	21%	23%
30 to 39	23%	21%
40 to 49	18%	16%
50 to 59	11%	9%
60 to 69	8%	7%
Over 70	7%	7%
Number of Drivers Involved	1,228	35,244

Montana Department of Transportation. Accident Records System. ~~1987-1991~~1990-1994.
[1] On U.S. Highway 93 during the years ~~1987 through 1991~~1990 through 1994.
[2] On all U.S. Highways and State Highways in Montana during the ~~year 1991~~years 1990 through 1994, Montana Highway Patrol, Annual Traffic Statistical Report, ~~1991~~1990 through 1994

This table has been revised in the final EIS using accidents for 1990-94.

6.1.3.1. Four-Lane/Two-Lane Highway Comparison

An analysis of accidents was completed for US 93 between the DeSmet I-90 Interchange and Evaro, from Mileposts 0.572 to 6.299. This part of US 93 was improved from a two-lane highway to a four-lane highway in 1985-86, and the record of accidents was compared for the five-year periods 1980-84, when it was two lanes, and 1987-91, after it was four lanes. The changes in accident rates and characteristics on this section of highway may be representative of what to expect if sections of the highway between Evaro and Polson are improved to four lanes because:

- Driver characteristics are similar.
- The traffic volume and characteristics are similar to US 93 from Evaro through Polson.
- Weather conditions are similar.
- Terrain on this section, which includes some flat, some rolling and some hilly terrain, is similar.
- The density of junctions to the highway is similar.

The results of the analysis are summarized in Table 6.1-10. The comparison indicates the following changes occurred after the highway was improved from two lanes to four lanes:

- Even though traffic volume increased by 31% (from 4,383 to 5,728 vehicles per day), the total number of accidents decreased by 38% (from 93 to 58).
- There were no fatal accidents, compared with three from 1980 through 1984.
- The number of accidents involving injuries decreased from 46 to 13 and the number of injuries was reduced to one-third of the number before the four-lane highway was constructed -- from 72 to 24.
- The accident severity index decreased from 1.65 to 1.22 as compared with almost no change in the statewide average severity index for rural primary highways.
- The accident rate decreased from 2.03 to 0.97, a 52% decrease. During the same time, the statewide average accident rate for rural primary highways decreased from 2.00 to 1.26, a decrease of 37%.
- There were no head-on accidents and only about one-third as many rear-end accidents. These are generally more serious accidents and the reduction in this type of accident helps explain the above described reductions in fatalities, injuries and the accident severity index.

The results of this comparison indicate that safety improvements and hazard reductions occurred as indicated by the reductions in injuries and fatalities and suggest they may also occur between Evaro and Polson if a four-lane highway is constructed.

6.1.3.2. Comparison of Two-Lane Highway, Passing Lanes and Transition Areas

An analysis of accidents was completed for US 93 from Evaro through Polson, except for Ronan and Polson, to compare segments of two-lane highway with segments of having passing lanes. There are 5.3 miles of the current highway with passing lanes, located at three segments: North of Evaro, north of Ravalli and south of Polson.

Table 6.1-10 Comparison of Accidents, U.S. Highway 93 (Four-Lane): I-90 to Evaro*

U.S. HIGHWAY 93 MILEPOST 0.572 TO MILEPOST 6.299	ACCIDENTS BEFORE 4-LANE 1980 - 1984 Five-Year Period	ACCIDENTS WITH 4-LANE 1987 - 1991 Five-Year Period
Total Number of Accidents	93	58
Accidents per Mile per Year	3.25	2.03
Accident Rate	2.03	0.97
Statewide Average Accident Rate**	2.00	1.26
Severity Index	1.65	1.22
Statewide Average Severity Index**	1.52	1.54
Average Annual Daily Traffic	4,383	5,728
Level-of-Service	D	A
Fatal Accidents	3	0
Fatalities	3	0
Injury Accidents	46	13
Number of Injuries	72	24
Head-On Accidents	3	0
Rear-End Accidents	11	4
Angle Accidents	3	2
Daylight	43	25
Dark	36	31
Icy or Snowy Road	16	25
Related to Intersections or Driveways	14	4

Montana Department of Transportation, Accident Records System, 1980-1991.
*Construction of the improvements to a four-lane highway occurred in 1985 and 1986. For that reason, no analysis is included for those two years. ** Rural primary highways.

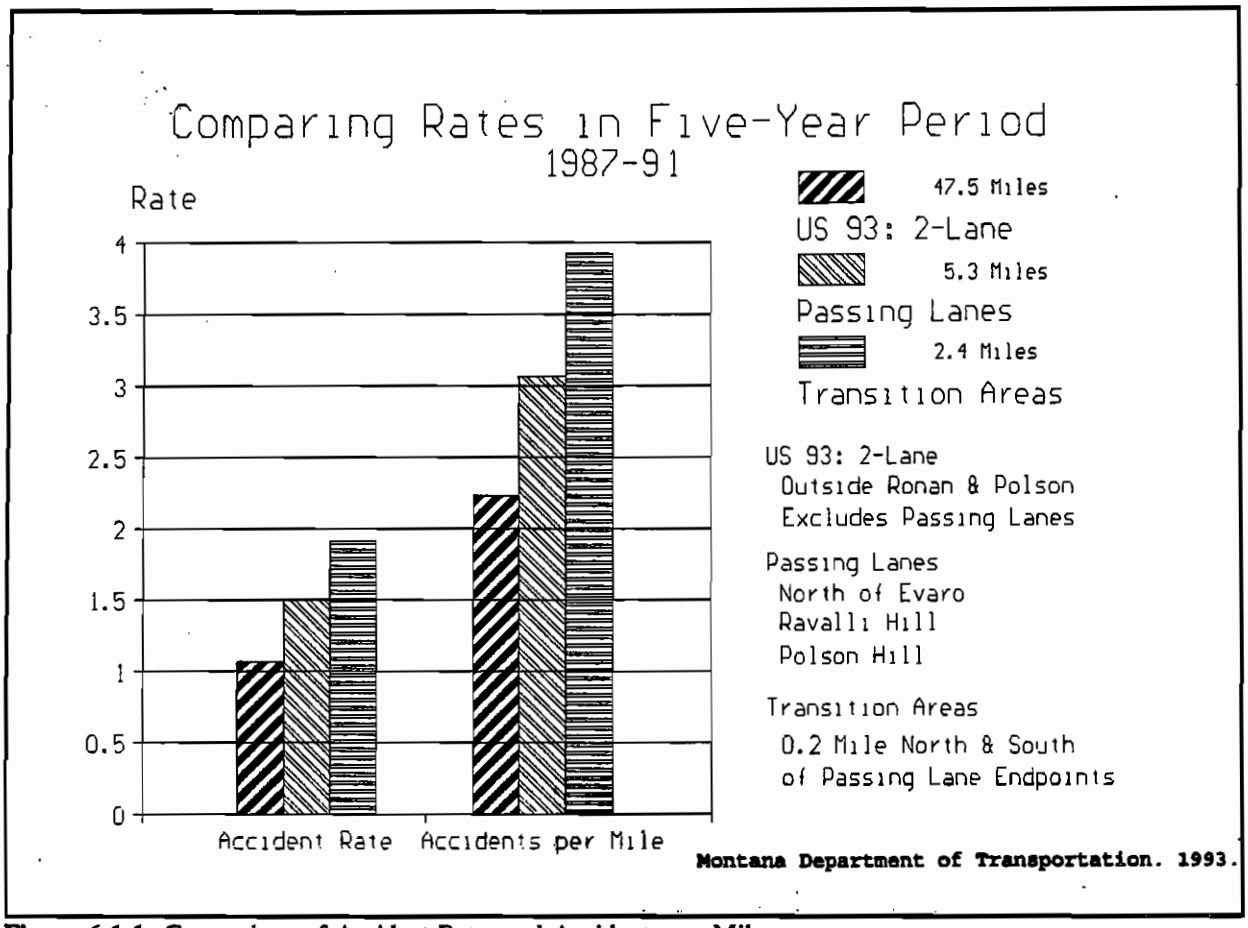


Figure 6.1-1 Comparison of Accident Rates and Accidents per Mile

During 1987-91, and based on the accident rate (accidents that occur with each million miles of vehicle travel) and accident frequency (accidents per mile of highway), accidents were 40% more likely to occur in passing lanes than on two-lane segments of highway. Accidents were 80% more likely to occur in the transition areas, which extend 0.2 mile in both directions from the endpoints of passing lanes, than on the two-lane segments of US 93. (Section 4.5 and Figure 6.1-1)

It should be noted that, where currently there are passing lanes on the existing highway, they have been created by repainting the roadway with narrower shoulders -- no actual pavement widening has been done. As a result, in these areas, shoulder widths have been reduced from approximately eight feet down to two feet.

6.1.4. Historic Traffic Volume

Historic traffic volume and characteristics have been determined using information from the Ravalli Automatic Traffic Recorder (ATR) and various other counts completed by MDT.[18]

[18]The Ravalli Automatic Traffic Recorder (ATR) has been in operation by the Montana Department of Transportation since 1941. It is located just south of Ravalli near Milepost 26.3 which is approximately 20 miles from the beginning of the proposed action (near Evaro) and 36 miles from the end (at Polson). It counts vehicles continuously and provides information by the hour, day, week, month and year.

To appropriately reflect the operating conditions that should be used for design to properly serve traffic, a period of one hour is used. It would not be appropriate to predicate the design on the maximum peak-hour traffic of the year, yet the use of the average hourly traffic (1/24 of the ADT) would result in design with inadequate capacity for current and growing needs. The 30th highest-hourly volume of the year (30 HV) generally reflects the proper balance and should be used in the design of highway facilities (AASHTO, A Policy on Geometric Design of Highways and Streets, 1990). Studies indicate that 30 HV is generally the point that is exceeded by only a few relatively high traffic volumes while there are many hourly volumes during the year that are only slightly less. The 30 HV has been used to represent the design hourly volume (DHV) in all capacity and LOS analyses.

Table 6.1-11 summarizes the ADT, and the 30th highest-hourly volume (30 HV) for various years at the ATR since it has been in use. Statistical analysis of the data indicates that, even though there have been periods of sharper increases and "plateaus" where growth has been slower, approximately a three percent average annual growth rate in traffic volume has occurred during the past 20 years. On the average in the United States, rural arterial 30 HV is about 15% of ADT. Information in Table 6.1-11 indicates that during the past 10 years on US 93 at the ATR, the 30th HV has averaged approximately ~~12.9~~12.6% of the ADT. In communities such as Arlee, Pablo, Ronan and Polson, the percentage that 30 HV is of ADT is generally lower because of a higher volume of local passenger vehicles. Using various traffic counts and references, a factor of 10.7% is estimated in these communities.

Figure 6.1-2 shows the ~~1991~~1994 ADT and 30 HV at various count locations. Table 6.1-12 demonstrates the change in traffic volumes by day and by hour for one week in July and August 199~~1~~. The highest-hourly traffic volumes occurred during the afternoon and early-evening.

Table 6.1-13 demonstrates the change in traffic volumes by month and by day of the week as recorded by the ATR during one year. This information indicates that during five months (May, June, July, August and September), traffic volumes are above annual average. During these five months, Friday is generally the busiest day followed by Saturday and Sunday.

Table 6.1-14 indicates, by percentage, the counties and states from which vehicles originate.[19]

Based on counts conducted by MDT during the years 1989 to 1991, it is estimated the percentage of trucks in the traffic stream is approximately 13.7% for sections of the highway south of MTS~~FAS~~ 212 at Milepost 42.1 and 10% for sections north of MTS~~FAS~~ 212.

6.1.5. Level-of-Service and Capacity Concepts and Criteria

An analysis of LOS and capacity has been conducted for the existing two-lane highway facility using methods outlined in the ~~1985~~1994 Highway Capacity Manual[20] and design-hourly volume described in the previous section.

The concept of LOS is defined as a qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers of those conditions. There are six categories of LOS for a given facility segment or intersection. These levels are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F representing the worst.

The following paragraphs provide a general description of each LOS category for two-lane, two-way rural highways.

> The highest quality of traffic service occurs when motorists are able to drive at their desired speed. Without strict enforcement, this highest quality, representative of *LOS A,* will result in average speeds approaching 60 mph on two-lane highways. The passing frequency required to maintain these speeds has

[19]Morrison-Maierle, U.S. Highway 93 Origin-Destination Studies, July 1992.

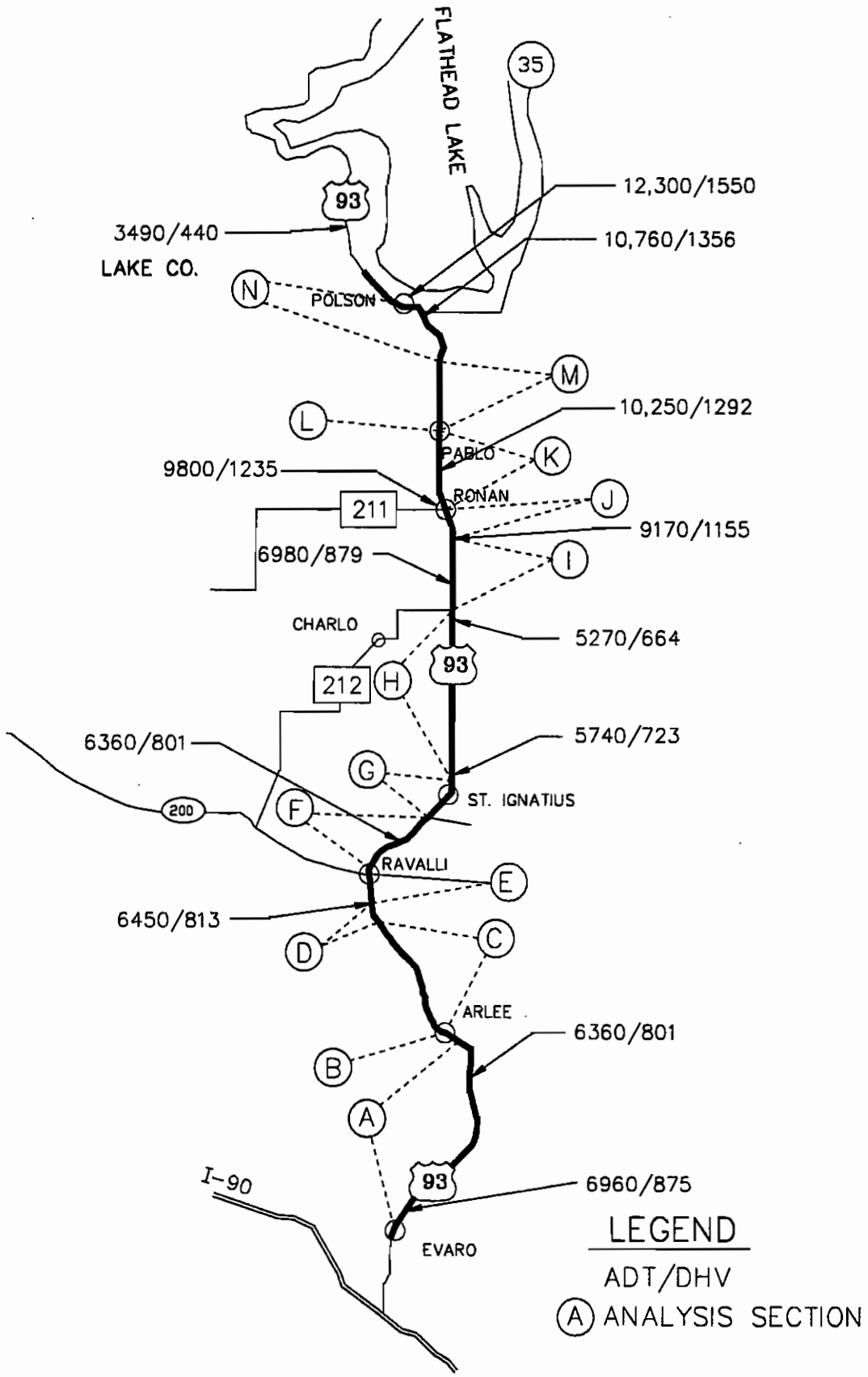
[20]Transportation Research Board, National Research Council, Highway Capacity Manual, Special Report 209, ~~1985~~1994.

not reached a demanding level. Passing demand is well below passing capacity, and almost no platoons of three or more vehicles are observed. Drivers are delayed no more than 30% of the time by slow-moving vehicles.

Table 6.1-11 ADT and 30 HV at Automatic Recorder South of Ravalli
This table has been revised in the final EIS using traffic volumes for the year 1994.

Year	A.D.T.	30th Highest Hour	
		Volume	Percent
1941	850	150	17.6
1951	1360	220	16.2
1961	1810	270	14.9
1971	2920	410	14.0
1981	3930	520	13.2
1982	3910	540	13.8
1983	4340	570	13.1
1984	4440	550	12.4
1985	4300	570	13.3
1986	4570	590	12.9
1987	4910	610	12.4
1988	5070	650	12.7
1989	5120	650	12.7
1990	5280	670	12.7
1991	5180	650	12.5
1992	5810	750	12.8
1993	6110	770	12.6
1994	6450	780	12.2

Montana Department of Transportation. Traffic Records.



1994 ADT & DHV

FIGURE 6.1-2

Table 6.1-12 Traffic Volume By Day & Hour, One Week In July and August, 1994

Hour	Sunday 7/28	Monday 7/29	Tuesday 7/30	Wednesday 7/31	Thursday 8/01	Friday 8/02	Saturday 8/03
1am	100	60	50	60	60	60	90
2am	70	30	40	20	30	50	80
3am	50	30	30	20	20	20	40
4am	30	30	30	30	30	30	30
5am	30	30	30	20	40	30	30
6am	40	80	60	50	60	60	50
7am	60	150	130	140	130	130	90
8am	110	300	270	290	280	270	170
9am	230	340	330	380	310	310	280
10am	350	430	430	420	460	500	440
11am	450	500	480	470	550	520	560
12pm	540	530	510	490	510	540	590
1pm	530	550	430	440	540	560	540
2pm	560	470	470	470	510	580	540
3pm	570	440	460	470	560	650	520
4pm	550	450	430	500	580	590	520
5pm	570	500	490	500	520	640	470
6pm	620	470	490	500	550	700	450
7pm	590	390	350	380	460	580	400
8pm	520	280	270	260	290	500	350
9pm	460	200	200	250	240	400	300
10pm	350	190	180	200	210	290	290
11pm	210	140	130	160	140	220	200
12am	110	100	90	90	80	130	180
Totals	7700	6690	6380	6610	7160	8360	7210

Montana Department of Transportation. Traffic Records System. ~~1987-91~~1990-1994.

This table has been revised in the final EIS using traffic volumes for the year 1994.

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.

Further increases in flow characterize *LOS C*, resulting in noticeable increases in platoon formation, platoon size, and frequency of passing impediment. Average speed still exceeds 52 mph on level terrain, even though unrestricted passing demand exceeds passing capacity. At higher volume levels, chaining of platoons and major reductions in passing capacity begin to occur. While traffic flow is stable, it is becoming susceptible to congestion due to turning traffic and slow-moving vehicles. Percent time delays are up to 60%.

Unstable traffic flow is approached as traffic flows enter *LOS D*. The two opposing traffic streams essentially begin to operate separately at higher volume levels, as passing becomes difficult. Passing demand is high, while passing capacity approaches zero. Mean platoon sizes of five to 10 vehicles are common, although speeds of 50 mph can still be maintained under ideal conditions.

Table 6.1-13 Ravalli Automatic Recorder Data By Month and Day Of Week, 1991~~4~~

Month	Average Daily Number Of Vehicles							Average Day
	Day of Week							
	Sun	Mon	Tue	Wed	Thu	Fri	Sat	
JAN	3710	4580	4780	4820	4930	5650	4380	4650
FEB	4230	4670	4530	4550	4970	5730	5030	4820
MAR	5290	5140	5350	5450	5780	6490	6370	5680
APR	5600	5670	5630	5800	6060	7060	6550	6100
MAY	6360	6380	6240	6240	6490	7790	7190	6640
JUN	7510	7210	7170	7240	7600	8560	7510	7540
JUL	9290	8850	8490	8340	8690	10320	9260	9090
AUG	8990	8460	7960	8130	8700	9740	8770	8630
SEP	6900	7050	6740	6740	7170	8430	7990	7320
OCT	5690	5780	6070	6320	6380	7460	6400	6270
NOV	4790	5160	5520	5810	5390	6230	5270	5470
DEC	3970	5300	5160	5390	5620	6010	4910	5220
Average	6030	6190	6140	6240	6480	7460	6640	6450

Montana Department of Transportation. Traffic Records System. 1941-1990~~4~~.

This table has been revised in the final EIS using traffic volumes for the year 1994.

Table 6.1-14 Traffic By Geographic Origin

County/State	Percent of Vehicles Counted -- U.S. Highway 93 Intersections (July 1992)				
	Interstate 90	Montana 200	MTS 212	Montana 35	Totals
Lake	20.2	30.3	42.3	53.6	38.5
Missoula	35.9	22.7	14.4	12.4	20.5
Flathead	5.0	5.9	5.2	5.0	5.2
Sanders	3.5	1.6	1.6	1.0	1.9
Ravalli	2.5	1.6	1.3	1.0	1.5
Glacier/Lincoln	0.9	0.7	0.3	0.4	0.6
Other Montana	6.8	6.6	10.9	6.5	7.7
Canada	2.0	3.9	2.4	1.7	2.3
Other States	23.2	26.7	21.4	18.4	21.8
Total Vehicles Counted[1]	4,510	3,218	4,551	6,017	18,296

Morrison-Maierle. License Plate Classification Study. August 1993.
[1] Total vehicles do not include semi-trucks for which licenses are not registered by county.

The fraction of no passing zones along the roadway section usually has little influence on passing. Turning vehicles and/or roadside distractions cause major shock-waves in the traffic stream. The percentage of time motorists are delayed approaches 75%.

LOS E is defined as traffic flow conditions on two-lane highways having a percent time delay of greater than 75%. Under ideal conditions, speeds will drop below 50 mph. Average travel speeds on highways with less than ideal conditions will be slower, as low as 25 mph on sustained upgrades. Passing is virtually impossible under LOS E conditions, and platooning becomes intense when slower vehicles or other interruptions are encountered.

LOS F represents heavily congested flow with traffic demand exceeding capacity. Operations are characterized by stop and go waves and flow is unstable. Vehicles may progress at reasonable speeds for several hundred feet or more, then be required to stop in a cyclic fashion.

LOS E represents the capacity of the highway. As traffic demand exceeds the capacity (LOS E), congestion and unstable conditions occur and the flow rate on the highway decreases (LOS F).

In rural areas, desirable operation is defined as LOS B or better. In communities such as Arlee, Ronan, Pablo and Polson desirable operation is defined as LOS C or better.[21]

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 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.

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.

When the highway crosses through a developed area or town, the roadway capacity is typically controlled by LOS at intersections. The majority of intersections along US 93 are three- or four-legged intersections with stop-sign control on the crossing street. Intersection capacity and LOS at these intersections are measured by the amount of delay turning vehicles will expect during peak hour conditions. Additionally, a number of intersections within the developed areas are signalized. The roadway capacity/LOS is again measured at the intersection, with respect to the amount of delay incurred by vehicles.

6.1.6. Existing Level-of-Service and Capacity

Results of the LOS analysis for the existing two-lane highway are summarized in Table 6.1-15 and indicate the existing highway is generally operating at LOS D and E.

As explained in Section 6.1.5, at ~~this level of operation~~ at LOS D, passing demand is high while passing capacity is near zero. Platoons are forming in the traffic stream and the percentage of time motorists are delayed approaches 75%. At LOS E, passing is virtually impossible, platooning becomes intense and vehicles are delayed more than 75% of the time.

An analysis of LOS at various intersections along the highway also has been completed and it has been determined that all movements are currently operating at LOS A except left turns from side streets onto US 93. LOS for these left turns ranges from A to E as summarized in Table 6.1-16.

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

Table 6.1-15 1994 Operation - Existing Roadway

Segment	Level-of-Service Year 1994
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	D
H - St. Ignatius to MTS 212	D
I - MTS 212 to Ronan	D
K - Ronan to Pablo	E
L - Pablo	E
M - Pablo to Caffrey Road	E
N - Caffrey Road to MT 35	E(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 1994.

Table 6.1-16 1991~~4~~ Intersection Operation - Existing Roadway

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

Morrison-Maierle, 1993
* Left turns from side streets onto U.S. Highway 93. ** Traffic signal currently in operation.
*** Left turn from U.S. Highway 93

This table has been revised in the final EIS using traffic volumes for the year 1994.

6.2. LAND USE

6.2.1. Land Use Plans

Lake County has a general plan, and Missoula County has a comprehensive plan to guide land use and development.[22,23] The Confederated Salish and Kootenai Tribes ~~are preparing, but have not yet adopted,~~ have adopted a comprehensive natural resource plan for protection and development of land-related resources.

CSKT, Lake County and Missoula County have not established zoning regulations in the area of US 93 from Evaro through Polson.

The city of Polson, which is a separate planning unit, is the only community in the area that has an urban comprehensive plan and zoning regulations. Polson's comprehensive plan was revised in 1993. The city of Ronan and the town of St. Ignatius also have zoning regulations, but no comprehensive plans. Ronan has been developing a comprehensive plan since~~began to develop a comprehensive plan in~~ late-1993.[24]

6.2.2. Intergovernmental Cooperation for Land Use Planning

CSKT, in cooperation with Lake and Missoula counties, is preparing a land use and growth projection study that will provide more detailed information about the area served by US 93. Results of the study should be available for future planning activities, such as developing an access control plan for the proposed action.~~the final environmental impact statement (EIS).~~ CSKT and Missoula County have a memorandum of agreement (MOA) regarding land use planning and resource management concerns for the portion of Missoula County that lies within the Flathead Indian Reservation.

6.2.3. Pattern of Land Use

~~#### 6.2.3.1. Lake County~~

~~The proposed action is in the south county area and city of Polson planning units. In 1988 approximately 50% of Lake County's 1,656 square miles (1.1 million acres) was forest land, 33% was agricultural land, and two percent was built development area.[25] (Table 6.2-1)~~

The Confederated Salish and Kootenai Tribes have divided the reservation into planning units called study areas. Three of the study areas, Jocko Valley, Mission Valley and Polson-Elmo cover the general area of the proposed action.[26] (Figure 6.2-1)

Table 6.2-1 shows land use for the Jocko Valley, Mission Valley and Polson-Elmo study areas. This information provides a general indication of patterns of land use for the area affected by the proposed action.

~~#### 6.2.3.2. Missoula County~~

~~Approximately 8.5 miles of the southern end of the proposed action is located in northern Missoula County. This area of Missoula County is rural and includes the small, unincorporated community of Evaro. Land is mostly~~

---

[22]Lake County General Plan. 1988.
[23]Missoula County Comprehensive Plan. 1975.
[24]Montana Code Annotated. 76-2-310.
~~[25]Lake County General Plan. 1988.~~
[26]Confederated Salish and Kootenai Tribes. *Flathead Reservation Comprehensive Resources Plan* (November 1994). Page 6-2.

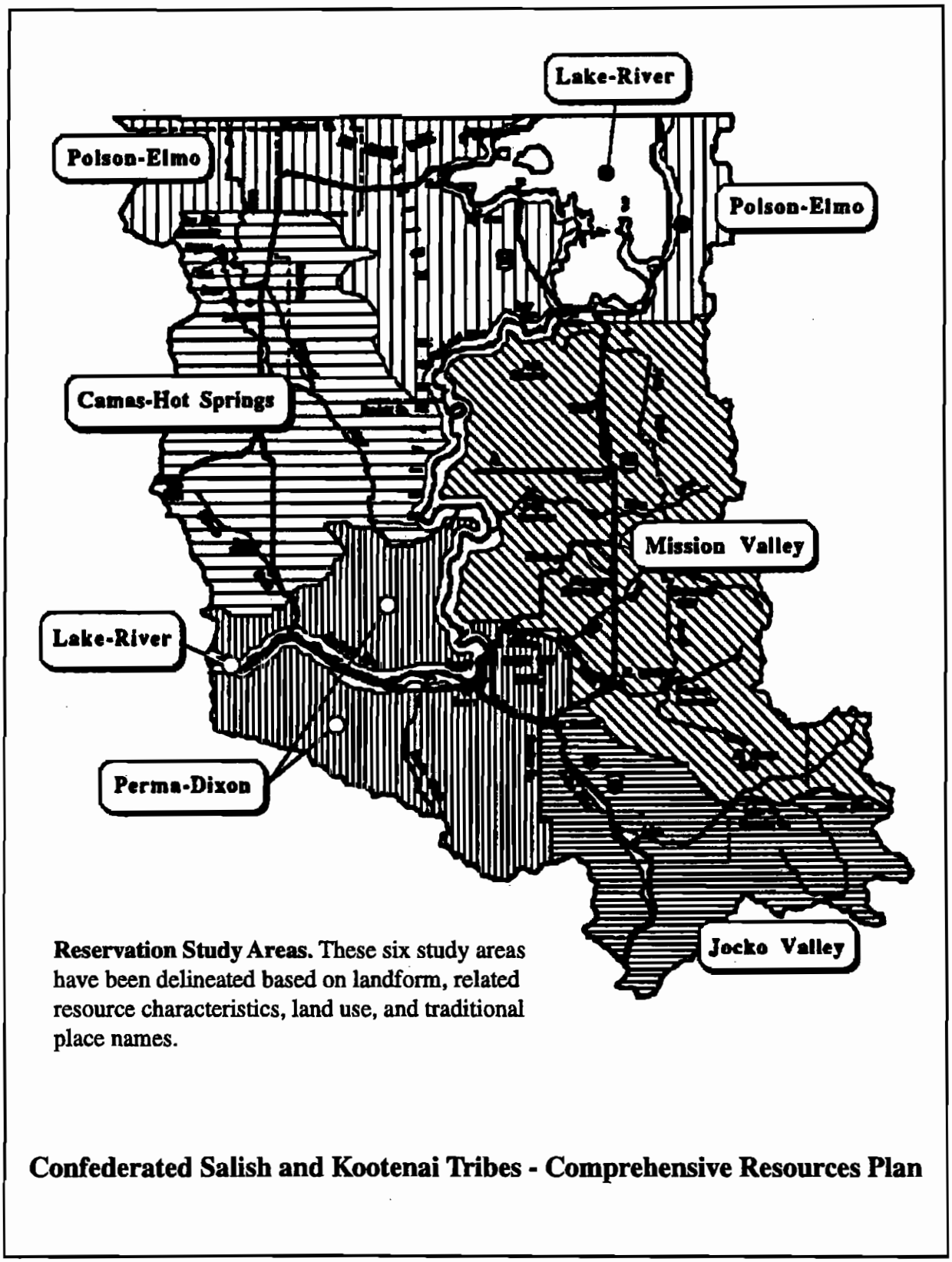


Figure 6.2-1 Flathead Indian Reservation Study Areas
This figure has been added in the final EIS using information for the Flathead Indian Reservation.

Table 6.2-1 Land Use for Jocko Valley, Mission Valley and Jocko Valley Study Areas

Land Use	Area (Acres)	Percent of Total Land Area (%)
Jocko Valley Study Area		
Irrigated Cropland	8,307	5%
Non-irrigated Cropland	760	1%
Rangeland	20,203	13%
Primitive Area (forested)	59,169	27%
Forest	57,261	47%
Rural and Suburban	9,755	6%
Urban and Built-Up	321	<1%
Mission Valley Study Area		
Irrigated Cropland	102,900	30%
Non-irrigated Cropland	91,778	27%
Rangeland	59,916	17%
Mission Mountains Wilderness	48,425	14%
Forest (excluding wilderness)	22,541	7%
Rural and Suburban	15,360	4%
Urban and Built-Up	3,878	1%
Water (major reservoirs)	1,519	<1%
Polson-Elmo Study Area		
Irrigated Cropland	856	<1%
Non-irrigated Cropland	13,003	6%
Rangeland	79,678	35%
Forest	119,492	53%
Rural and Suburban	12,225	>5%
Urban and Built-Up	821	<1%

SOURCE: Confederated Salish and Kootenai Tribes. Flathead Reservation Comprehensive Resources Plan. November 1994. Pages 6-6 through 6-15.
This table has been revised in the final EIS using information for the Flathead Indian Reservation.

~~forested with some agricultural valley bottom lands. As with Lake County and other parts of Missoula County, scattered residential development is increasing throughout forested and open areas.~~

6.2.3.3. Flathead Indian Reservation

US 93 is located in the eastern part of the Flathead Indian Reservation, and it spans approximately three-quarters of the north-south distance of the reservation. Overall, the reservation has 1,938 square miles of land (1.24 million acres) and covers parts of four counties in an area that is roughly 60 miles long and 40 miles wide: Lake (1,012 sq. mi.), Missoula (162 sq. mi.), Sanders (718 sq. mi.) and Flathead (47 sq. mi.). The south half of Flathead Lake also lies within the reservation.[27]

The Confederated Salish and Kootenai Tribes own the majority of land on the Flathead Indian Reservation. There also are hundreds of allotments owned in whole or in part by individuals and the Tribes. Generally, an allotment is a parcel of land assigned to a tribal member as a result of the Flathead Allotment Act in 1908 or 1920, or since inherited or purchased by a tribal member(s). Fee land is land that is not in trust status, nor is it owned by tribal, federal, state or local governments.[28]

The land base of the Confederated Salish and Kootenai Tribes encompasses the majority of forest resources and a substantial portion of the agricultural resources of the reservation. The Tribes administer more than 320,000 acres of rangelands and 62,000 acres of pasture lands. They control a much smaller portion of the cropland, about 10% of acreage irrigated by the Flathead Agency Irrigation Division is tribal or allotted trust lands. Tribal land is the dominant source of timber for the local forest products industry, with almost 46% of timber harvested in Lake County in 1988 being from tribal lands.[29]

The Flathead Indian Reservation has a variety of landforms that support a diversity of ecosystems:[30]

- Forested mountain ranges
- Low, broad valleys
- Drier prairies, having only sparse vegetation
- High and low elevation forested hills with wet and dry vegetation
- Rocky buttes, with shrub and grass communities
- Rivers, streams, lakes and ponds, with companion wetlands and riparian habitats
- Glaciers, surrounded by rock and alpine tundra

The Flathead and Lolo national forests, Burlington Northern and Champion International private timber holdings, individual sections of state land and small parcels of private land border the reservation. Forest, agricultural land, grassland and water are the four major types of land use for the reservation. Logging, cropland development, grazing, irrigation and other land uses have substantially altered the native vegetation.[31]

---

[27]U.S. Department of Commerce, Bureau of the Census. Census of Population. 1990.
[28]Ibid. Page 2-13 and 2-14.
[29]Ibid. Page 4-6.
[30]Ibid. Page 2-2.
[31]Ibid. Pages 2-2 and 2-12.

6.2.3.4. US 93

Land use adjacent to the highway is predominantly agricultural, interspersed with residential, commercial and industrial activities.

There is scattered residential development with 681 approaches to the highway. Commercial development outside communities is mostly highway-oriented, with lodging, gas station-convenience stores, restaurants and tourism specialty shops. (Tables 6.2-2 through 6.2-5)

Land use in communities combines residential, commercial, industrial and open areas with recreation facilities. Agricultural lands are located adjacent to municipal boundaries. Government and school property in Pablo is adjacent to the existing alignment of the highway. Open space used for recreation is adjacent to the highway at St. Ignatius and Ronan. A senior citizen's center is adjacent to the existing alignment in Ronan. Church property is adjacent to the existing alignment of the highway in Arlee, Ravalli, Ronan and Polson. Church property and a residential center for senior citizens is adjacent to the alignment alternative for a one-way couplet in Ronan. A railroad line generally runs parallel to the highway in some areas. (Section 6.4)

At the southern end of the proposed action, land is mountainous and forested, with some agricultural valley-bottom lands. There is abundant wildlife habitat. There is scattered residential development with numerous approaches to the highway. The Evaro and Schley areas are the largest residential developments, and individual homesites are located throughout the area. A one mile segment of land along US 93 south of Schley, which CSKT manages as a wildlife corridor, is the only segment of undeveloped land in the area. Approximately 8.5 miles of the southern end of the proposed action is located in northern Missoula County. This area of Missoula County is rural and includes the small, unincorporated community of Evaro. As with Lake County and other parts of Missoula County, scattered residential development is increasing throughout forested and open areas.

The middle part of the proposed action, between Arlee and Ronan, is mostly open agricultural land with areas of rolling hills. There is a lumber mill and some commercial development adjacent to the highway in the Post Creek area. The National Bison Range is adjacent to the highway north of Ravalli. The Ninepipe National Wildlife Refuge also is adjacent to the highway and provides extensive open space for wildlife and recreation south of Ronan.

The northern part of the proposed action, between Ronan and Polson, has open and forested land, with areas of rolling hills. A lumber mill at Pablo and a concrete plant at Polson create the heaviest concentration of industrial activity, with commercial strip development scattered between the two communities. ~~Lumber mills at Pablo and Polson create the heaviest concentration of industrial activity.~~ (Figure 6.2-2)

6.2.3.5. Communities: Arlee, Ronan and Polson

Land use in the Arlee area is influenced by US 93 and agricultural development of the Jocko Valley. US 93 has commercial and scattered residential development on the route through the town. Areas east and west of Arlee include open agricultural land and vacant land with scattered, rural residential development. The schools, powwow and rodeo grounds, a ballfield and a state fish hatchery are located on the east edge of Arlee. (Table 6.2-3)

US 93 and the forested slopes extending from the Mission Mountains into the Mission Valley influence land use in the Ronan area. US 93 has commercial and residential development along its route through Ronan. The highway has become an extension of the original central business district (CBD). (Table 6.2-3)

Table 6.2-2 Percent of Land Use* Based on Miles of Highway Right-of-Way Frontages: Existing Alignment

Highway Segment on Existing Alignment	Milepost	Forestland (%)	Rockland (%)	Agricultural Land (%)	Water/ Wetland (%)	Wildlife Refuge/ Recreation[2] (%)	Railroad Right-Of-Way[2] (%)	Built Development			TOTAL (%)**
								Commercial/ Industrial (%)	Residential (%)	Total (%)	
		Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
A: Evaro to Arlee	6.5 - 16.7	44	5.5	47	0	0	13	3	.5	3.5	100
B: Arlee[3]	16.7 - 18.2	0	0	63	0	0	0	27	10	37	100
C: Arlee to Ravalli Canyon	18.2 - 24.7	0	0	84	10	0	42	0	6	6	100
D: Ravalli Canyon to Ravalli	24.7 - 26.5	2.5	27.5	5	65	0	50	0	0	0	100
E: Ravalli	26.5 - 27.5	0	11	11	28	0	39	6	44	50	100
F: Ravalli Hill	27.5 - 31.2	0	46	46	7	28	0	0	1	1	100
G: St. Ignatius	31.2 - 33.5	4	8	84	0	0	0	0	4	4	100
H: St. Ignatius to MTS 212	33.5 - 42.1	0	4	71	24	6	0	1	0	1	100
I: MTS 212 to Ronan	42.1 - 46.1	0	0	45	53	0	0	2	0	2	100
J: Ronan[3]	46.1 - 47.6	0	0	30	0	0	0	53	17	70	100
K: Ronan to Pablo	47.6 - 50.8	0	9	81	6	0	0	2	2	4	100
L: Pablo	50.8 - 54.7	4	0	47	0	0	0	2	47	49	100
M: Pablo to Caffrey Road	54.7 - 56.5	0	3	67	0	0	0	19	3	21	100
N: Caffrey Road to MT 35	56.5 - 59.0	0	9	67	0	0	50	20	4	24	100
O: Polson[3]	59.0 - 61.0	0	0	0	10.5	10	4	61.5	18	79.5	100
P: Polson to End of Project	61.0 - 62.8	0	0	15	22	0	0	37	26	63	100
TOTAL: Existing Alignment		9	7	55	13	.5	11	8	7.5	15.5	100

Morrison-Maierle 1993. [1] Total is for east and west sides of the highway. [2] Underlined percentages represent types of land use that have a relatively narrow strip of direct highway frontage, but which are not the dominant land use in the corridor extending away from the highway. They are counted in other types of land use. [3] Land use for Arlee, Ronan and Polson are within the developed areas along the existing alignment. Refer to Table 6.2-3 for land use along the existing alignment that is adjusted to the lengths of the longest alternate highway alignments for each of the communities. * Dominant land use extending away from the highway. ** Totals do not include underlined percentages.

Table 6.2-3 Land Use: Arlee, Ronan and Polson Alignments

Highway Segment and Alignment Alternatives	Milepost	Forest-land (%)	Rockland (%)	Agricultural Land (%)	Water/ Wetlands (%)	Wildlife Refuge/ Recreation (%)	Railroad Right-Of-Way[3] (%)	Built Development			TOTAL (%)**
								Commercial/ Industrial (%)	Residential[3] (%)	Total (%)	
		Total[1]	Total	Total	Total	Total	Total	Total	Total	Total	Total
B: Arlee[4]											
Existing Alignment #1	15.0 - 22.4	0	1	80	4	0	24	11	4	15	100
West Alignment #2	15.0 - 22.4	0	1	94	2	0	4	3	4	3	100
East Alignment #3	15.0 - 22.4	0	1	88[2]	4	1[2]	23	6	0	6	100
Jocko Valley Align. #4	15.0 - 22.4	0	0	84	16	0	0	0	0	0	100
J: Ronan[4]											
Existing Alignment #1	45.1 - 48.8	0	0	72	0	0	0	23	5	28	100
One-Way Couplet #2	45.1 - 48.8	0	0	75	0	0	0	19	6	25	100
West Alignment #3	45.1 - 48.8	0	0	93	3	0	0	1	3	4	100
West Alignment #4	45.1 - 49.0	0	0	97	0	0	8	3	0	3	100
O: Polson[4]											
Existing Alignment #1	56.5 - 62.8	0	3	32	10	3	22	37	15	52	100
Alignment #2	56.5 - 62.8	0	0	71	5	5	0	4	15	19	100
Alignment #3	56.5 - 62.8	0	3	83	3	2	0	0	9	9	100

Morrison-Maierle. 1993. [1] Total is for east and west sides of highway. [2] Includes 0.1 miles for recreation. [3] Underlined percentages represent types of land use that have a relatively narrow strip of direct highway frontage, but which are not the dominant land use in the corridor extending away from the highway. They are counted in other types of land use. [4] Land use is for the length of roadway along each alignment, beginning at the southern end of the longest alignment. * Dominant land use extending away from the highway. **Totals do not include underlined percentages.

Table 6.2-4 Highway Approaches To Highway Right-Of-Way Frontage: Existing Alignment

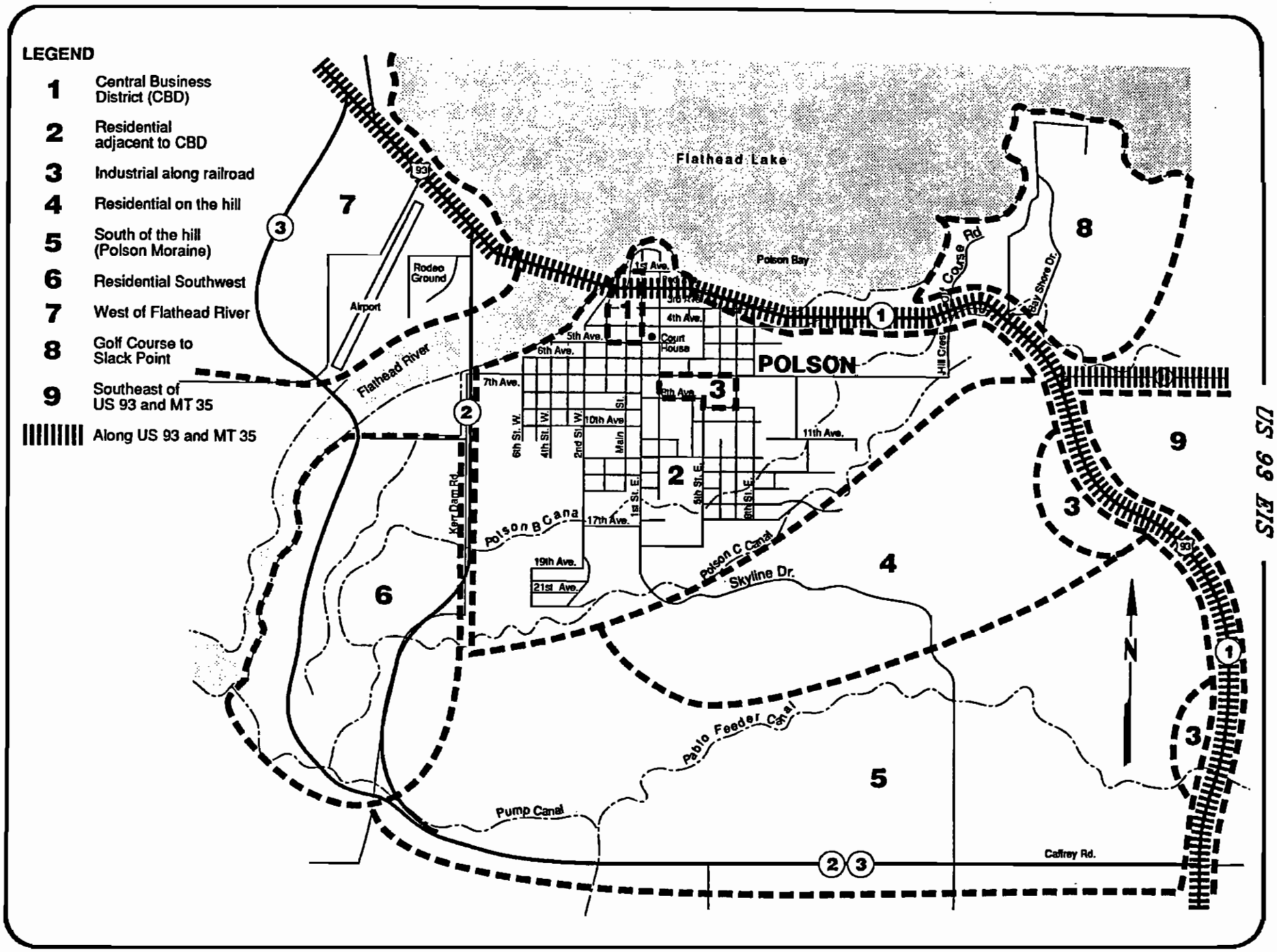
Highway Segment on Existing Alignment	Milepost	Residential	Commercial/ Industrial	County Road	State Highway	Trail/ Service Road	Field Approaches	Railroad Access	Public Use[3]	Turnouts[4]	City Streets	TOTAL
		Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
A: Evaro to Arlee	6.5 - 16.7	61	12	19	0	2	12	0	4	8	0	118
B: Arlee[2]	16.7 - 18.2	10	2	4	1	0	1	0	0	1	8	27
C: Arlee to Ravalli Canyon	18.2 - 24.7	10	7	8	0	0	5	2	0	6	0	38
D: Ravalli Canyon to Ravalli	24.7 - 26.5	3	0	1	0	1	3	2	0	3	0	13
E: Ravalli	26.5 - 27.5	0	0	0	0	0	0	0	0	0	0	0
F: Ravalli Hill	27.5 - 31.2	3	0	2	1	0	5	0	4	3	0	18
G: St. Ignatius	31.2 - 33.5	6	3	2	1	0	3	0	1	0	0	16
H: St. Ignatius to MTS 212	33.5 - 42.1	36	10	12	0	2	50	0	3	3	0	116
I: MTS 212 to Ronan	42.1 - 46.1	16	5	6	1	0	12	0	3	1	0	44
J: Ronan[2]	46.1 - 47.6	1	20	0	2	0	4	0	0	0	12	39
K: Ronan to Pablo	47.6 - 50.8	8	0	6	0	0	23	0	0	0	0	37
L: Pablo	50.8 - 54.7	23	9	9	0	0	11	0	2	0	5	59
M: Pablo to Caffrey Road	54.7 - 56.5	5	8	6	0	1	6	0	0	2	0	28
N: Caffrey Road to MT 35	56.5 - 59.0	2	6	2	0	0	2	0	0	2	0	14
O: Polson[2]	59.0 - 61.0	29	50	1	1	1	0	0	2	2	14	100
P: Polson to End of Project	61.0 - 62.8	5	5	3	0	1	0	0	0	0	0	14
TOTAL: Existing Alignment		218	137	81	7	8	137	4	19	31	39	681

Morrison-Maierle. 1993. [1] Total is for east and west sides of the highway. [2] Approaches for Arlee, Ronan and Polson are within the developed areas along the existing alignment. Refer to Table 6.2-5 for approaches along the existing alignment that are adjusted to the lengths of the longest alternate highway alignments for each of the communities.

Table 6.2-5 Approaches: Arlee, Ronan and Polson Alignments

Highway Segment and Alignment Alternative:	Milepost	Residential	Commercial/ Industrial	County Road	State Highway	Trail/ Service Road	Field Approaches	Railroad Access	Public Use[2]	Turn-outs[3]	City Streets	TOTAL
		Total[1]	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
B: Arlee[4]												
Existing Alignment #1	15.0 - 22.4	21	12	17	1	0	6	1	0	6	8	72
West Alignment #2	15.0 - 22.4	12	7	17	0	0	15	1	0	4	0	56
East Alignment #3	15.0 - 22.4	17	7	15	1	0	8	1	2	4	0	55
Jocko Valley Align. #4	15.0 - 22.4	11	0	12	0	0	40	0	0	0	0	63
J: Ronan[4]												
Existing Alignment #1	45.1 - 48.8	7	18	6	2	0	13	0	2	1	12	61
One-Way Couplet #2	45.1 - 48.8	9	5	6	2	0	18	0	1	1	13	55
West Alignment #3	45.1 - 48.8	9	4	5	2	0	15	0	0	1	3	39
West Alignment #4	45.1 - 49.0	8	2	6	2	1	6	2	1	0	2	30
O: Polson[4]												
Existing Alignment #1	56.5 - 62.8	36	61	6	1	2	2	0	2	4	14	128
Alignment #2	56.5 - 62.8	29	1	7	0	5	7	2	2	0	0	53
Alignment #3	56.5 - 62.8	10	1	9	0	13	12	2	0	0	0	47

Morrison-Maierle. 1993. [1] Total is for east and west sides of the highway. [2] Public use includes picnic, camping, and rest areas. [3] Turnouts include historic/scenic, school bus, mail, and recreation. [4] Land use is for the length of roadway along each alignment, beginning at the southern end of the longest alignment.



LAND USE IN THE POLSON AREA

FIGURE 6.2-2

Residential development extends east, south and west of the CBD. Schools are located adjacent to the north side of the CBD, and the hospital is located in the residential area west of the CBD. West of Ronan there is open land use with a wastewater treatment facility, ballfield and scattered residential and industrial development.

Land use in the Polson area is influenced primarily by Flathead Lake and River, the hills to the south, MRL, US 93 and MT 35. Commercial, residential and agricultural land use are the major forms of development. (Figure 6.2-12 and Table 6.2-3)

US 93 has commercial development along the route between its intersection with MT 35 and the downtown CBD. The municipal golf course and waterfront property, which includes multi-unit senior citizen housing, is adjacent to the highway east of the CBD. Residential development with medium density (four to eight dwelling units per acre) extends east, south and west of the CBD. Schools are located adjacent to the east side of the CBD, and schools and the hospital are located in the residential area southwest of the CBD.

Land use is primarily agricultural south of the hills in the Polson Moraine, and residential development with low density (one to four dwelling units per acre) occurs in the hills southwest of Polson. West of Polson, between the Flathead River and the residential area adjacent to the CBD, there is open land use with a wastewater treatment facility, ballfield and scattered residential and industrial development.

The municipal airport and rodeo grounds are adjacent to the west side of the river. West of the river there is scattered commercial and low-density residential development mixed with vacant and agricultural land.

6.2.3.6. Confederated Salish and Kootenai Tribes Policies and Objectives for Management of Land and Resources

The Confederated Salish and Kootenai Tribes have developed a set of policies and objectives to manage land and resources of the Flathead Indian Reservation. The *Flathead Reservation Comprehensive Resources Plan* identifies the resources and major goals:[32]

Air: Maintain the clean, Class I air quality status of the reservation.

Water: Protect and enhance the quality and quantity of reservation water resources.

Fisheries: Foster and maintain wild, self-sustaining fish populations to meet cultural, subsistence and recreational needs.

Wildlife: Manage wildlife resources and habitats for viable populations of all wildlife species.

Forest: Enhance forest values and maintain a perpetual source of forest resources and opportunities.

Range: Enhance and maintain multiple range resource values and opportunities.

Agriculture: Manage agricultural resources for sustainable levels of production that are environmentally sound, economically viable and socially acceptable.

Minerals and Energy: Wise use of mineral and energy resources, with appropriate environmental safeguards and cultural protection.

[32]The Confederated Salish and Kootenai Tribes. The Flathead Reservation Comprehensive Resources Plan. Volume II. Policies. November 1994.

Wilderness and Primitive Areas: Preserve specially designated areas for cultural, spiritual and recreational pursuits.

Land-Based Cultural Resources: Preserve and perpetuate tribal histories, cultures and languages.

Recreation and Scenic Areas: Protect and promote the recreational resources of the Confederated Salish and Kootenai Tribes.

Residential Areas: Encourage housing development and maintenance that considers human resource values while protecting natural resource qualities and minimizing effects for community infrastructure.

Commercial and Industrial Areas: Provide areas for commercial and industrial development that are easily accessible but minimally affect infrastructure and the surrounding environment.

Transportation, Communication and Utilities: Promote a transportation system, communications network and utility infrastructure that support existing and potential resource development and use and that is consistent with the protection of cultural and natural resources.

Government and Institutional Facilities: Provide government facilities/services that ensure protection of public health, welfare and safety and the environment and that improve educational opportunities.

The Confederated Salish and Kootenai Tribes have identified major planning issues, some of which concern these resources and the proposed action in the Jocko Valley, the Mission Valley and the Polson-Elmo study areas:[33]

- Water issues, which include the protection of groundwater and surface water from pollution.
- The effects of Missoula's suburban sprawl on infrastructure, farmland, air and water quality, cultural resources, and wildlife.
- Strip development along US 93.
- Rural residential growth.
- Effects on wildlife travel corridors from residential and highway development.
- Lack of public fishing access on major streams in the Jocko and Mission valleys.
- Tribal-federal-state interagency cooperation.

6.2.3.7. Major Land Use Considerations

A community opinion survey conducted as a part of the Lake County General Plan (1988), identified agriculture, US 93, floodplain development, wildlife and community growth as the major land use considerations in the south county planning area.[34]

[33]Confederated Salish and Kootenai Tribes. Flathead Reservation Comprehensive Resources Plan. November 1994. Pages 6-6 through 6-15.
[34]Lake County General Plan, July 1988.

Agriculture

Agriculture is the major resource use in Lake County, and the south county area is the principal farming area, with irrigated land that is considered prime or good by the U.S. Natural Resources~~Soil~~ Conservation Service (NRCS). Agriculture is based on irrigated forage crop production to support livestock. Agriculture also produces small grains, tree fruits, field crops, and some dairy and vegetable production. Scattered ranches and farms grow hay or grain.

Residential development that replaces production on agricultural land was a concern of local residents who responded to the community opinion survey. Most residents believe agricultural land should be protected. Residents of some areas expressed support for measures such as density guidelines on good farmland and conservation easements, which provide tax incentives to landowners in exchange for protection of land. Residents in all areas supported development of standards to protect agriculture from problems caused by residential development. There are several livestock underpasses on the existing roadway. Landowners have indicated some of these are used regularly and will continue to be needed.[35]

US 93

US 93 was a concern for respondents to the community opinion survey because of conflicts in safety, commercial development and scenic values. Most local residents were not in favor of restricting commercial development along the highway, but there was concern about "strip development" causing an undesirable pattern of growth. Generally, local residents favored control of commercial development through measures such as setbacks and design standards for building height, parking, highway signs and highway approaches.[36]

Public comment for the~~this draft~~ EIS indicates there is a need to control signage and growth of residential, commercial and industrial development outside communities. There is support for development of vacant land within communities to achieve compact, rather than scattered pattern of development. More development within communities is considered to be important for utilizing public utility systems and facilities/services, while avoiding further proliferation of individual utility systems. Public comments associate improvement of the highway with commercial strip development and residential sprawl on the edges of communities and in scattered locations between communities. Public comments also indicate there is a need to coordinate land use planning and regulation with access control and other transportation planning activities. (Chapter 10)

Floodplain Development

The Flathead and Jocko rivers, along with Post, Crow and Mission creeks, are flood hazard areas along parts of the route of US 93. Information from NRCS indicates Mud Creek, Ronan Spring Creek and Agency Creek, as well as other areas, have potential for flood hazard. Generally, residents support control of development in floodplains through measures such as locating new subdivisions outside flood hazard areas, setbacks from rivers and streams, anchoring new structures within flood hazard areas and requiring buildings to be above flood elevation of 100-year frequency.[37]

Wildlife

Wildlife habitat is intermingled with landholdings that are affected by population growth and economic development. Two 1992 surveys conducted by the CSKT Wildlife Management Program and a survey conducted by the Bureau of Indian Affairs (BIA), independent of the community opinion survey in the Lake County General Plan, found local

[35]Ibid.
[36]Ibid.
[37]Ibid.

residents support measures to protect wildlife.[38,39] ~~A poll conducted by the Bureau of Indian Affairs (BIA), independent of the community opinion survey in the Lake County General Plan, found local residents support measures to protect wildlife, especially bears.~~ Wildlife protection measures related to highway development include density guidelines to limit development in affected areas, conservation easements, which provide tax incentives to landowners in exchange for protection of habitat, and site design criteria to protect critical habitat areas.[40]

Community Growth

Most population growth has occurred in rural areas outside communities. Respondents to the community opinion survey favored locating residential, commercial and industrial development in or next to existing communities. The Lake County General Plan indicates residential development probably will continue to occur outside communities, while more commercial and industrial development will be located either in or near existing communities.

The Lake County General Plan identifies measures, which could be affected by improvement of US 93, to plan for growth and development:[41]

- Improve roads, water and sewage systems.
- Development of appearance standards to improve attractiveness of communities.
- Designate preferred areas with eased regulations for commercial and industrial development.
- Restrict or limit commercial and industrial growth in areas outside communities.

The Missoula County Comprehensive Plan identifies measures similar to those of Lake County for planning growth and development.

6.2.4. Land Status

~~In 1988 approximately 45% of land in Lake County was held in private ownership, and 31% of the land was held in tribal trust and allotment.~~[42] The pattern of land ownership of the Flathead Indian Reservation is mixed, but most tribal land is located in the forested, mountainous areas along the edges of the county. The majority of private land is located at lower elevations of the Mission and Jocko valleys, which has more economically valuable irrigated cropland and grazing land. ~~(Table 6.2-2)~~

Figure 6.2-3 identifies patterns of land ownership on the Flathead Indian Reservation in 1992.[43]

Lands with frontage on US 93 have mixed ownership among tribal, trust/allotment, private (fee), state and federal interests. Small blocks of each type of ownership are interspersed along the highway. There are concentrations of tribal ownership in the mountainous area north of Evaro, as well as the Ninepipe refuge and Kicking Horse Reservoir areas south of Ronan. State ownership is concentrated in the Ninepipe and Kicking Horse areas, and the National Bison Range is federal land. Private ownership is predominant through the remainder of the area.

---

[38]Non-Indian Bird Hunters on the Flathead Reservation: Patterns of Use and Wildlife Management Scoping Issues. David Rockwell and Dale Becker. Unpublished report prepared by the Tribal Wildlife Management Program, Confederated Salish and Kootenai Tribes, Pablo, Montana, October 1992.

[39]Patterns of Use and Wildlife Management Scoping Issues: Tribal Member Hunting on the Flathead Indian Reservation. David Rockwell and Dale Becker. Unpublished report prepared by the Tribal Wildlife Management Program, Confederated Salish and Kootenai Tribes, Pablo, Montana, October 1992.

[40]The Border Grizzly Project, University of Montana. Living with the Grizzly, Perceptions of Mission Valley Residents. Frost, J.R. Prepared for Bureau of Indian Affairs, Pablo Agency. November 1984.

[41]Lake County General Plan. July 1988.

[42]Ibid.

[43]Ibid. Page 2-13.

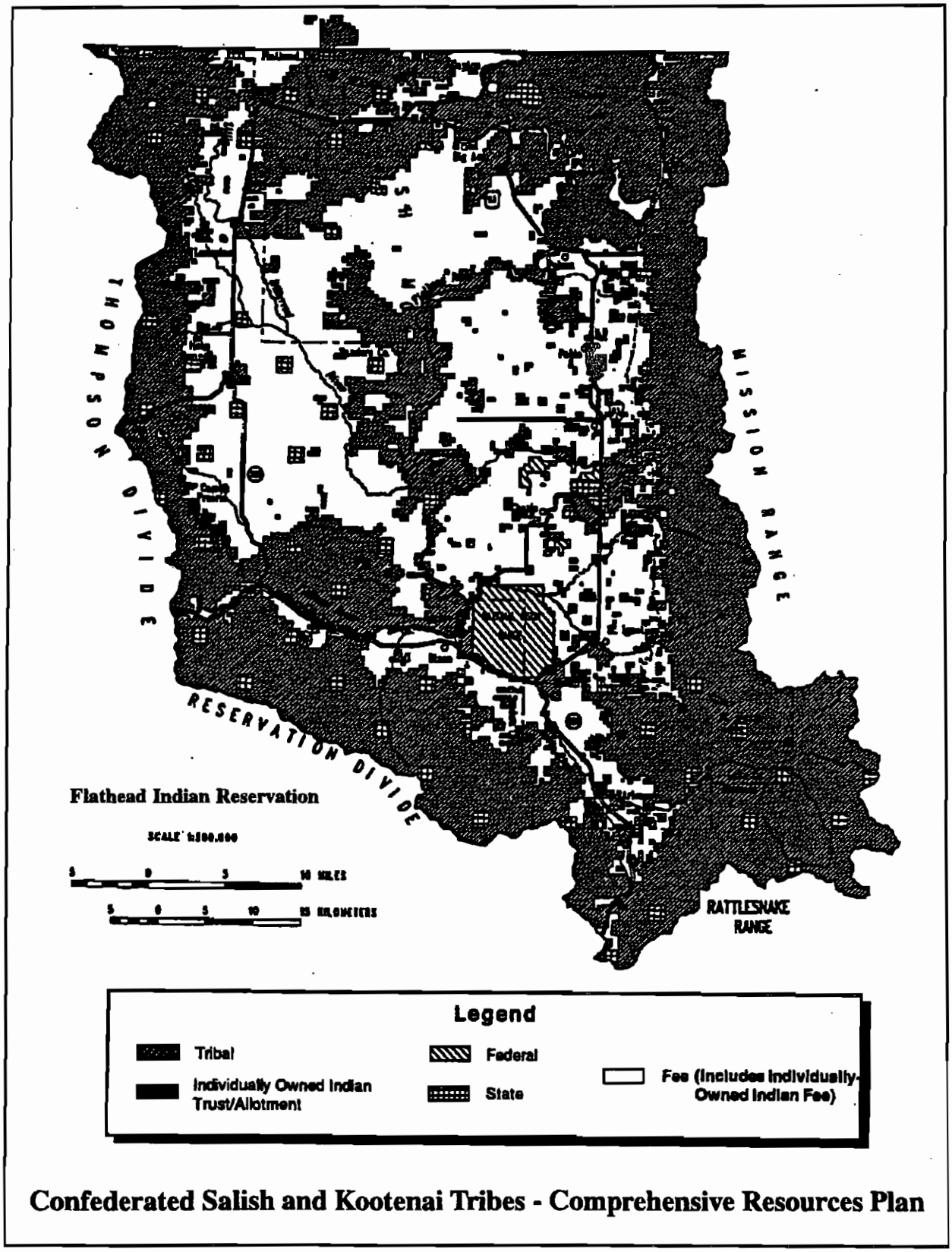


Figure 6.2-3 Land Status on the Flathead Indian Reservation (1992)
This figure has been added in the final EIS using information for the Flathead Indian Reservation.

6.2.5. Residential Development

6.2.5.1. Land Subdivision

Until 1904, all land in this area was owned in common by the Salish, Pend d'Oreilles and Kootenai tribes. The Flathead Allotment Act then forced tribal people to become enrolled and take land allotments. Amendments to the act gave several hundred acres of land to church organizations and thousands of acres to the state of Montana for school purposes. Thousands more were set aside for townsites, power reserves, the National Bison Range, general government needs and two-to-five acre lots around Flathead Lake. In spite of tribal protest, the federal government opened the Flathead Reservation to settlement in 1910.

From the early-1900s until~~Until~~ the late-1960s, land areas remained in larger blocks of 40 to 200 acres. Many of these parcels of land were originally settled under the Homestead Act. Beginning in the 1970s, land values began to increase due to outside public interest for recreation land. Many original homestead sites were subdivided, which has resulted in smaller lots and tracts of three to five acres.

Extensive subdivision of land has occurred in the area. Since 1973, 3,719 tracts have been created in Lake County. Of these, 16% were 20-40 acre tracts, 34% were occasional sales, seven percent were family transfers, and 44% were reviewed as subdivisions. There were 26,997 acres of land subdivided since 1973, of which 47% of the acreage was 20-40 acre exemptions, 28% was acreage in occasional sales, four percent was acreage in family transfers, and 20% was acreage reviewed as a subdivision.[44]

6.2.5.2. Residential Development

According to the Lake County General Plan, subdivision of land has been the major land use change in Lake County since 1970. Residential development outside communities has caused dispersed pattern of growth and reliance on individual, rather than municipal systems for facilities/services. Residential development has occurred in unincorporated communities such as Arlee and Pablo, and there has been development scattered throughout rural areas.

Between 1970 and 1990 the population density for Lake County increased from 10 to 14 persons per square mile (40%). During the same period population density for Montana increased from approximately 4.8 to 5.5 persons per square mile (15%).[45]

Ongoing growth and development in recent years has increased demand for and value of land. Total taxable value of land in Lake County increased by 46.2%, compared with a statewide increase of 13.6%, between 1990 and 1994.[46] (Table 6.2-6)

According to the U.S. Census, approximately 71% of the 10,970 housing units in Lake County were occupied in 1990. The rate of occupied housing units in Lake County is lower than the rate (85%) for the state of Montana in 1990. This is because a larger portion of Lake County's housing units are for seasonal/recreation/occasional use; they are considered to be vacant by the U.S. Census if persons who reside there have a permanent residence elsewhere. Approximately 76% of the 10,400 housing units in the Flathead Indian Reservation were occupied in 1990.[47] (Table 6.2-7)

---

[44]Lake County Land Services. 1992.

[45]Bureau of Indian Affairs, Portland Area Office. Flathead Reservation Transportation Plan. September 1988.

[46]Montana Department of Revenue. Taxable Value By Class, By County. 1990-94.

[47]U.S. Department of Commerce, Bureau of the Census. 1990 Census of Population and Housing.

Table 6.2-6 Taxable Value (1990-94)

Years	Annual Rate of Growth of Total Taxable Value[1]	
	Lake County	State of Montana
1990 to 1991	6.4%	1.4%
1991 to 1992	3.0%	2.3%
1992 to 1993	27.7%	6.1%
1993 to 1994	4.5%	3.2%
Subtotal: 1990 to 1994[2]	46.2%	13.6%
Annual average: 1990 to 1994	11.5%	3.4%

State of Montana. Taxable Value by Class, by County. 1990-94.
[1]Total taxable value for Lake County increased from $28.7 million in 1990 to $41.9 million in 1994. Total taxable value for Montana increased from $1.6 billion in 1990 to $1.8 billion in 1994.
[2]Annual increments do not sum to equal the subtotal for 1990 to 1994.
This table has been added to the final EIS.

In 1990, approximately 52% of housing units in Lake County were homeowner units, 24% were rental units, and 24% were used for seasonal, recreational, occasional or migrant use. The homeowner and rental vacancy rates for Lake County were 2.2 and 9.8%, respectively. The county's homeowner vacancy rate was lower than the state's rate of 2.9%, but the county's rental vacancy rate was higher than the state's rate of 9.6%.[48] (Table 6.2-8)

According to the 1990 U.S. Census, approximately 90% of housing units in Lake County and the Flathead Indian Reservation are single family units, including mobile homes and trailers. Approximately 40% of the housing units in Lake County obtained water from a public system, and 30% of the county's housing units were connected to a public sewer system.[49] (Table 6.2-9)

CSKT has built and maintains several community water and sewer systems for homesites in areas of the Flathead Indian Reservation outside communities.

Housing units used for seasonal, recreational, and occasional use are an indication of the growth of tourism and recreation throughout the Flathead region. Between 1970 and 1990, seasonal housing units increased from 1,550 to 2,300 (48%) in Lake County. North of the proposed action, seasonal housing units in Flathead County increased from 1,680 to 2,520 (50%).[50]

Residents of Missoula and other places inside and outside Montana travel US 93 for access to seasonal housing throughout Lake and Flathead counties.

[48]Ibid.
[49]Ibid.
[50]Ibid.

Table 6.2-67 Occupied and Vacant Housing Units (1990)

Location	Total Housing Units			Vacant Housing Units			
	Total	Occupied (%)	Vacant (%)	Total	For Rent (%)	For Sale (%)	Seasonal/ Recreational/ Occasional/ Migrant/Other (%)
State of Montana	361,160	85%	15%	54,990	21%	16%	63%
Lake County	10,980	71	29	3,160	9	6	85
Polson Division[1]	4,960	64	36	1,770	6	5	89
City of Polson	1,560	90	10	160	38	18	44
Ronan Division	2,290	90	10	220	33	20	47
City of Ronan	720	90	10	70	45	20	45
Pablo CDP	500	88	12	60	45	17	38
St. Ignatius Division	1,440	88	12	170	32	15	53
Town of St. Ignatius	340	89	11	37	34	9	57
Arlee (CDP)	210	88	12	25	43	17	40
Charlo Division	500	83	17	80	16	9	75
Charlo (CDP)	160	93	7	11	55	--	45
Big Fork-Swan Rv. Division	1,790	49	51	920	4	5	91
Northern Missoula County							
Evaro Place (Off Reservation)	27	96	4	1	NA	NA	NA
Flathead Indian Reservation	10,400	76	24	2,530	11	18	71
Lake County Part	9,190	76	24	2,240	10	4	86
Missoula County Part	270	88	12	30	21	3	76
Sanders County Part	930	75	25	250	21	6	73
Flathead County Part	10	73	27	3	--	--	100

U.S. Department of Commerce Bureau of the Census; Census of Population 1970-1990. CDP is Census Designated Place. CDPs are unincorporated communities with distinct populations identified in the U.S Census. NA is Not Available. Numbers are rounded to the nearest ten. [1]Census county subdivisions are geographic areas identified by the U.S. Census for Lake County. The census county subdivisions include incorporated communities unincorporated census designated places, and other unincorporated places.

Table 6.2-78 Homeowner and Rental Occupancy (1990)

Location	Housing Units				Vacancy Rates	
	Total	Home-owner (%)	Rental (%)	Other[1] (%)	Home-owner Vacancy Rate (%)	Rental Vacancy Rate (%)
State of Montana	361,160	59%	31%	10%	2.9%	9.6%
Lake County	10,980	52	24	24	2.2	9.8
Polson Division[2]	4,960	45	23	32	2.0	7.8
City of Polson	1,560	49	46	5	2.0	8.0
Ronan Division	2,290	64	31	5	1.9	9.5
City of Ronan	720	56	38	6	3.2	9.6
Pablo CDP	500	63	33	4	2.3	15.2
St. Ignatius Division	1,440	64	29	7	1.4	12.0
Town of St. Ignatius	340	59	35	6	--	8.3
Arlee (CDP)	210	49	46	5	1.9	10.0
Charlo Division	500	66	21	13	1.2	11.7
Charlo (CDP)	160	67	26	7	--	11.4
Big Fork-Swan Rv. Division	1,790	41	13	46	4.6	15.7
Northern Missoula County						
Evaro Place (Off Reserv.)	30	85	15	NA	NA	NA
Flathead Indian Reservation	10,400	54	26	20	1.8	10.4
Lake County Part	9,190	54	26	20	1.8	9.2
Missoula County Part	270	78	19	3	0.1	18.4
Sanders County Part	930	56	27	17	2.9	20.1
Flathead County Part	10	70	10	20	--	--

U.S. Department of Commerce Bureau of the Census, Census of Population 1970-1990. CDP is Census Designated Place. CDPs are unincorporated communities with distinct populations identified in the U.S Census.
Numbers are rounded to the nearest ten. NA is Not Available. [1]Includes housing units for seasonal, recreational, occasional, and migrant use. [2]Census county subdivisions are geographic areas identified by the U.S. Census for Lake County. The census county subdivisions include incorporated communities unincorporated census designated places,and other unincorporated places.

Table 6.2-89 Type of Housing Units and Water and Sewer Facilities (1990)

Location	Type of Housing Unit			Water Systems			Sewer System	
	Total	Single Family/ Mobile Home	Multi-Family	Total	Public System/ Private Company (%)	Indiv. System/ Other Source (%)	Public System (%)	Septic Tank/ Cesspool/ Other (%)
Lake County	10,980	10,170	810	10,980	40%	60%	30%	70%
Polson Division[1]	4,960	4,450	510	4,960	43	57	34	66
City of Polson	1,560	1,130	430	1,560	98	2	99	1
Ronan Division	2,290	2,120	170	2,290	60	40	47	53
City of Ronan	720	590	130	720	99	1	98	2
Pablo CDP	500	470	30	500	60	40	45	55
St. Ignatius Division	1,440	1,370	70	1,440	32	68	28	72
Town of St. Ignatius	340	300	40	340	93	7	89	11
Arlee (CDP)	210	200	10	210	20	80	15	85
Charlo Division	500	480	20	500	26	74	22	78
Charlo (CDP)	160	140	20	160	84	16	70	30
Big Fork-Swan River Div.	1,790	1,750	40	1,790	15	85	1	99
Northern Missoula County								
Evaro Place (Off Reserv.)	30	30	--	30	--	100	--	100
Flathead Indian Reserv.	10,400	9,560	840	10,400	44	56	36	64
Lake County Part	9,190	8,420	770	9,190	44	56	35	65
Missoula County Part	270	270	--	270	5	95	2	98
Sanders County Part	930	820	110	930	56	44	54	46
Flathead County Part	10	10	--	10	--	100	--	100

U.S. Department of Commerce Bureau of the Census, Census of Population 1970-1990. CDP is Census Designated Place. CDPs are unincorporated communities with distinct populations identified in the U.S Census.
NA is Not Available.
Numbers are rounded to the nearest ten.
[1]Census county subdivisions are geographic areas identified by the U.S. Census for Lake County. The census county subdivisions include incorporated communities unincorporated census designated places,and other unincorporated places.

6.2.6. Pattern of Land Use and Development

Residential, commercial and recreational development have been the most recent major forms of new development in areas with frontage on highway ROW. KwaTaqNuk Resort, which was built by CSKT on the waterfront of Flathead Lake in Polson, is one of the larger land developments in the area ~~the largest land use development in recent years for the area.~~ New development also includes an expansion of the golf course at Polson. New commercial development in Polson includes a grocery store and a department store. The golf course and department store may cover larger land areas than KwaTaqNuk. New recreation fields adjacent to the highway have been built recently at St. Ignatius and Ronan. A new waste water treatment facility is planned adjacent to the highway at the north end of Arlee. A new furniture store was built in Ronan in 1993, and new grocery stores were built in Pablo and Ronan in 1995. ~~New grocery stores are planned for Ronan and Pablo.~~

CSKT also built the People's Center, a tribal cultural complex, ~~plans to build a cultural center~~ north of Pablo in 1995. The CSKT Housing Authority also moved north of Pablo, near Salish and Kootenai Electronics. A 60-unit housing development has been constructed east of Salish Kootenai College in Pablo. Other planned developments include expansion of the elementary school at Pablo, expansion of Salish Kootenai College, ~~a 60 unit housing development east of the college at Pablo,~~ construction of a new maintenance and operations center for Mission Valley Power at Pablo, and a recreation center near the southern edge of Arlee. A new golf course with adjacent residential development of up to 249 dwelling units is planned for Polson. The new and planned developments throughout the area are located adjacent to or near US 93.

6.3. FARMLANDS

This section is completed in accordance with the Farmland Protection Policy Act (FPPA) of 1981 which has as its purpose "to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses, ...". FPPA requires that before implementing any action that will result in conversion of farmland, the effects of the action should be examined and, if there are adverse effects, action to lessen them should be considered.

Farmland, as defined by FPPA, refers to land in any of four different categories: 1) prime farmland; 2) unique farmland; 3) farmland other than prime or unique that is of statewide importance; or 4) farmland other than prime or unique that is of local importance. Farmland in these categories is referred to as FPPA farmland.

The following FPPA farmland exists in the counties in which the proposed action is located:

- In Missoula County, approximately 60,000 acres. Major crops on the FPPA farmland in the vicinity of the highway located in Missoula County (from the beginning of the proposed action near Milepost 6.5 to Dirty Corner near Milepost 15.1) include alfalfa, pasture and spring wheat.

- In Lake County, approximately 47,000 acres.[51] Major crops on the FPPA farmland in the vicinity of the highway located in Lake County (from Dirty Corner near Milepost 15.1 to the end of the proposed action northwest of Polson) include hay, potatoes and spring and winter wheat.

The location of FPPA farmland adjacent to the existing alignment and alignments under consideration is listed on Table 6.3-1. Most of the FPPA farmland that may be affected by the proposed action is located:

- In northern Missoula County between Mileposts 12 and 15 (Dirty Corner).

- East of Arlee in the area where Alignment 4 is being considered.

- West of Ronan in the area where Alignments 3 and 4 are being considered.

- West of Polson in the area where Alignment 2 and 3 are being considered.

[51]This represents the FPPA Farmland identified in soil surveys completed to-date. Not all of Lake County has been surveyed. Areas not surveyed include the Mission Mountains and the Swan Valley.

Table 6.3-1 Location of FPPA Farmland

Location (Milepost)		West or East Side of Highway	Prime Or Unique	Of State-Wide Or Local Importance
From:	To:			
Existing Alignment:				
6.5	7.2	Both		X
7.9	8.2	East		X
8.2	8.3	Both	X	
11.9	12.2	Both	X	
12.3	12.4	Both	X	
12.5	14.8	Both	X	
15.3	15.4	East	X	
47.2	47.4	Both	X	
47.6	47.9	Both	X	
48.1	48.2	Both	X	
48.3	48.4	East	X	
48.8	49.0	East	X	
49.5	49.6	Both		X
49.7	49.8	Both		X
50.0	50.1	Both		X
50.5	50.7	Both		X
55.9	56.3	Both	X	
Arlee, Alignment 4, Only:				
15.3	15.5	East	X	
18.3	18.5	Both	X	
18.6	18.8	Both	X	

Table 6.3-1 Location of FPPA Farmland - Continued

Location (Milepost)		West or East Side of Highway	Prime Or Unique	Of State-Wide Or Local Importance
From:	To:			
RONAN, ALIGNMENT 3, ONLY				
46.5	46.6	Both	X	
47.5	47.7	Both	X	
48.0	48.1	Both	X	
48.2	48.9	Both		X
RONAN, ALIGNMENT 4, ONLY				
46.2	46.3	Both	X	
47.7	47.9	East	X	
48.0	48.1	Both	X	
48.3	48.4	Both	X	
48.6	49.0	Both		X
POLSON, ALIGNMENT 1, ONLY				
58.4	58.4	Both		X
58.7	58.9	Both		X
POLSON, ALIGNMENT 2, ONLY				
57.6	57.8	Both		X
58.4	58.4	Both		X
58.5	58.5	Both		X
58.6	58.6	Both		X
58.7	58.8	Both		X
59.0	59.2	Both		X
59.6	60.5	Both		X
60.9	60.9	Both	X	

Table 6.3-1 Location of FPPA Farmland - Continued

Location (Milepost)		West or East Side of Highway	Prime Or Unique	Of State-Wide Or Local Importance
From:	To:			
POLSON, ALIGNMENT 2, CONTINUED				
60.9	61.4	Both	X	
61.4	61.6	Both	X	
POLSON, ALIGNMENT 3, ONLY				
57.6	57.8	Both	X	
58.4	58.4	Both	X	
58.5	58.5	Both	X	
58.6	58.6	Both	X	
58.7	58.8	Both	X	
59.0	59.2	Both	X	
59.6	60.5	Both	X	
60.4	60.5	Both		X
60.9	61.1	Both		X
61.2	61.6	Both	X	
61.7	61.7	Both	X	
62.1	62.3	Both		X
62.4	62.4	Both		X
Morrison-Maierle. 1993.				

6.4. SOCIAL

6.4.1. Setting

The Flathead Indian Reservation is the social setting for the proposed action. The social setting of the reservation ~~The social setting, which covers parts of Lake and Missoula counties,~~ is related to conditions throughout a broad geographic region of western Montana. In addition, the people and communities of northern Idaho, eastern Washington and southern Alberta, Canada interact with the area.

Polson, Ronan and St. Ignatius are incorporated communities in the area. Evaro, Arlee, Ravalli and Pablo are smaller, unincorporated communities located along the proposed action. Polson is the seat of Lake County, and Pablo is the center of government for CSKT. Charlo and Moiese, in Lake County, and Dixon in Sanders County, are other small, unincorporated communities in the vicinity of US 93.

Activities of Native Americans are the foundation for the social setting of the Flathead Indian Reservation. Communities, and areas around communities -- Arlee in the southern part, St. Ignatius and Pablo in the middle part, and Elmo in the northern part of the reservation are considered important centers of activity by Native Americans.

CSKT, federal and state agencies, Lake, Missoula, Sanders and Flathead counties, and the incorporated communities provide elected governments. Growth of the population and response by governments to provide public facilities/services have resulted in intergovernmental relations among tribal, federal, state and local governments being an important part of the social setting.

Residents of the Flathead Indian Reservation live in small communities and in dispersed residential developments outside communities. Native American and non-Native American residents of the Flathead Indian Reservation hold the rural character of the area and the natural environment as important aspects of lifestyle. Growth of the population and management of growth and development are sources of conflict for traditional values held by longtime residents of the reservation.

Residents of the Flathead Indian Reservation support and participate in a full range of traditional civic, cultural, religious and educational organizations and activities. Communities support schools, churches, community organizations and recreational facilities. Centers for senior citizens are important places for meetings in the communities. Integration of social and cultural perspectives of Native American and non-Native American people in these organizations is an important issue that influences the social setting.

The Flathead and Kootenai culture committees gather for meetings and traditional wakes at the *Longhouse* in St. Ignatius and the community center in Elmo. The elders also coordinate special projects such as language and plant gathering at these locations. The Salish and Kootenai people also gather at places such as the senior citizen's center in Arlee, Two Eagle River School in Pablo and Salish Kootenai College in Pablo.

6.4.2. Lifestyle

The population is rural with a unified lifestyle that is similar throughout lower Flathead, Mission and Jocko valleys. Residents have strong ties to the land and the small communities throughout the area. Population growth reflects people moving to the area because they are attracted by the rural lifestyle, with the natural environment and small town atmosphere. The rural areas are growing at a more rapid rate than the towns. Outside communities, development is more dispersed and individual homesites are located on multi-acre tracts of land.[52]

---

[52]U.S. Environmental Protection Agency and Flathead Basin Commission, Flathead River Basin Environmental Impact Study Final Report, June 1983. Pages 1-36.

Communities experiencing growth are concerned about problems associated with expansion due to the arrival of new permanent and seasonal residents. New residents, who are employed in the area or who commute to employment outside the area, and retirees have been sources of growth in the permanent population. There is a continuous influx of tourism- and recreation-related newcomers during the summer. These groups regard their stay as temporary and do not expect to become permanent residents or participate as an integral part of community activities. Long-time residents identify "newcomers" as a cause of concern about land use and development, particularly the loss of agricultural lands.[53]

Residents have expressed desires for reasonable growth; but they also want to preserve natural resource values, such as clean air, pure water, productive soils, fish and wildlife populations, recreation and spectacular scenery.[54]

Residents of the area would like to improve and possibly expand industry, making communities less vulnerable to regional and national economic trends. There is interest in developing "clean" industries, with concern about the unwanted costs of development such as crowding and population growth. People choose to live in the area for reasons that go beyond availability of job opportunities; these include "quality of life" considerations such as a clean environment, recreational opportunities and small town and rural conditions. Residents are interested in environmental and land use-related problems, together with tourism and the scenic attractions. Concern about pollution and resource management reflects interest in maintaining the tourist economy and preserving stable industries in the region's economy.[55]

6.4.3. Population and Demographic Characteristics

6.4.3.1. Total Population

The reliability of the U.S. Census counts in rural areas and, in particular, on Indian reservations, has been the subject of much concern. Officials of local governments and CSKT have indicated the 1990 U.S. Census counts for Lake County and the Flathead Indian Reservation are less than the actual population.

6.4.3.1.1. Lake County and Western Montana

Lake and Missoula counties, the Flathead Indian Reservation and western Montana have a high rate of population growth. Between 1970 and 1990 the population of Lake County increased from 14,400 to 21,100 (47%). During the same period, the populations of Missoula and Flathead counties grew by 35 and 50%, respectively, while Montana's population increased by 15%. Population in eight counties of western Montana increased by 37% between 1970 and 1990. Population growth in Lake, Missoula, Flathead and Sanders counties was 46% of total growth for Montana between 1970 and 1990. The population of the four-county area increased from 17 to 21% of Montana's population between 1970 and 1990.[56] (Tables 6.4-1 and 6.4-2)

6.4.3.1.2. Flathead Indian Reservation

The population of the Flathead Indian Reservation, which contains parts of Lake, Missoula, Flathead and Sanders counties, increased from 15,490 in 1970 to 21,260 in 1990 (37%). In 1990, 89% of the reservation's population was located in Lake County, and 90% of the population of Lake County was located within the boundaries of the Flathead Indian Reservation.[57]

---

[53]Ibid.
[54]Ibid.
[55]Ibid.
[56]U.S. Department of Commerce, Bureau of the Census. Census of Population. 1950-1990.
[57]Ibid.

Table 6.4-1 Population: Montana and Study Area

Location	1950	1960	1970	1980	1990
State of Montana	591,000	674,800	694,400	786,700	799,100
Western Montana[1]	114,500	128,500	157,400	202,300	216,000
Four-County Area[2]	87,800	97,700	119,300	155,700	167,600
Flathead Reservation	NA	NA	15,490	19,630	21,260
Lake County	13,800	13,100	14,400	19,100	21,100
Missoula County	35,500	44,700	58,300	76,000	78,700
Missoula	22,500	27,100	29,500	33,400	43,000
Flathead County	31,500	33,000	39,500	52,000	59,200
Kalispell	9,700	10,200	10,500	10,600	11,900
Sanders County	7,000	6,900	7,100	8,700	8,700

U.S. Department of Commerce, Bureau of the Census; Census of Population, 1950-1990. NA is Not Available. [1]Western Montana eight-county area, including: Lake, Missoula, Flathead, Sanders, Ravalli, Mineral, Lincoln, and Granite counties. [2]Four-county area in proximity to Proposed Action, including: Lake, Missoula, Flathead, and Sanders counties.

Table 6.4-2 Population: Flathead Indian Reservation

Location	Total Population			American Indian Population		
	1970	1980	1990	1970	1980	1990
Flathead Reservation	15,490	19,630	21,260	2,660	3,770	5,130
Lake County Part	NA	17,060	18,900	NA	3,140	4,470
Missoula County Part	NA	650	700	NA	280	280
Flathead County Part	NA	30	20	NA	10	10
Sanders County Part	NA	1,890	1,640	NA	340	370

U.S. Department of Commerce, Bureau of the Census; Census of Population, 1970-1990. NA is Not Available.

6.4.3.1.3. Communities in the Area of the Proposed Action

Between 1970 and 1990, Ronan and Pablo had the highest population growth (70%), while population in the Polson and St. Ignatius-Arlee areas increased by 40 and 28%, respectively. Population growth in Lake County has been highest in rural areas outside incorporated communities. The population of the three incorporated communities, Polson, Ronan and St. Ignatius, decreased from 33 to 27% of Lake County's total population.[58] (Table 6.4-3)

The pattern of increase in population has caused a change in the distribution of the total population for Lake County. Between 1970 and 1990, the population of the Polson Census Subdivision declined from 40 to 38% of the county's total population, while the Ronan Census Subdivision increased from to 25 to 29% of the population.[59]

In the part of northern Missoula County between Evaro and Lake County, the population within the borders of the Flathead Indian Reservation increased from 570 to 700 (23%) between 1970 and 1990. In 1990, the population was 70 at Evaro, which is outside the southern edge of the reservation.[60]

6.4.3.2. Race, Age and Sex Characteristics

6.4.3.2.1. Lake County

The population of Lake County is predominantly white and American Indian. In 1990, whites were 78% and American Indians were 21% of the county's population. Between 1970 and 1990, American Indians increased from 15 to 21% of the population.[61]

The population of Lake County is older than the overall population of Montana and younger than the population throughout western Montana. In 1990, the median age in Lake County was 34.7 years, compared with 33.8 years for Montana. Between 1980 and 1990, Lake County's median age increased from 30.1 to 34.7 years, and the percentage of people 65 years and older increased from 11 to 13% of the population. The population of the northern part of Lake County is older than the population of the southern part of the county.[62]

In 1990, the population of Lake County was evenly distributed between females and males, but females were the larger part of the population in communities. Females were 54% of the population in the cities of Polson and Ronan.[63]

6.4.3.2.2. Flathead Indian Reservation

As with Lake County, the population of the Flathead Indian Reservation in 1990 was predominantly white (75%) and American Indian (24%). American Indians increased from 17 to 19% of the population between 1970 and 1980, then increased from 19 to 24% of the population between 1980 and 1990. Between 1970 and 1990, American Indians increased from 2,660 to 5,130 (93%).[64] (Tables 6.4-1 and 6.4-2)

---

[58]Ibid.
[59]U.S. Department of Commerce, Bureau of the Census. Census of Population. 1950-1990.
[60]Ibid.
[61]Ibid.
[62]Ibid.
[63]Ibid.
[64]Ibid.

Table 6.4-3 Population: Census County Subdivisions and Communities

Location	1950	1960	1970	1980	1990
Lake County	13,800	13,100	14,400	19,100	21,100
Polson Division[1]	NA	5,330	5,730	7,490	8,000
City of Polson	2,280	2,310	2,460	2,800	3,280
Ronan Division	NA	3,250	3,610	4,880	6,140
City of Ronan	1,250	1,330	1,350	1,530	1,550
Pablo CDP	NA	NA	NA	NA	1,300
St. Ignatius Division	NA	2,660	2,800	3,450	3,590
Town of St. Ignatius	780	940	930	870	780
Arlee (CDP)	NA	NA	NA	NA	490
Ravalli place	NA	NA	NA	NA	90
Charlo Division	NA	1,190	1,110	1,240	1,170
Charlo (CDP)	NA	NA	NA	NA	360
Big Fork-Swan River Division	NA	680	1,190	2,000	2,150
Northern Missoula County	NA	NA	NA	NA	NA
Flathead Res. Part	NA	NA	570	650	700
Evaro place (Off Res.)	NA	NA	NA	NA	70
Evaro area (Off Res.)[2]	NA	NA	NA	NA	120

U.S. Department of Commerce, Bureau of the Census; Census of Population, 1950-1990.
CDP is Census Designated Place. CDPs are unincorporated communities with distinct populations identified in the U.S Census. NA is Not Available. [1]Census county subdivisions are geographic areas identified by the U.S. Census for Lake County. The Census county subdivisions include incorporated communities, unincorporated Census designated places, and other unincorporated places. [2]Includes Evaro place. Numbers are rounded.

The American Indian population is younger than the total population. Among American Indians living on the Flathead Indian Reservation in 1990, 39% were younger than 18 years. The median age of American Indians was 23.7 years, compared with a median age of 34.2 years for the total population of the reservation.[65]

In 1990 the total population of the Flathead Indian Reservation was evenly distributed between females and males, but males were 52% of the American Indian population.[66]

[65]Ibid.
[66]Ibid.

6.4.3.3. Patterns of Natural Increase and Migration

The population growth in Lake County during 1980-1990 was approximately one-third of the growth during 1970-1980. As population growth slowed, the part of growth due to people moving into the county declined relative to natural increase of the county's population.

While the rate of population growth in Lake County decreased from 4,700 (33%) during the decade 1970-1980 to 1,900 (10%) during 1980-1990, the part of the growth in Lake County's population due to natural increase (births versus deaths) increased from 24% during 1970-1980 to 69% during 1980-1990. The part of the growth in population due to net migration (in-migration versus out-migration) decreased from 76% during 1970-1980 to 31% during 1980-1990.[67] (Section 6.4.4.2)

6.4.3.4. Population Projections ~~for Lake, Missoula and Flathead Counties~~

6.4.3.4.1. Flathead Indian Reservation

An estimate was made for population growth on the Flathead Indian Reservation for the 30-year period 1990-2020. The estimate was based on population projections available from the Montana Department of Commerce, Census and Economic Information Center (CEIC) for Lake, Missoula, Sanders and Flathead counties; parts of each of these counties are contained within the boundaries of the reservation. The estimate indicates the population of the reservation will increase from 21,260 in 1990 to 24,000 in 2000, 26,200 in 2010 and 28,600 in 2020.[68,69]

The Flathead Indian Reservation, including the area served by US 93, has experienced a recent increase in growth and development since 1990. Information is not available for 1991-94 about the distribution of population growth for the parts of Lake, Missoula, Sanders and Flathead counties that are on the Flathead Indian Reservation.[70]

6.4.3.4.2. Lake, Missoula, Sanders and Flathead Counties

Population projections for Lake County indicate there will be a rate of increase similar to the period 1980-1990. Information available from ~~the Montana Department of Commerce, Census and Economic Information Center (CEIC)~~CEIC estimates the population of Lake County will grow at a rate between nine and 13%, to a level between 22,900 and 23,800 during the period 1990-2000. During the period 2000-2010 the rate of growth is expected to be between seven and nine percent, resulting in a population between 24,400 and 25,900.[71] With continuation of a seven to nine percent rate of growth after 2010, Lake County's population would be between 26,100 and 28,200 in 2020~~25,300 and 27,100 in 2015~~.[72]

In 2020, population projections available from CEIC indicate the populations of Missoula, Sanders and Flathead counties will increase to 81,200, 10,700 and 101,300, respectively.[73,74]

Information available from the U.S. Census for the period 1991-94 indicates there was a higher rate of population growth throughout western Montana, including the Flathead Indian Reservation, during the first four years of this decade than during the past decade (1980-90). The populations of the counties that have lands within the reservation, Lake, Missoula, Sanders and Flathead, increased at annual rates of 3.1, 2.2, 3.1 and 3.4%,

---

[67]U.S. Department of Commerce, Bureau of the Census. Census of Population. 1950-1990.
[68]Montana Department of Commerce, Census and Economic Information Center. Population Projection Information.
[69]Morrison-Maierle.
[70]Ibid.
[71]Montana Department of Commerce, Census and Economic Information Center. Population Projection Information.
[72]Morrison-Maierle.
[73]Montana Department of Commerce, Census and Economic Information Center. Population Projection Information.
[74]Morrison-Maierle.

respectively. For the 10-year period 1980-90, annual population growth for Lake, Missoula, Sanders and Flathead counties was approximately one percent.[75]

The population projections reflect estimates of long-term patterns of growth and development. It should be expected there will be brief periods when the rate of growth will be higher or lower than the long-term rate. ~~Officials in Lake County indicate population growth in 1991 and 1992 was higher than during recent years. The U.S. Census estimates the county's annual rate of population growth was 2.4% between 1990 and 1992, compared with one percent between 1980 and 1990.~~ If the rate of growth in 1991-1992 continues, the long-term rate of growth could be similar to the rate of growth between 1970 and 1980, when the populations of Lake, Missoula and Flathead counties increased by more than 30% ~~population of Lake County increased by 33%~~.[76]

~~Information available from CEIC estimates the population of Missoula County will grow by 10% between 1990 and 2000 and seven percent between 2000 and 2010, increasing from its 1990 level of 78,700 to 86,600 in 2000 and 92,900 in 2010. Estimates are for Flathead County's population to grow by 15% between 1990 and 2000 and nine percent between 2000 and 2010, increasing from its 1990 level of 59,200 to 68,100 in 2000 and 74,500 in 2010. Estimates of population growth for the state of Montana are five percent for the periods 1990-2000 and 2000-2010. Population projections are unavailable for the part of Missoula County that includes the area from Evaro northward to Lake County.~~[77]

6.4.4. Community Cohesion

Community cohesion is described as the level of commitment to a community, as demonstrated by the amount of interaction among individuals, groups and institutions. Traffic and physical features associated with the highway affect community cohesion as an aspect of social well-being that involves individual perceptions of communities or rural areas.[78]

Population growth, with a high level of in-migration, affects social stability and mobility, and it is an indicator of community cohesion. The rural lifestyle of the area is affected by population growth throughout the Flathead region. Communities in the area share a high degree of interdependence. Each community has distinctive attributes with varying conditions of lifestyles, occupations, land use patterns and concerns about land management.[79] (Section 6.4.2)

Arlee, Ronan and Polson are the communities for which there will be consideration of alignments. In public scoping meetings, residents of the three communities have identified the highway as a prominent physical feature that influences perceptions of their communities and interaction within the communities. Residents identify the traffic using the highway as being important for business activity in the community. The vitality of the community is considered to be dependent on businesses.

The effect of the highway as a barrier from Evaro through Polson was indicated by the results of a 1992-voting-day survey conducted in Polson. Nearly 75% of 1,400 Polson area respondents to the survey identified traffic on US 93 through Polson as a serious problem, and 60% of the respondents identified traffic on highways throughout the Flathead Valley as a serious problem.[80]

---

[75]U.S. Bureau of the Census. Estimates of Montana's Resident Population: Counties. 1990-94. January 1995.

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

[77]U.S. Department of Commerce, Bureau of the Census. Census of Population. 1950-1990.

[78]U.S. Department of Transportation, Federal Highway Administration, Social Considerations in Highway Project Development, Page 5-8. 1992.

[79]U.S. Department of Transportation, Federal Highway Administration, Social Considerations in Highway Project Development, Page 5-8. 1992.

[80]Carter-Burgess. Polson Area Citizens Survey on Transportation Issues. November 1992.

Information available in the 1990 Census indicates the extent to which the highway may be a barrier to residents as they travel among residential, commercial, industrial, recreational and other open areas. In Arlee, 190 people live west and 300 people live east of the highway, while in Ronan 970 people live west and 580 people live east of the highway. In Arlee and Ronan, businesses and public and private services are located on either side of the highway, requiring residents to cross traffic on a regular basis. In Polson, 360 people live north of the highway and 2,960 live south of the highway. Much of the recreational activity in Polson is focused on the lakeshore and requires the residents living south of the highway to cross traffic on a regular basis.[81]

Residents of Arlee, Ronan and Polson recognize the disruption of community conditions caused by traffic congestion. Senior citizens regularly cross the highway for activities such as shopping, postal service and attending gatherings at senior citizens centers. Students cross the highway walking from residential areas to schools. The highway's physical presence and high traffic volume impede people from having direct, unobstructed access to stores, public and private facilities/services, recreational areas and residential areas in the main parts of the communities. The majority of residents support using more traffic controls, especially traffic signals, signing and enforcement, to decrease the disruption of traffic congestion and manage the flow of traffic. Residents of the communities believe highway improvement on the existing alignment will decrease traffic congestion, improve the physical appearance and function of the business districts and preserve the rural areas outside the communities.[82,83]

The Federal Highway Administration (FHWA) reports that half or more of traffic in smaller communities is through traffic that does not stop in the community. Observation of traffic in Arlee and Ronan during September and October of 1992 indicates 84% of vehicles in Arlee and 55% of vehicles in Ronan traveled through the communities without stopping. Vehicles stopping at businesses were 11% in Arlee and 22% in Ronan.[84,85] (Table 6.4-4)

Social conditions related to population growth, level of income, property ownership versus rental, poverty status, labor force participation and rate of unemployment have been used to provide indications of social stability.[86] In 1990, Lake County's median family income and per capita income were 17% below the statewide average. Population with income below poverty level was five percent higher and unemployment was two percent higher in Lake County than for all of Montana. For the American Indian population living on the Flathead Indian Reservation in 1990, per capita income was 43% lower than the average for Montana; persons with income below poverty level was 23% higher and unemployment was 10% higher than for all of Montana.[87,88]

6.4.4.1. Social Stability

Lake, Sanders and Flathead counties have been designated by the U.S. Department of Labor as *labor surplus areas* since 1989 because the average rate of unemployment has been six percent or greater for two previous calendar years.[89] (Tables 6.4-5 and 6.4-6)

---

[81]U.S. Department of Commerce, Bureau of the Census. Census of Population and Housing. 1990.

[82]Carter-Burgess. Polson Area Citizens Survey on Transportation Issues. November 1992.

[83]Morrison-Maierle. Results of public involvement process. 1993.

[84]National Cooperative Highway Research Program. Comparative Analysis of Highway Bypass Impact Studies. Nancy L. Bennett and Martin M. Stein. 1973.

[85]Morrison-Maierle. Results of public involvement process. 1992.

[86]Social Considerations In Highway Project Development, Chapter 5, from the Federal Highway Administration, describes social well-being and community cohesion as conditions that involve group social interactions and individual perceptions of common interests that affect their places of residence.

[87]U.S. Department of Commerce, Bureau of the Census. Census of Population. 1950-1990.

[88]Morrison-Maierle. Technical Report for Social Conditions: Supplement to U.S. Highway 93 Environmental Impact Statement. 1993.

[89]U.S. Department of Labor, Area Trends In Employment And Unemployment; 1989-1992.

Table 6.4-4 Vehicle Traffic Patterns

Geographic Origin	Total Vehicles Counted	Pass Through Without Stopping	Turn on Street	Stop at Highway-Oriented Business	Stop at Nonhighway-Oriented Business	Stop at Business: Total
ARLEE:						
(Weekend Traffic: End Peak Season)						
Northbound	111	92%	4%	5%	--	5%
Southbound	127	91%	3%	6%	1%	7%
TOTAL:	238	217 Veh. (91%)	8 Veh. (3%)	12 Veh. (5%)	1 Veh. (1%)	13 Veh. (6%)
(Weekday Traffic: End Peak Season)						
Northbound	517	81%	6%	11%	2%	13%
Southbound	464	83%	5%	9%	2%	11%
TOTAL:	981	808 Veh. (82%)	59 Veh (6%)	97 Veh. (10%)	17 Veh. (2%)	114 Veh. (12%)
TOTAL:	1,219	1,025 Veh. (84%)	67 Veh. (6%)	109 Veh. (9%)	18 Veh. (1%)	127 Veh. (11%)
Northbound	628	523 Veh. (83%)	38 Veh. (6%)	58 Veh. (9%)	9 Veh. (1%)	67 Veh. (11%)
Southbound	591	502 Veh. (85%)	29 Veh. (5%)	51 Veh. (9%)	9 Veh. (2%)	60 Veh. (10%)
RONAN						
(Weekend Traffic: End of Peak Season)	121	65%	21%	14%	--	4%
Northbound	157	11%	11%	24%	3%	27%
Southbound	278	178 Veh.	42 Veh.	54 Veh.	4 Veh.	58 Veh.
TOTAL:		(64%)	(15%)	(20%)	(1%)	(21%)
(Weekday Traffic: End of Peak Season)	163	43%	28%	18%	10%	28%
Northbound	168	33%	45%	17%	4%	22%
Southbound	331	159 Veh.	96 Veh	55 Veh.	21 Veh.	76 Veh.
TOTAL:		(48%)	(29%)	(17%)	(6%)	(23%)
TOTAL:	609	337 Veh. (55%)	138 Veh. (23%)	109 Veh. (18%)	25 Veh. (4%)	134 Veh. (22%)
Northbound	284	157 Veh. (55%)	68 Veh. (24%)	46 Veh. (16%)	13 Veh. (5%)	59 Veh. (21%)
Southbound	325	180 Veh. (55%)	70 Veh. (22%)	63 Veh. (19%)	12 Veh. (4%)	75 Veh. (23%)

Morrison-Maierle. 1993.

The social stability of the area has been affected by conflict associated with population growth. As discussed in Sections 6.4.2 and 6.4.4, residents of this area, as a part of the region covering Flathead, Mission and Jocko valleys, desire to maintain the rural lifestyle, natural environment and small town atmosphere, which are perceived as being important to social well-being and a high quality of life. Simultaneously, there is a desire to have a reasonable level of economic growth to raise the area's relatively low level of income. Conflict occurs when population growth, consisting of permanent and seasonal new residents, exceeds what is considered to be reasonable by established local residents. Over time, population growth results in change and conflict, with the benefits of

Table 6.4-5 Social Stability Characteristics

Montana And Lake County 1990 Characteristics Of The Total Population			
Location	Median Family Income ($)	Per Capita Income ($)	Percent Of Persons With Income Below Poverty Level (%)
State of Montana	28,000	11,200	16
Lake County	23,300	9,300	21
Flathead Indian Reservation 1990 Characteristics Of The American Indian Population			
Location	Median Family Income ($)	Per Capita Income ($)	Percent Of Persons With Income Below Poverty Level (%)
Reservation Total	NA	6,400	39

U.S. Department of Commerce, Bureau of the Census; 1990 Census of Population and Housing, Montana. U.S. Department of Commerce, Bureau of the Census; 1990 Selected Labor Force and Commuting Characteristics, Montana.
NA is Not Available.

Table 6.4-6 Labor Force Characteristics

Montana And Lake County 1990 Characteristics Of The Total Population			
Location	Civilian Labor Force	Percent Of Persons 16 Years And Older In The Labor Force (%)	Percent Of Labor Force Unemployed (%)
State of Montana	376,940	64	7
Lake County	9,100	59	9
Flathead Indian Reservation 1990 Characteristics Of The American Indian Population			
Location	Civilian Labor Force	Percent Of Persons 16 Years And Older In The Labor Force (%)	Percent Of Labor Force Unemployed (%)
Reservation Total	2,000	59	17

U.S. Department of Commerce, Bureau of the Census; 1990 Census of Population and Housing, Montana. U.S. Department of Commerce, Bureau of the Census; 1990 Selected Labor Force and Commuting Characteristics, Montana.
NA is Not Available.

increased economic activity a means to increase income and reduce poverty balanced against the values and traditions of a sparsely populated rural area with desirable aesthetic qualities. (Section 6.14)

6.4.4.2. Social Mobility

Two types of information have been used from the U.S. Census to describe social mobility: 1) place of residence for persons five years prior to the census; 2) the number of employed persons who commute to work outside their place or county of residence.

Since 1980, people moving to Lake County from places outside the county and outside Montana have been an important part of the growth of population. The number of people who moved to Lake County from another county in Montana or from outside Montana in the five-year period before the decennial U.S. Census decreased from 32 to 22% of the population between 1980 and 1990. In 1990, Lake County and Montana had similar percentages of the population that moved into the area from another county in Montana or from outside Montana.[90]

There has been an increase in the number of workers commuting between communities, both inside and outside Lake County. The number of workers commuting between places inside Lake County increased from approximately 145 (two percent of total employment) in 1980 to 1,500 (18%) in 1990.[91]

With population growth there has been increased commuter travel between the area of the proposed action and Missoula and Kalispell, which are the region's major trade centers. Between 1980 and 1990, the rates of population growth for Lake, Flathead and Missoula counties were 10, 14 and four percent, respectively. During that time, the number of workers commuting outside Lake County to other Montana counties increased from 710 to 1,200 (69%), and the percentage of workers commuting outside Lake County increased from 12 to 15% of all workers.

With the higher rates of population growth in Flathead and Lake counties, the growth in commuters from Lake County was toward Flathead County, which increased by 118%, rather than Missoula County, which did not change.[92]

Between 1980 and 1990, growth in workers commuting outside Lake County was concentrated in the northern part of Lake County. The number of commuters increased from 60 to 190 (217%) in the Polson area, while the number of commuters decreased from 230 to 220 (minus four percent) in the Arlee-St. Ignatius areas. Flathead County was the major destination for the increase in workers commuting outside Lake County. Commuters to Flathead County increased from 340 to 740 (88%), while commuters to Missoula County did not change from 260 workers. Workers commuting to Flathead County increased from 48 to 62% and workers commuting to Missoula County decreased from 37 to 22% of the total number of commuters from Lake County.[93]

In the Polson area, estimates of workers commuting to Flathead County increased from fewer than 10 in 1980 to 70 in 1990 (600%), and workers commuting to Missoula County increased from 40 in 1980 to 90 in 1990 (125%). Commuters to Missoula County increased by approximately 50 in the Polson area and decreased by 50 in the Ronan and St. Ignatius-Arlee areas.[94,95]

The increase in commuters consists of established residents of Lake County who obtained work outside Lake County, as well as new residents who moved into the county. Information is unavailable to identify what portions of the new commuters are established or new residents. However, for purposes of general comparison, if it is

---

[90]U.S. Department of Commerce, Bureau of the Census. Census of Population. 1950-1990.
[91]Ibid.
[92]Ibid.
[93]Ibid.
[94]Ibid.
[95]Morrison-Maierle. Interpretation of U.S. Census Information. 1993.

assumed the increase in commuters consisted entirely of new residents in the county, the increase in commuters between 1980 and 1990 was 26% of the growth in population for Lake County. In contrast, if it is assumed all new commuters in the Polson area were new residents of that area, the increase in commuters between 1980 and 1990 was 10% of the growth in population for the Polson area. These estimates of commuters contributing to population growth are high, because, as noted above, long-time residents who obtained employment outside the county would have been a part of the new commuters.[96] (Tables 6.4-3 and 6.4-7)

Table 6.4-7 Workers Commuting Outside Lake County

Estimates of Commuter Travel From Lake County Census Subdivisions to Locations Outside Lake County						
Lake County Census Subdivision	Work Destinations of Lake County Commuters					
	1980			1990		
	Flathead County	Missoula County	Other Montana County	Flathead County	Missoula County	Other Montana County
Big Fork-Swan River	325	10	5	670	10	20
Polson	15	40	5	70	90	30
Ronan	--	20	30	--	10	35
Charlo	--	10	20	--	10	35
St. Ignatius	--	180	50	--	140	80
TOTAL	340	260	110	740	260	200
U.S. Department of Commerce, Bureau of the Census. Census of Population. 1960-1990.						

Generally, the number and percentage of workers who live in Lake County and commute to the Missoula area decrease as the distance increases between Missoula and locations in the area. In 1990, seven percent of all workers living in the area between Arlee and Polson commuted to work outside Lake County; 28% of workers living between 15 and 35 miles from Missoula commuted to work outside Lake County. In contrast, eight to 10% of workers living between 45 and 50 miles from Missoula and six percent of workers living between 60 and 70 miles from Missoula commuted to work outside Lake County. However, the extreme southern (Arlee-St. Ignatius areas) and northern (Polson area) parts of the area have the highest numbers of workers commuting to the Missoula area.

In 1990, the number of workers commuting outside Lake County ranged from approximately 150 in the Arlee area to 45 in the Ronan area.[97]

The majority of commuters to Missoula live within 30 miles of Missoula. (Figure 6.4-1)

Between 1970 and 1990, more workers who commuted to Missoula chose to live in Ravalli County than on the Flathead Indian Reservation, and there was low growth in the commuter-related population (i.e., the sum of

[96]Ibid.
[97]Ibid.

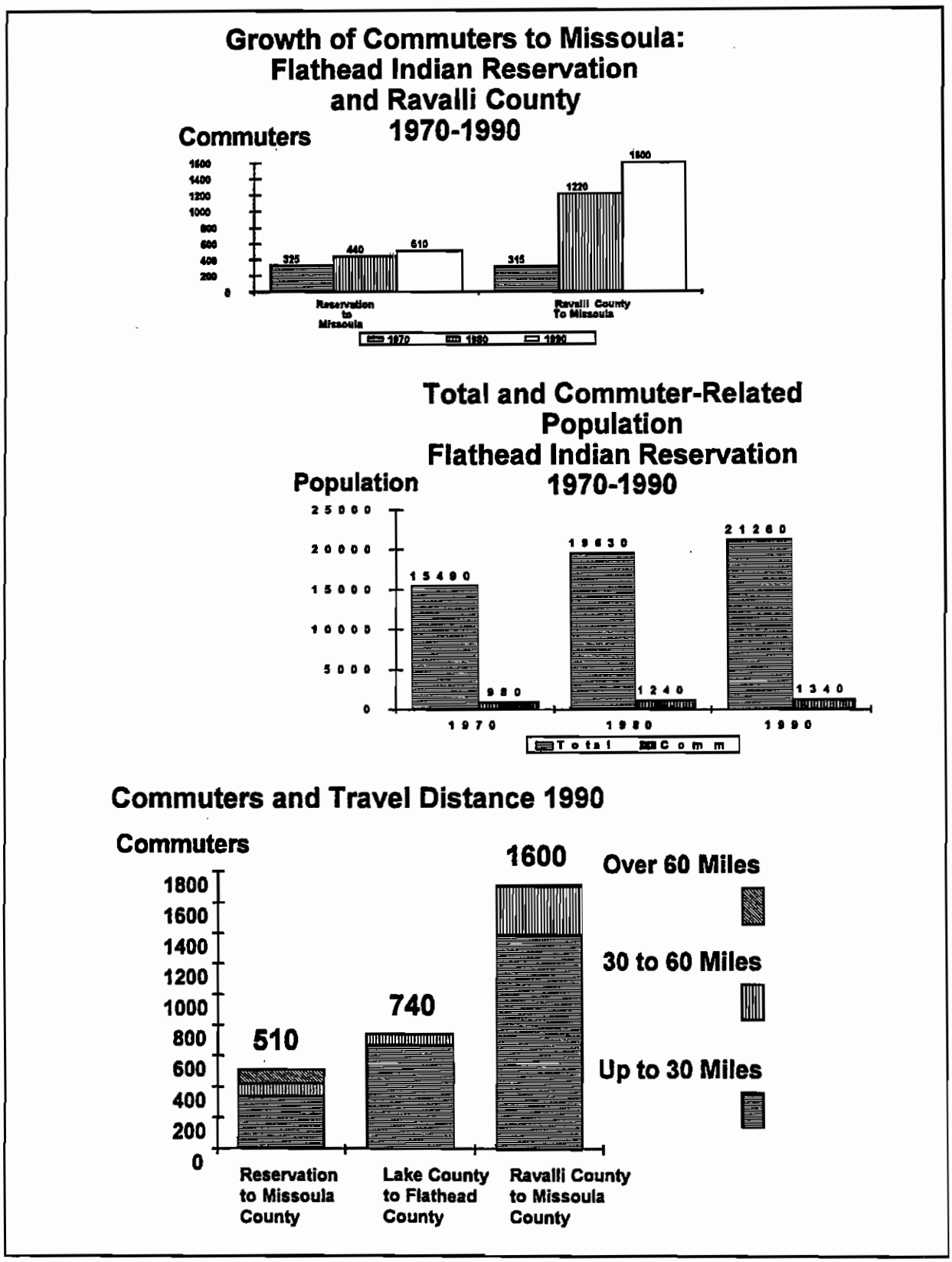


Figure 6.4-1 Commuters and Commuter-Related Population
This figure has been added to the final EIS.

commuters and their families) of the reservation. On the Flathead Indian Reservation, most of the increase in commuters has been from the Missoula County part of the reservation.

- Of the 510 commuters to Missoula in 1990, more than 90% were from the Lake (260 commuters) and Missoula (210) county parts of the reservation. The other 40 commuters were from the Sanders and Flathead county parts of the reservation.

  - Commuters from the Lake County part of the reservation increased from 210 in 1970 to 260 in 1980, then did not increase between 1980 and 1990.

In 1990, 20% of commuters to Missoula from the Flathead Indian Reservation were Native Americans.

In the extreme southern part of the Flathead Indian Reservation~~proposed action~~, past improvement of US 93 has occurred when there also was population growth. In the northern part of Missoula County, US 93 between the I-90 DeSmet Interchange and Evaro was widened to four lanes in 1986. That portion of highway borders the southern part of the proposed action and provides access to the part of the Flathead Indian Reservation that is located in Missoula County.

In the part of northern Missoula County between Evaro and Lake County, the 1990 population was 820 for the Evaro area, which includes lands both within and outside the Flathead Indian Reservation. Between 1980 and 1990 the population of the part of the Flathead Indian Reservation in Missoula County increased from 650 to 700 (eight percent), which is double the rate of population increase for all of Missoula County. Persons not American Indians increased from 370 in 1980 to 420 in 1990 (14%), and the entire increase for the area was persons who were not American Indians.[98]

Information currently is not available to determine the prior residential locations of new residents in this part of northern Missoula County between Evaro and Lake County. Information also is not available to determine how many workers from this part of northern Missoula County commute to the Missoula area or Lake County. For all of Missoula County, workers who commute to work in Lake County increased from 105 in 1980 to 160 in 1990. Most workers would be expected to travel on US 93 between Missoula and Lake counties.[99]

Some students at the University of Montana in Missoula and Flathead Community College in Kalispell travel on US 93, either daily or several days each week. Information is not available from the schools about the number of students who live outside Missoula and Kalispell.

6.4.5. Facilities/Services

CSKT, federal, state and local governments, and community groups provide facilities/services throughout the area. US 93 is the primary travel route for residents of the area to utilize available facilities/services.

There are five public high school districts and five public elementary school districts. Each school district operates school bus routes that require travel and stops on US 93. Between 1970 and 1990, total enrollment in the public and elementary school districts increased from approximately 3,650 to 4,250 (16%). High schools in Ronan, St. Ignatius and Polson and elementary schools in Ronan and St. Ignatius report enrollment is approaching capacity. Enrollment in Arlee schools is not approaching capacity. Salish Kootenai College (with 900 students) and Two Eagle River School, a private high school (with 100 students), are located adjacent to US 93 at Pablo. Two Eagle River School serves approximately 10 students who require wheelchair access.[100]

---

[98]Morrison-Maierle, based on information from Summary Tape File 3 of the 1980 and 1990 U.S. Census.
[99]U.S. Department of Commerce, Bureau of the Census. Census of Population and Housing. 1990.
[100]Lake County Superintendent of Schools.

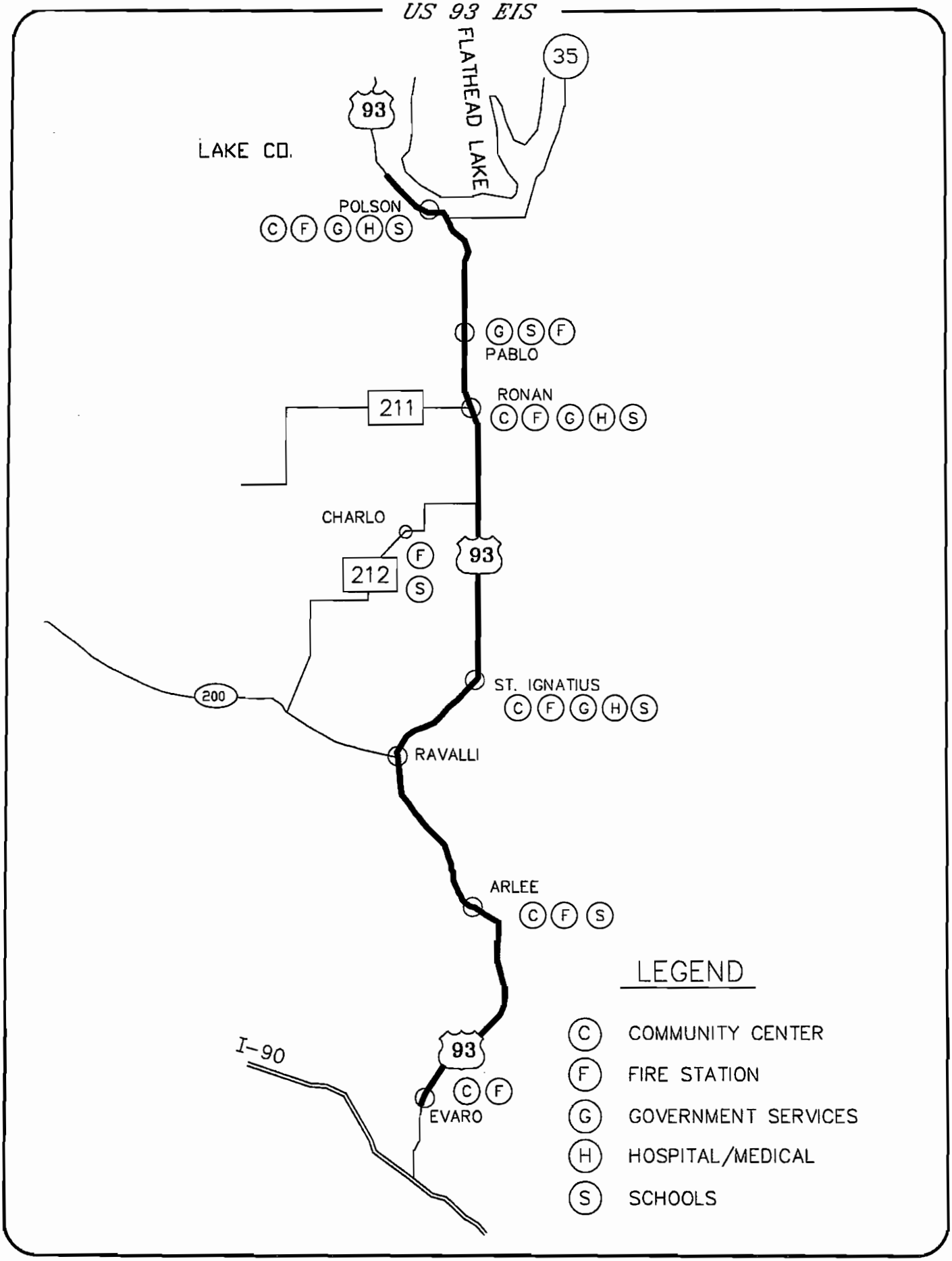
The incorporated communities of Polson, Ronan and St. Ignatius operate municipal water and wastewater treatment facilities. Water and wastewater treatment systems in Charlo and Pablo are operated with rural special improvement districts. A community wastewater treatment system is planned for development in Arlee. Residential, commercial and industrial developments in rural areas outside the communities use individual water wells with septic tanks and drain fields for sewage disposal.[101]

CSKT operates community water and sewer systems at Turtle Lake (east of Polson), St. Ignatius Southside and three homesites east of Ronan. There also are tribal community water systems in Arlee, Schley, Evaro, the Mission Dam area east of St. Ignatius and in areas that are more distant from US 93.

Hospitals are located in Polson and Ronan, and the CSKT Health and Human Services Department~~Indian Health Service Center~~ is located in St. Ignatius. Mental health and social services offices, operated by the state, Lake County, CSKT and municipal governments, are located in Polson, Pablo, Ronan, St. Ignatius and Arlee. There are nursing homes in Polson, Ronan and St. Ignatius. Community and senior citizen centers are located in Polson, Ronan, St. Ignatius, Arlee and Evaro. Churches of many denominations are located in all of the communities; several churches have direct approaches to US 93, while others are in areas away from the highway. There is a cemetery with a direct approach to US 93 south of St. Ignatius. Other cemeteries are located near the communities of Arlee, St. Ignatius, Ronan, Pablo and Polson, but they do not have direct approaches to US 93.

Municipal and volunteer fire departments are located near US 93 in all of the communities. The highway is the major route of travel for law enforcement agencies, such as the Montana Highway Patrol, Lake County Sheriff, CSKT police and police from communities. Emergency ambulance services are located in Polson, Ronan and St. Ignatius. Missoula area ambulance services also travel on US 93 to respond to emergencies. Municipal airports are operated by the communities of Polson, Ronan and St. Ignatius. MRL operates a railroad freight line between Missoula and Polson. Passenger bus service is available, but no passenger rail service is available between Missoula and Kalispell. (Figure 6.4-2 and Appendix A, aerial photographs and maps)

[101]The Lake County Overall Economic Development Plan, 1990 Update; P. 14.



FACILITIES/SERVICES IN COMMUNITIES **FIGURE 6.4-2**

6.5. ECONOMICS

6.5.1. Employment And Personal Earnings In The Area Economy

Western Montana and Lake County

Natural resources generate a major portion of business activity, employment and earnings for the economy of Lake County and other counties in western Montana. These resources include forest products, agricultural livestock and crop production and water and wildlife. Water and wildlife provide tourism and outdoor recreation opportunities, hydroelectric power and irrigation. Irrigated cropland is used for growing seed potatoes. Seed potatoes are one of Montana's crops with highest value per acre. Dryland and irrigated hay, wheat, and barley production also occurs on farmlands. Area rangeland is used for grazing cattle and horses. The orchards in the Polson area are a major part of the agricultural economy.

Between 1970 and 1990, total employment for Lake County increased from 4,540 to 9,130, and employment in retail trade and services increased from 34 to 46% of total employment. Farm employment decreased from 23 to 14% of total employment. Manufacturing employment increased from eight to nine percent, but employment in the wood and lumber products segment of manufacturing went down from six to four percent of total employment.[102,103] (Table 6.5-1)

Employment in Lake County is subject to seasonal variation because of the importance of natural resources and tourism in the economy. In 1991, reports from the Montana Department of Labor and Industry showed that average monthly total employment for non-farm wage and salary workers was five percent higher during the summer months than the winter months. Levels of employment in 1991 for the retail trade, services and construction industries was higher during the summer months than the winter months by amounts of 23, 12 and 94%, respectively.[104]

In 1990, the services sector had the largest amount of personal earnings with 28% of the total, followed by government (19%), retail (14%) and manufacturing (12%). Wage and salary personal earnings for retail trade and services increased from 30 to 42%, while farm personal earnings decreased from 18 to eight percent of total personal earnings between 1970 and 1990. Manufacturing personal earnings increased from 11 to 12%, but wood and lumber products manufacturing decreased from 10 to nine percent of total personal earnings. Missoula, which is the region's major trade center, provides retail trade and services that compete with local businesses in the area of the proposed action.[105,106]

The economies of counties in western Montana, stretching from the Canadian border in the north to the Idaho and Wyoming borders in the south, have grown at rates three to five times faster than the statewide average. The expansion has occurred despite a decline in the region's traditional extractive industries.[107]

Flathead Indian Reservation

Unlike many Indian reservations, the Flathead Indian Reservation is not isolated from the larger state and regional economies. The reservation contributes to the region's development, just as change in the regional economy influences the economic health of the reservation.[108]

---

[102]U.S. Department of Commerce, Bureau of Economic Analysis; Regional Economic Information System, 1970-1990.

[103]Morrison-Maierle. Technical Report for Social Conditions: Supplement to U.S. Highway 93 Environmental Impact Statement. 1993.

[104]Montana Department of Labor and Industry, Covered Employment and Wages in Montana By Standard Industrial Classification for Quarters Ending March 31, June 30, September 30, and December 31, 1991.

[105]Ibid.

[106]Morrison-Maierle. Technical Report for Social Conditions: Supplement to U.S. Highway 93 Environmental Impact Statement. 1993.

[107]Flathead Reservation Comprehensive Resources Plan. Volume I, Existing Conditions. 1994. Page 4-3.

[108]Flathead Reservation Comprehensive Resources Plan. Volume I, Existing Conditions. 1994. Page 4-2.

Table 6.5-1 Lake County Total Employment (1970-1990)

Category	Employment		Rate of Growth	Percent of Total	
	1970	1990	1970-1990 (%)	1970	1990
By Industry:					
Total	4,540	9,130	101	--	--
Farm	1,040	1,270	22	23	14
Construction	250	530	112	6	6
Manufacturing	370	800	116	8	9
Wood Products Mfg.[1]	270	360	33	6	4
Retail Trade	760	1,680	121	17	18
Services	790	2,530	220	17	27
Government	920	1,290	40	20	14
Other	410	1,030	151	9	12

U.S. Department of Commerce, Bureau of Economic Analysis; Regional Economic Information System, 1970-1990.
Numbers have been rounded. Other includes agriculture/forestry/fishery, mining, construction, transportation/public utilities, wholesale trade, and finance/insurance/real estate.
[1]Wood products mfg. is a subset of manufacturing.

The Confederated Salish and Kootenai Tribes are the most important actor on the reservation. They spend tens of millions of dollars locally, and they own most of the timber, range and recreation resources, as well as the lands that are the origins of irrigation waters. Tribal members own and operate over 130 local businesses (primarily in construction, retail trade and services sectors). Indian businesses represented 14% of retail businesses and seven percent of service businesses in Lake County in 1992. The tribal organization also operates businesses, schools and the reservation's electric utility.[109]

Indians participate less in the reservation money economy than non-Indians. The 1990 Census reports that, on average, annual income of Indians was 36% less than non-Indians. The difference is due in part to the types of jobs held by Indian people.[110]

For Lake County, most of which is contained within the Flathead Indian Reservation, Indian people have an unemployment rate approximately double that of the total population. (Table 6.4-6)

[109]Ibid. Pages 4-2 and 4-6.
[110]Ibid. Page 4-17.

Economic growth for the Flathead Indian Reservation is expected to be concentrated in the corridor of US 93 from Evaro northward to the southern end of Flathead Lake.[111]

The Flathead Reservation Comprehensive Resource Plan (1994) identifies several factors that are expected to contribute to continued expansion of the economy of the Flathead Indian Reservation:[112]

- The reservation is between Missoula and Kalispell, both of which are large, growing population and economic centers
- Economic activity in Montana is shifting to western Montana
- Expansion is planned for US 93, which links Missoula and Flathead counties

6.5.2. Highway-Oriented Businesses And Nonhighway-Oriented Businesses

FHWA identifies highway-oriented and nonhighway-oriented categories of retail businesses for which highway development is related to economic conditions. Traffic-serving retail businesses, such as gasoline service stations/convenience stores, lodging and eating establishments and tourism specialty stores, are considered to be primarily highway-oriented. Gasoline service stations may have automotive repair facilities and convenience stores. Lodging includes hotels, motels, campgrounds, resorts and bed-and-breakfast. Eating establishments include restaurants, cafes and drive-ins. Generally, restaurants also sell alcoholic beverages. Tourism specialty stores include souvenirs and gifts, arts and crafts and antiques.[113,114]

Some types of nonhighway-oriented businesses, such as automotive repair/parts/dealers, grocery, sporting goods, recreation and entertainment are considered to have traffic-serving commercial activity, but purchases not related to travel and traffic from residents of the local area are the primary source of their trade.[115]

Between 1980 and 1990 in Lake County, employment in eating and drinking establishments, lodging establishments, and gasoline service stations increased from 360 to 540 (50%). Employment in these highway-oriented businesses increased from 22 to 26% of total employment for retail trade and services in Lake County.[116,117]

There are 543 businesses in the vicinity of US 93 from Evaro through Polson, with 254 (47%) located adjacent to US 93. The other 53% of businesses are located away from the highway, either in business districts or in areas with dispersed residential, commercial and industrial development. There are 126 highway-oriented businesses; of these, 92% are located adjacent to the highway, and eight percent are located away from the highway. Of the 417 nonhighway-oriented businesses, 38% are located adjacent to the highway. Highway-oriented businesses are 23% of all businesses. The percentages of highway-oriented businesses outside towns range from 15% between Pablo and Polson to 59% between St. Ignatius and Ronan.[118] (Tables 6.5-2 and 6.5-3)

---

[111]Ibid. Page 4-17.

[112]Ibid. Page 4-19.

[113]National Cooperative Highway Research Program, Community Consequences of Highway Improvement, P. 8; 1965.

[114]National Cooperative Highway Research Program, Comparative Analysis of Highway Bypass Impact Studies, Nancy L. Bennett and Martin M. Stein, January 1973.

[115]National Cooperative Highway Research Program, Community Consequences of Highway Improvement, P. 8; 1965.

[116]U.S. Department of Commerce, Bureau of the Census; County Business Patterns; 1980 and 1990.

[117]National Cooperative Highway Research Program, Comparative Analysis of Highway Bypass Impact Studies, Nancy L. Bennett and Martin M. Stein, January 1973.

[118]Morrison-Maierle. Inventory of businesses along U.S. Highway 93 between Evaro and Polson. 1991-1992.

Table 6.5-2 Highway-Oriented And Nonhighway-Oriented Businesses (1991-1992)

Location	Business Establishments			Percent Of Businesses	
	Highway-Oriented	Nonhighway-Oriented	Total	Highway-Oriented (%)	Nonhighway-Oriented (%)
Evaro	3	2	5	60	40
Evaro to Arlee	3	7	10	30	70
Arlee	6	24	30	20	80
Arlee to Ravalli	–	1	1	–	100
Ravalli[1]	9	5	14	64	36
St. Ignatius	16	28	44	36	64
U.S. Highway 93 Corridor	14	7	21	66	34
Other Business District	2	21	23	9	91
St. Ignatius to Ronan	10	7	17	59	41
Ronan	19	169	188	10	90
U.S. Highway 93 Corridor	12	31	43	28	72
Other Business District	7	138	145	5	95
Ronan to Pablo	4	1	5	80	20
Pablo	6	30	36	17	83
U.S. Highway 93 Corridor	5	3	8	62	38
Downtown Business District	1	27	28	4	96
Pablo to Polson	5	29	34	15	85
Polson (North of Caffrey Road)	45	114	159	28	72
U.S. Highway 93 Corridor	33	42	75	44	56
Downtown Business District	12	72	84	14	86
Total	126	417	543	23	77

Morrison-Maierle, 1991-1992. [1]No businesses were identified between Ravalli and St. Ignatius.

Table 6.5-3 Highway-Oriented And Nonhighway-Oriented Businesses In Communities (1991-1992)

Location	Business Establishments*								
	Highway-Oriented				Nonhighway-Oriented				
	Gas Service Station & Convenience Store	Eating	Lodging	Tourism Specialty	Automotive Services	Entertainment[1] & Recreation	Grocery & Pharmacy	Sporting Goods & Hardware	Other Retail & Services
Evaro	--	1	--	2	--	1	--	--	1
Arlee	1	2	--	3	3	3	2	1	15
Ravalli	2	3	--	4	2	1	--	--	2
St. Ignatius	3	4	4	5	1	4	2	2	19
US 93	3	3	3	5	1	--	--	--	6
Other Areas	--	1	1	--	--	4	2	2	13
Ronan	6	9	2	2	8	7	7	5	142
US 93	6	4	2	--	5	1	4	2	19
Other Areas	--	5	--	2	3	6	3	3	123
Pablo	2	2	1	1	3	4	1	1	21
US 93	2	2	1	--	1	1	--	--	1
Other Areas	--	--	--	1	2	3	1	1	20
Polson (North of Jct. 93 & 35)	5	17	8	15	6	16	5	11	76
US 93	5	11	5	12	2	9	3	3	25
Other Areas	--	6	3	3	4	7	2	8	51

Morrison-Maierle, 1991-1992. [1]Bars are included in entertainment. * Refer to Table 6.5-2 for total businesses in communities.

6.5.3. Economic Characteristics Of Communities Considered For Highway Alignments

6.5.3.1. Arlee

Arlee is the southern most community in Lake County, and the local economy is strongly influenced by its proximity to the larger Missoula economy. Most businesses on US 93 are oriented to serving highway travelers and local tourists (tourists purposely staying in Arlee).

In 1990, of the 180 persons who lived in Arlee and were employed, 110 (60%) were employed outside the community; 72% of Arlee residents were employed in retail trade and services establishments, with 17% employed in manufacturing and 11% employed by other types of businesses.[119]

Arlee residents regularly purchase goods and services in Missoula; this inhibits development and expansion of local commercial businesses and the creation of secondary jobs and earnings for Arlee's local business sector.[120]

Economic activity in Arlee is concentrated along the route of US 93. In 1992, there were 30 businesses located in Arlee, of which 20% were highway-oriented establishments. In 1990 businesses in Arlee were estimated to have 100 employees, with the highest level of employment occurring during the summer tourist season.[121] (Tables 6.5-2 and 6.5-3)

According to the results of a 1993 survey of Arlee businesses, 57% of retail sales are generated by Lake County residents. Drive-through travelers and local tourists account for 37 and six percent, respectively. Similarly, 55% of receipts for services in the survey are due to Lake County residents, with 40 and five percent of services receipts generated by drive-through travelers and local tourists, respectively. Drive-through traveler expenditures are important and occur mainly at retail businesses.[122]

Other findings of the Arlee business survey are listed below:

- Arlee business operators consider Arlee's trade area to extend into southern Lake County and Missoula, and 69% believe they have a competitive advantage because of their location. Major competitors are viewed as being in Missoula and located outside Arlee on US 93.

- Through traffic on US 93 tends to be seasonal. Arlee's highway traveler and tourism-oriented businesses tend to be more busy in the summer months.

- Traffic congestion interferes with customer access to businesses on US 93 during summer months; 44% of businesses cited summer highway congestion as "frequently" or "occasionally" restricting access.

- Compared with Ronan, Arlee indicated less growth in the local economy; fewer than 50% reported 1992 was at least an above average year, and 25% said 1992 was the best year ever.

- Arlee businesses are optimistic about the future; 63% expect to grow by at least five or 10% a year in the next five years; 25% of businesses said sales in 1992 were the best ever.

---

[119]U.S. Department of Commerce, Bureau of the Census. Census of Population. 1950-1990.
[120]Morrison-Maierle, based on information from Summary Tape File 3 of the 1980 and 1990 U.S. Census.
[121]Morrison-Maierle, Inc., Social and Economic Field Research at Arlee, Montana; April 1990.
[122]Jim Boyer. Ronan Business Operators Survey. 1993.

In 1990, a study that included 22 Arlee businesses found that retail trade generated 59% of sales and 51% of employment. The study also found that 62% of sales by retail trade businesses were made to Arlee residents, with the remaining 38% of sales made to people who did not live in Arlee.[123]

6.5.3.2. Ronan

Ronan benefits from being the largest community in the central part of Lake County. Economic activity in Ronan is concentrated along the route of US 93 and on Main Street, the original business district. Many businesses on US 93 are oriented to serving highway travelers and local tourists.

In 1990, of the 560 persons who lived in Ronan and were employed, 200 (36%) were employed outside the community; 68% of Ronan residents were employed in retail trade and services establishments, with seven percent employed in manufacturing and 25% employed by other types of businesses.[124,125]

In 1992, there were 188 businesses located in Ronan, of which 10% were highway-oriented establishments. There were 12 highway-oriented businesses located along US 93. Overall, 23% of total businesses in Ronan were located along US 93.[126] (Tables 6.5-2 and 6.5-3)

According to the results of a 1993 survey of Ronan businesses, 75% of retail sales are generated by Lake County residents. Drive-through travelers and local tourists account for 20 and five percent of retail sales, respectively. Similarly, 92% of receipts for services in the survey are due to Lake County residents, with six and two percent of services receipts generated by drive-through travelers and local tourists, respectively. As with Arlee businesses, drive-through traveler expenditures are important and occur mainly at retail businesses.[127]

Other findings of the Ronan business survey are listed below:

- Most businesses identify Ronan's trade area as south and central Lake County, from Ravalli to Polson. Ronan's role as the county's agricultural service center is especially important to the local economy.

- Eighty-six percent of businesses located on US 93 believe they have a competitive advantage because of their location, and 81% identify major competitors as other businesses on the highway in Ronan. Polson and Missoula businesses also are important competitors.

- Businesses on US 93 have higher sales and more employees than businesses located in the central business district (CBD) on Main Street.

- Ronan's highway traveler and tourism-oriented businesses are more busy in the summer months, the period when those businesses indicate they must achieve most sales. Seasonality of trade is reflected in higher employment in retail trade and services in the summer months.

- Businesses in the CBD are less oriented to serving travelers and tourists and more oriented to the area's local and regional populations. Only 36% of CBD businesses believe they have a competitive advantage because of their location. Businesses in the CBD most frequently identified Polson and Missoula as the locations of major competitors.

---

[123]Estimated Economic Impact on Arlee of Rerouting U.S. Highway 93; Paul Polzin; 1990.

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

[125]National Cooperative Highway Research Program, Comparative Analysis of Highway Bypass Impact Studies, Nancy L. Bennett and Martin M. Stein, January 1973.

[126]Morrison-Maierle, Inc., Social and Economic Field Research at Arlee, Montana; April 1990.

[127]Jim Boyer. Ronan Business Operators Survey. 1993.

- During summer months traffic congestion interferes with customer access to businesses on US 93; 72% cited summer highway congestion as "frequently" or "occasionally" restricting access.

- Only 10% of CBD businesses cited congestion as a problem.

- The Ronan economy is growing; 71% of businesses reported that 1992 was at least an above average year, and 38% reported 1992 was the best year ever.

- Ronan businesses are optimistic about the future; 67% expect to grow by at least five or 10% in the next five years.

6.5.3.3. Polson

Polson benefits from being the southern most community on Flathead Lake, as well as the largest community in the area. Polson serves as a local and regional trade center for Lake County. Drive-through travelers and local tourists also are important for Polson businesses.

Polson's trade area is northern and central Lake County, and Polson's role as the county seat and a tourism destination are especially important to the local economy. Polson retail trade and services are concentrated on US 93 and in the city's CBD. Many businesses on US 93 are oriented to serving highway travelers and local tourists.

In 1992, there were 159 businesses located in Polson, of which 28% were highway-oriented establishments. There were 33 highway-oriented businesses located along US 93. Overall, 47% of total businesses in Polson were located along US 93.[128] (Tables 6.5-2 and 6.5-3)

According to the results of a 1993 survey of Polson businesses, 85% of retail sales are generated by Lake County residents. Drive-through travelers and local tourists account for nine and six percent of retail sales, respectively. In comparison, only 44% of receipts for services in the survey are due to Lake County residents, with 23 and 34% of services receipts generated by drive-through travelers and local tourists, respectively.[129]

Other findings of the Polson business survey are listed below:

- Eighty-eight percent of businesses located on US 93 feel they enjoy a competitive advantage because of their locations, and 60% identify major competitors as other businesses on the highway in Polson.

- Businesses on US 93 have higher sales and more employees than CBD businesses.

- As with Ronan, businesses in Polson's CBD are less oriented to serving travelers and tourists, and more oriented to providing goods and services to local and regional populations. Only one-third of downtown businesses believe they have a competitive advantage because of their locations.

- Drive-through traffic on US 93 and local tourism tend to be seasonal. Polson's highway traveler and tourism-oriented businesses are more busy in the summer. The offseason downturn in the local economy is further intensified by the winter out-migration of many of Polson's retired residents. Seasonality of trade is reflected by reductions of workforce and payroll in the offseason.

---

[128]Morrison-Maierle, Inc., Social and Economic Field Research at Arlee, Montana; April 1990.
[129]Jim Boyer. Ronan Business Operators Survey. 1993.

- During summer months traffic congestion on US 93 interferes with customer access; 64% cited summer traffic congestion as frequently or occasionally restricting customer access, compared with 44% for CBD businesses.

- In the summer months, for businesses on US 93, 20% experience frequent restrictions of customer access, 44% experience occasional restrictions and 36% do not experience a problem. In the winter months, for businesses on US 93, 12% experience frequent restrictions of customer access, 16% experience occasional restrictions and 68% do not experience a problem. In the summer months for downtown businesses, 11% experience frequent restrictions, 33% experience occasional restrictions and 47% do not experience a problem. In the winter months for downtown businesses, zero percent experience frequent restrictions, 14% experience occasional restrictions and 81% do not experience a problem.

- The Polson economy is growing; 60% of businesses reported 1992 was at least an above average year, and 25% reported 1992 to be their best year ever.

- Polson business operators are optimistic about the future; 62% expect business to grow by at least five or 10% a year in the next five years. Local tourism is expected to make an increasingly positive contribution to Polson's local economy; 68% of businesses expect local tourism to grow at least five or 10% annually.

6.5.4. Tourism

According to the *Lake County Overall Economic Development Plan: 1990 Update*, tourism, with its emphasis on sales and employment in retail trade and services, is one of Lake County's four major industries.[130] The scenic attractions of the region make it a destination for the travel and tourism industry. (Section 6.5.1)

US 93 is the major north-south route for tourism and recreation traffic between Missoula and the Flathead Valley-Glacier National Park region. Between 1980 and 1991, annual visits to Glacier National Park increased by 36%.[131] Similarly, between 1985 and 1991, winter skier visits at Big Mountain Ski Resort north of Whitefish increased by 20%.[132]

The highway also is important for tourism travel between Glacier and Yellowstone National Parks. In 1990, 36% of nonresidents traveling on US 93 also visited Yellowstone National Park, and 21% of all nonresidents traveling on the highway visited both national parks.[133]

Between 1988 and 1991 the amount of revenue (not adjusted for inflation) collected by the accommodations tax in Lake County increased by 69%. The tourism industry has seasonal variations in activity. In 1990 and 1991, 83% of revenue from the accommodations tax was collected from June to December.[134] (Figures 6.5-1 and 6.5-2)

---

[130]Lake County Overall Economic Development Committee. Lake County Overall Economic Development Plan: 1990 Update. 1990.
[131]Bureau of Business and Economic Research, University of Montana, Montana Business Quarterly: Outlook Winter 1991; P. 22.
[132]Flathead Convention and Visitors Association, 1991.
[133]Montana Department of Commerce, Montana Promotion Division and Institute for Tourism Research, University of Montana, 1992.
[134]Ibid.

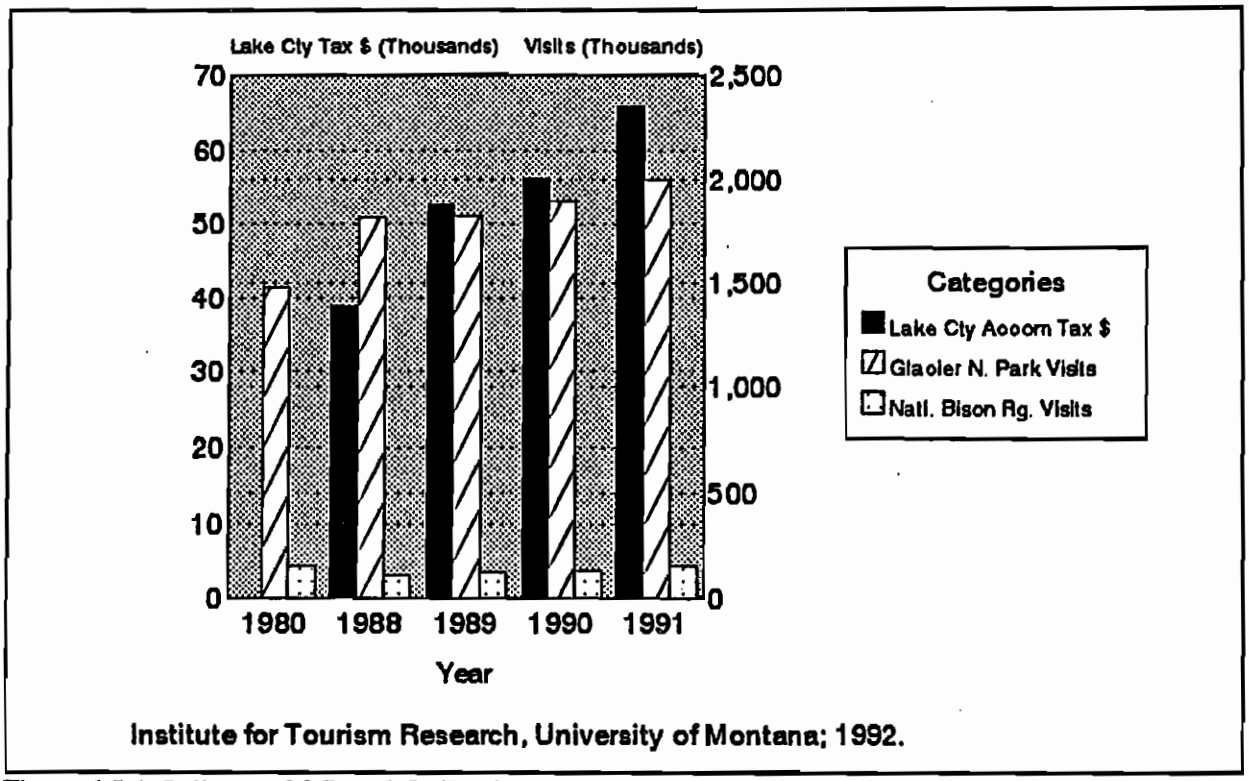


Figure 6.5-1 Indicators Of Growth In Tourism

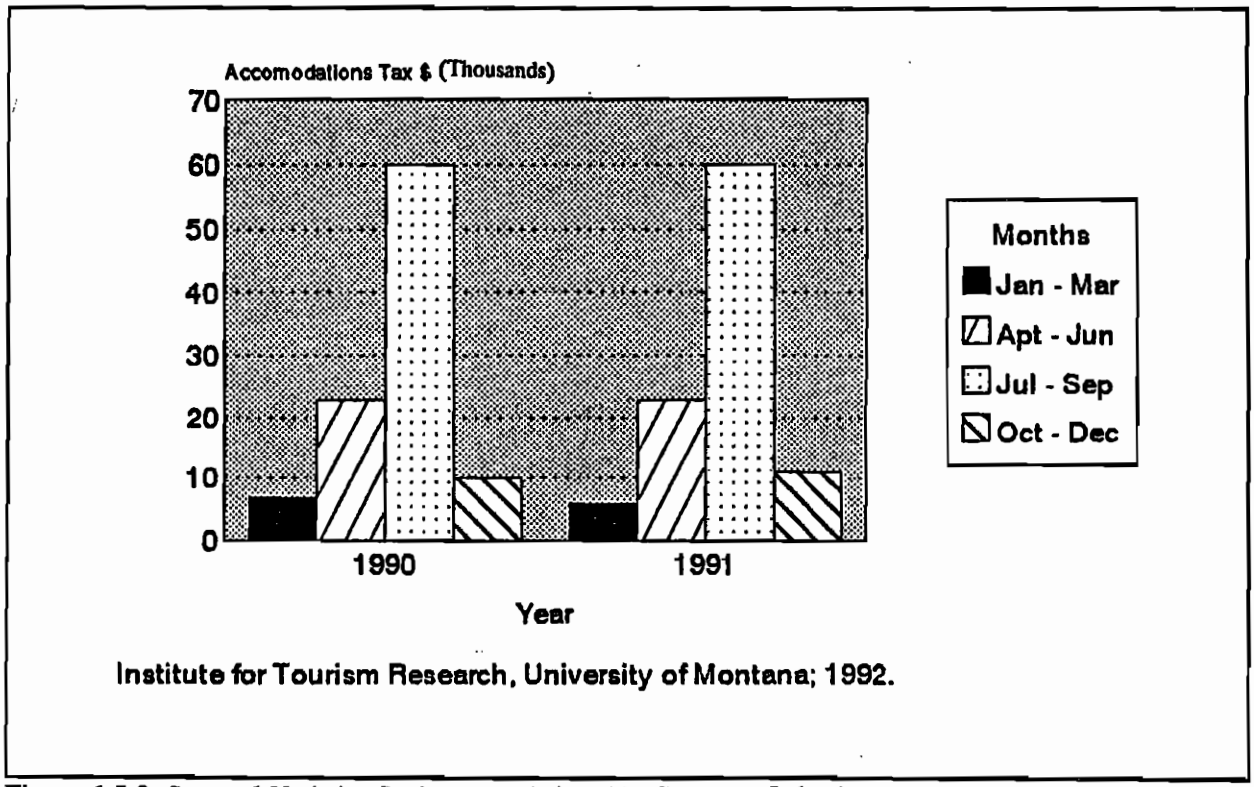


Figure 6.5-2 Seasonal Variation In Accommodations Tax Revenue: Lake County

6.6. PEDESTRIANS AND BICYCLISTS

Most pedestrian travel is concentrated in Evaro, Arlee, Ravalli, St. Ignatius, Ronan, Pablo and Polson. Only limited numbers of pedestrians travel along or cross US 93 in rural areas -- distances between communities are generally too long.

School age (under 16) bicycle travel is also mostly concentrated in and around these communities. Travel along the highway in rural areas between the communities occurs but volumes are currently not high. Table 6.6-1 summarizes bicyclists counted during eight-hour periods during the summer of 1992 (July) at four separate locations along US 93.[135] A growing number of bicyclists (mostly adults) are traveling greater distances along the highway and bicycle touring is increasing. The route is becoming known as a high quality bicycle touring area. Nine known tour groups pass through the area each year. Local agencies and business groups have indicated they expect the numbers and size of these tours to increase. Residents have indicated that once a year a tour of 500 to 600 bicyclists goes through the area. Because of the existing narrow shoulders, vehicles are hesitant to pass them and traffic backs up, causing a safety problem.

In a letter to the Montana Department of Transportation dated August 26, 1992, the Federal Highway Administration states: *"It is important to keep in mind the needs on Indian Reservations. Indian homes are often spread out along a major road, not grouped together in a subdivision...The exposure rate is high and separate bike paths need to be considered between housing developments and local communities on Indian Reservations."*

There are no existing designated facilities for pedestrians or bicyclists in rural areas of the highway between the communities. As indicated on Table 6.1-1, existing paved shoulder widths are generally two- to four-feet wide with short areas of six, eight and 10-foot shoulders. Shoulder width of four feet or less will accommodate some of the utilitarian[136] type bicycle trips, but they are not considered desirable for most pedestrian or bicycle traffic. The AASHTO Bicycle Guide[137] indicates that if motor vehicle speeds exceed 35 mph or if the percentage of trucks and recreational vehicles is high, then additional width is particularly desirable.

School children are picked-up and dropped-off at various locations along the length of the proposed action. There are currently no special pullouts or pavement widening for school buses. School officials have indicated that there is a policy, and school children and parents are advised that children should enter and leave the buses on the same side of the roadway on which they live. The school officials indicate, however, that the policy is not currently strictly enforced and some school children cross US 93.[138]

In the Evaro, Ravalli and Post Creek areas, pedestrian and bicycle crossings occur, but no particular problems have been identified during the public scoping process. There are no active public schools in the these areas. There are no existing designated pedestrian or bicycle facilities.

At the "Mule Palace" area near Milepost 9.9, a complex which includes an outdoor arena and a convenience store/gasoline station, owners of the property and other participants in the public scoping process have indicated

---

[135]Morrison-Maierle, License Plate Classification and Count Study, August 1992

[136]In general, bicycle trip purposes can be divided into two broad types, utilitarian and recreational. For a bicyclist on a utilitarian trip, the primary objective is reaching a specific destination quickly with few interruptions. The utilitarian bicyclist has the ability to ride safely and confidently in heavy traffic and commonly does so because the route is more direct and saves time. A recreational bicyclist is riding primarily for pleasure and the destination is of less importance. Recreational bicyclists commonly avoid busy streets and highways because they perceive the route as less aesthetically pleasing and less safe, and they are willing to go out of their way to ride on residential streets or paths. In actual practice, most trips will have some utilitarian and some recreational purpose. Bicyclists touring the length of the proposed action, or segments of the highway between communities, in some cases, have a recreational purpose to their trip, but for analysis in this document, they are considered principally utilitarian because they are experienced and confident travelling along a busy highway.

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

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

Table 6.6-1 Bicycles Counted within the Study Area

Location	Total Bicycles Counted
U.S. Highway 93, North of I-90	2
Intersection, U.S. Highway 93 and Montana 200	5
Intersection, U.S. Highway 93 and Secondary Highway 212	1
Intersection, U.S. Highway 93 and Montana Highway 35	7

Morrison-Maierle. License Plate Classification Study. August 1993.

that substantial numbers of vehicles park on both sides of the highway during large events. Substantial numbers of highway crossings by pedestrians occur. Many of these crossings occur at night. There were no recorded accidents involving pedestrians or bicyclists at the site during the 1987 - 1991 period, but individuals have indicated they feel the area is dangerous for pedestrians, and there have been several "near misses."

In Arlee, there is currently one designated pedestrian crossing which consists of a painted crosswalk, advance warning signs and a flashing, amber colored warning light mounted over the highway at "B" Street. This street is the main route from US 93 to the Arlee Schools (elementary, middle and high schools) located two blocks to the east. Many pedestrians, particularly students, use this crossing, but a large number do not and instead cross at various locations where it is most convenient. Most of the crossings occur during the lunch hour and after school as a result of students crossing from the schools on the east to homes and convenience stores, restaurants and other businesses located on the west side of the highway. School representatives have indicated that many students, who are close enough to walk, choose to be bussed to school instead of crossing the busy highway.

Representatives of the schools and other individuals have indicated the "B" Street flashing light should be upgraded. Pedestrian counts, studies and analyses that have been conducted indicate that, based on guidelines of FHWA,[139] a full traffic signal (a signal with red, green and amber indications as opposed to the existing amber colored warning light) is not yet warranted by pedestrian patterns and volume at "B" Street but may be in the near future.

There are no sidewalks in Arlee. Pedestrians and bicyclists travel along both sides of the existing highway through the business and residential areas. The existing, mostly unpaved space between the highway and business fronts is generally more than 25-feet wide. Pedestrians and bicyclists also travel along residential streets paralleling and intersecting US 93. There is one recently constructed eight-foot asphalt paved bicycle/pedestrian path paralleling the east side of the highway from "A" Street (Whitworth/Morigeau) at Milepost 17.8 to Finley Creek Road at Milepost 18.1.

The existing highway in Arlee includes two driving lanes (one for each direction of travel) with no designated left-turn bays. The highway is straight and level, and the posted speed limit is 35 mph with most drivers traveling at this speed but a few driving faster. Participants in public scoping meetings have indicated that some people ignore the speed limit and some ignore crosswalks.

Members of the staff of the Confederated Salish and Kootenai Tribes have indicated that they have witnessed pedestrians and bicyclists utilizing highway ROW south of Arlee between town and Jocko Road. A member of the community team in Arlee recommended that a bicycle/pedestrian path be constructed here.

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

In St. Ignatius, the existing highway is located at the west edge of the city limit and away from schools and most businesses. Pedestrian and bicycle volumes are low and no problems have been identified during the public scoping process. At the public hearings, comment was made about the need for safe pedestrian crossing to and from Doug Allard's store and museum.

In Ronan, one designated crossing exists at Adams Street (two blocks south of Round Butte Road) and consists of a painted crosswalk with no flashing warning light or traffic signals. A full traffic signal, without pedestrian activated phases is in place at Round Butte Road (MTSFAS 211), and a flashing amber warning light is in place at Eisenhower Street (six blocks south of Round Butte Road), but no designated crosswalks have been installed. Residents and city officials have indicated the crosswalk at Adams Street is used by some pedestrians, but it is ignored by a large number who cross the highway wherever it is most convenient. A substantial portion of the pedestrians in Ronan are school children -- school representatives have expressed opinions that additional and improved pedestrian crossings are needed. School representatives have indicated that many students, who are close enough to walk, choose to be bussed to school instead of crossing the busy highway.

There are intermittent areas with sidewalks along US 93 in Ronan. There is no designated bicycle path. Generally, pedestrians and bicyclists travel along the sides of the existing highway using the sidewalks and an open area between the existing pavement and business fronts that is generally over 20-feet wide. Pedestrians and bicyclists also travel along residential streets paralleling and intersecting US 93.

The existing highway in Ronan includes two driving lanes (one for each direction of travel) and a continuous two-way left-turn center median. The posted speed limit is 35 and 25 mph with most drivers traveling at these speeds but a few driving faster. Participants in public scoping meetings have indicated that some people ignore the speed limit and some ignore crosswalks.

In Pablo, Two Eagle River School (a private high school) and Salish Kootenai College are located adjacent to the east side of the highway. The tribal complex and other buildings, ~~a restaurant and other businesses~~ are located on the west side. Residences are located on both sides of the highway. These conditions have generated substantial numbers of pedestrians crossing the highway and public comments have been received indicating problems, describing many near misses. They express the need for revisions to the existing highway and for proper safety measures to be incorporated in the proposed action. Representatives of the two schools have indicated that a larger than normal number of handicapped students attend the schools and cross the highway -- the schools are handicapped accessible.

The existing highway in Pablo includes two driving lanes (one for each direction of travel) and a continuous two-way left-turn center median. Public comment has reported that drivers often illegally use this median lane for passing. The highway is straight and level, and when the posted speed limit was 55 mph, public comment indicated ~~and the posted speed limit is 55 mph -- public comment has indicated that~~ many drivers travel faster. There are no designated facilities for pedestrians or bicyclists.[140]

In Polson, US 93 is used by both pedestrians and bicyclists for utilitarian and recreational purposes. Bicycle use is intermittent, with usage along US 93 probably owing to the high number of unrestricted access drives, the narrow or lack of shoulders and the narrow sidewalk along the Flathead River bridge. Many Polson residents who are familiar with the difficulties associated with bicycling along the highway use Fourth Avenue instead of US 93.

A gravel pedestrian and bicycle path separated from the highway is located in Polson between Rocky Point Road and the west end of the Flathead River bridge. A local citizens group has plans to extend this path along the

[140] 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.

lakeshore to the east through Polson. Paved shoulders are located along most of the highway, east of Second Street East, with varying width. Between Bay Shore Drive and MT 35, the north-side shoulder is not well defined and blends into the parking lots for the commercial properties in this location. In the segment directly adjacent to Flathead Lake, Second Street East to Fourth Avenue, a five-foot shoulder is provided on the north side. Although this segment is signed as a designated bicycle route, it is not an official bikeway.

There are sidewalks along Second Avenue (US 93 through downtown Polson) on the north and south sides, and along the south side of the Flathead River bridge. East of the downtown area, however, there are no sidewalks along the highway.

Most pedestrian activity is concentrated in downtown Polson, which extends from the east end of the Flathead River bridge for four blocks to the KwaTaqNuk resort. Although painted crosswalks exist at the intersection of Main Street and Second Avenue, the safest pedestrian crossing is at First Street East, where a traffic signal is installed.

There is a designated pedestrian crossing which consists of a flashing, amber colored warning light and pedestrian crossing sign located near the Super 1 Foods grocery in Polson. Some residents have expressed the need for a pedestrian-activated traffic signal and crosswalk to be located in even closer proximity to Super 1 Foods. Many pedestrians, particularly residents of the senior complex, use this crossing but some do not and instead cross at various locations where it is most convenient.

As expressed by participants at the public meetings in Polson, crossing US 93 can be difficult for residents living both north and south of the highway. Many of the pedestrians are residents of a large senior citizen apartment complex, located north of the highway, who seek access to the shopping, churches and other services south of the highway. The majority of Polson residents, however, live south of US 93. These residents, including children on bicycles or foot, must cross the highway to access Flathead Lake and the several parks located along the lake. Boettcher Park, located north of the highway, is extensively used by Polson children.

~~Accident records on US 93 indicate that, during the five-year period including 1987 through 1991:~~

- ~~One fatal pedestrian accident occurred in Arlee.~~
- ~~In Ravalli, one bicycle accident occurred that resulted in a non-incapacitating injury.~~
- ~~In St. Ignatius, one bicycle accident occurred that resulted in a non-incapacitating injury.~~
- ~~In Ronan, no pedestrian or bicycle accidents occurred.~~
- ~~In the Pablo area, one bicycle accident occurred that resulted in a non-incapacitating injury and one pedestrian accident occurred that resulted in an incapacitating injury.~~
- ~~In Polson, one bicycle accident occurred that resulted in a non-incapacitating injury, and two pedestrian accidents occurred; one resulted in a fatality and one a non-incapacitating injury.~~

~~Individuals have indicated, during the public scoping process, that a bicycle tourist was fatally injured on US 93 near Post Creek Road (Milepost 38.1) during the summer of 1992, and that a pedestrian attempting to cross the highway was struck by an automobile near the senior apartment complex.~~ Several accidents involving pedestrians and bicyclists have occurred during the years 1990 to 1994. These are listed in Table 6.6-2.

Table 6.6-2 Accidents Involving Pedestrians and Bicyclists

Type	Milepost	Date	Injury Severity
Bicycle	27.1	Sep 1990	Non-Incapacitating
Bicycle	45.7	Aug 1990	Incapacitating
Pedestrian	52.8	Oct 1990	Incapacitating
Pedestrian	9.3	Apr 1992	Incapacitating
Pedestrian	27.1	Aug 1992	Fatal
Bicycle	39.1	Aug 1992	Fatal
Pedestrian	4..0	Mar 1992	Incapacitating
Pedestrian	60.9	Jul 1992	Incapacitating
Pedestrian	32.5	Oct 1993	Fatal
Pedestrian	46.3	Oct 1993	Incapacitating
Bicycle	51.9	Jun 1994	Non-Incapacitating
Pedestrian	60.9	Jan 1994	Incapacitating
Pedestrian	60.9	May 1994	Fatal

Montana Department of Transportation. Accident Records System. 1990-94.
This table has been added to the final EIS

6.7. AIR QUALITY

More detailed information on the affected environment regarding air quality is included in Appendix F.

6.7.1. Regulatory Background

The United States Environmental Protection Agency (EPA) has the primary responsibility of ensuring compliance with the National Ambient Air Quality Standards (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)[141] has been prepared by EPA Region VIII to address control strategies for these areas prior to the development of a tribal implementation plan. The Polson portion of the draft TSD was finalized in February 1993.[142] Future finalization of the Ronan portion is anticipated.

Remaining areas are currently classified as either "attainment" or "unclassified".

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. EPA regulations and NAAQS regulations apply and are supported by local Tribal Air Quality Program oversight. The federal government maintains enforcement authority. Such authority necessarily recognizes Tribal Class I Air Quality Redesignation for the Flathead Indian Reservation. ~~EPA regulations, the NAAQS regulations and local regulations apply.~~

6.7.2. PM_{10} Violations

Because Ronan and Polson are designated as non-attainment areas for PM_{10}, a draft TSD[143] has been prepared by EPA 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.[144] Future finalization of the Ronan portion is anticipated.

6.7.3. PM_{10} Sources

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

---

[141]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.

[142]Personal communication with Ms. Susan Zazzali, EPA Helena Office, March 4, 1993.

[143]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.

[144]Personal communication with Ms. Susan Zazzali, EPA Helena Office, March 4, 1993.

particulates from the larger particles. Ideally, sanding material is removed from streets and highways within two weeks after the last spring snow. The highest PM_{10} concentrations are expected in the areas where 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)[145] 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 AQD was able to demonstrate that fugitive emissions from travel on roadways with these levels of particulate matter can be expected to produce ambient levels of PM_{10} which exceed the standards.

6.7.4. TSD Strategies

The PM_{10} control strategies discussed in the draft TSD[146] 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 chemical deicer.[147]

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 Polson and Ronan between January 1992 and April 1996.

An MOA for the Polson PM_{10} Non-Attainment Area has been developed between CSKT, the city of Polson, Lake County, MDT and EPA. 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.

---

[145]GeoResearch, Inc., Confederated Salish and Kootenai Tribes of the Flathead Reservation, Air Quality Data Report, Second Quarter 1990 - First Quarter 1991.

[146]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.

[147]Komp, pp. 55-63.

6.8. NOISE

6.8.1. Noise Parameters and Criteria

Sound is the result of objects being set into vibration. The range of magnitude from the faintest to the loudest sound humans can hear is so large that sound pressure is expressed on a logarithmic scale in units called decibels (dB). Under the logarithmic decibel scale, a noise source emitting a noise level of 60 dB combined with another noise source of 60 dB yields a noise level of 63 dB, not 120 dB. To simulate how humans hear various frequencies of sounds, the overall frequency spectrum is measured as A-weighted decibels (dBA). Loudness, compared to physical sound measurement, refers to how individual humans subjectively judge a sound.

Noise levels from traffic depend on volume, speed, percentage of trucks, topography, vegetation, and distance from the roadway to receptor. Generally, an increase in volume or speed will increase traffic noise levels. For a line source such as roadway traffic, noise levels will decrease three dBA over hard ground (concrete, pavement) or 4.5 dBA over soft ground (grass) for every doubling of distance between the roadway and receptor. For a point source such as stationary construction equipment, noise levels will decrease six dBA for every doubling of distance.

Environmental noise commonly is expressed as the equivalent sound level (Leq), which can be considered the average noise level. Leq places more emphasis on occasional high noise levels that accompany general background noise levels. Leq measured over a one-hour period is the hourly Leq (Leq(h)), which FHWA uses for roadway noise impact and abatement analyses.

6.8.2. Existing Noise Levels

Land uses in the area along US 93 range from rural farmland to the communities of Evaro, Arlee, Ravalli, St. Ignatius, Ronan, Pablo, and Polson. The primary existing noise source is traffic on US 93. Approximately three trains per week use the railroad tracks that intermittently run parallel to US 93.

Noise measurements were taken along US 93 from 1988 through 1990. At locations between 50 and 100 feet from the centerline of US 93, measured Leq noise levels ranged from 64 to 68 dBA. At locations without roadway noise, measured ambient noise levels were an Leq of 47 dBA.

6.9. WATER QUALITY

6.9.1. Surface Water Hydrology

6.9.1.1. Location and Characteristics of Surface Water Features

Tributaries of the Flathead River, including the Jocko River, have headwaters~~headwater~~ on the west side of the Mission Mountains. The rivers and streams cross US 93 throughout the area ~~and cross the highway.~~ Surface water runoff is to the Jocko and Flathead rivers, to various creeks crossing the existing highway, to several reservoirs including Ninepipe and Pablo reservoirs and to various other ponds and wetlands. Portions of the city of Polson and surrounding areas drain into Flathead Lake.

Table 6.11-1 lists streams and drainages crossed by US 93 and indicates their drainage areas, 100-year flood flows and crossing type (bridge or culvert). Locations of stream crossings are shown on Figure A-2 in Appendix A.

Appendix A, Figure A-2, Project Map, shows stream locations in relation to highway alignments.

6.9.1.2. Stream Flow and Lake Levels

Surface water is derived from precipitation and runoff. Maximum periods of runoff occur in spring and early-summer, primarily from melting snow in the Mission Mountains. Figure 6.9-1 shows the average pattern of runoff for the years 1970 to 1980 from the North Fork of the Jocko River and the Middle Fork of the Jocko River. Natural patterns of runoff in the valleys have been greatly modified by irrigation facilities which divert water from stream channels to irrigated fields and storage reservoirs.

Surface water discharge on the Flathead River five miles downstream from its outflow from Flathead Lake (Existing US 93 bridge location) has been continually measured since 1907. The drainage area of the Flathead River above this station is 7,096 square miles. The average discharge for this 84-year period has been 11,640 cubic feet per second (cfs). The maximum discharge was 82,800 cfs recorded in 1928, prior to the construction of Kerr Dam.

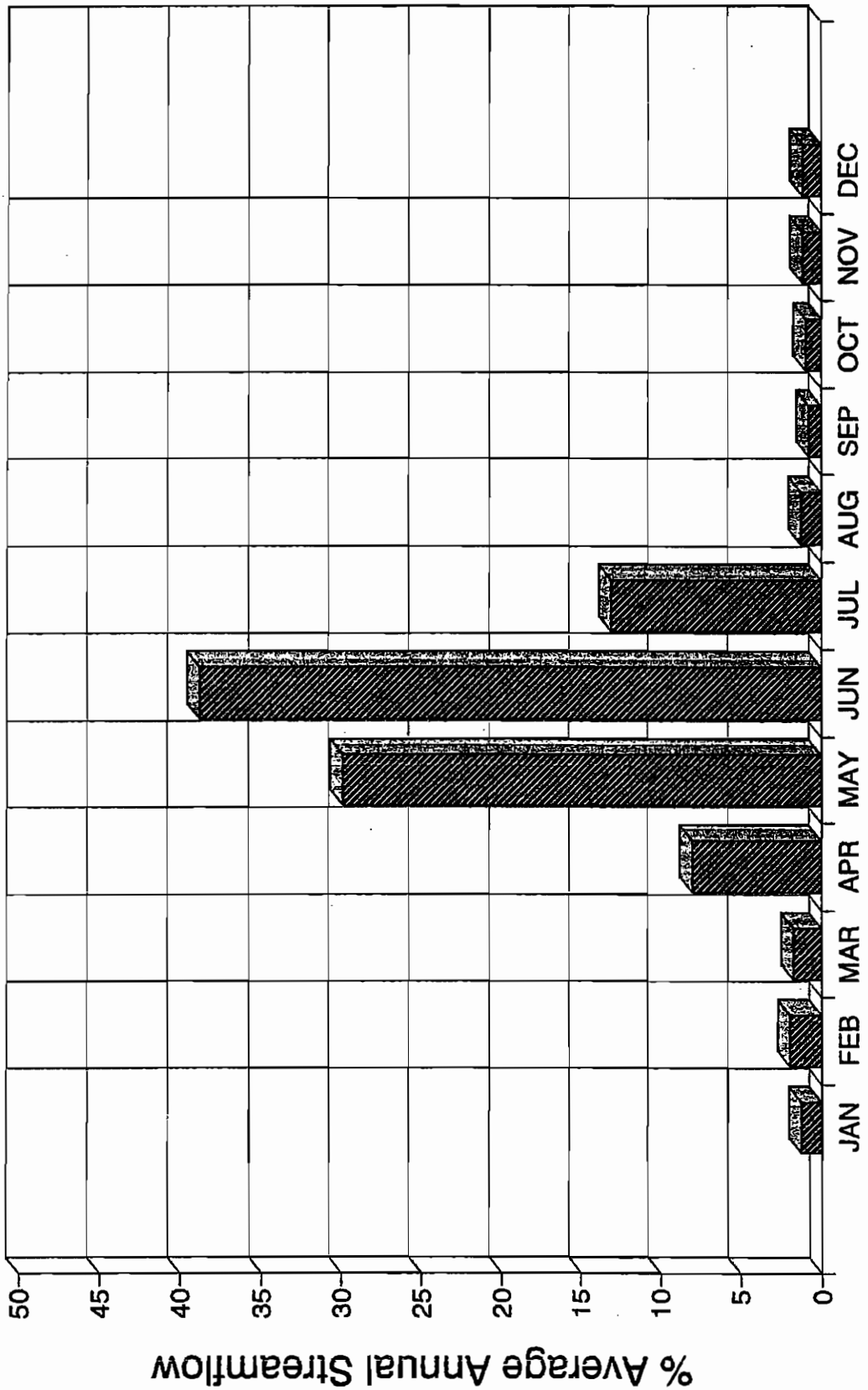
~~The surface elevation of Flathead Lake has been recorded at Somers, Montana sporadically from 1900 to 1910 and continuously since 1910. Prior to the completion of Kerr Dam in 1938, surface elevations ranged from 2,881 to 2,896 feet above sea level. Lake levels have been more stable since dam completion. During water year 1991, lake levels ranged from 2,885 to 2,893 feet. This represents a range in lake water storage from 843,800 to 1,810,000 acre feet.~~The pool elevations of Flathead Lake are controlled by Kerr Dam which is operated by the Montana Power Company under a license with the Federal Energy Regulatory Commission (FERC). The lake elevations follow a general cycle starting at full pool elevation of 2,893 feet about September 1. From October 1 through late-March or early-April, the lake is drawn down to a low pool elevation of 2,883 feet. Runoff normally begins to refill the lake by mid-April with elevations reaching about 2,890 feet by May 31 and full pool at 2,893 feet by June 15. The lake is operated near full pool elevation throughout the summer recreation season. Some variations of these general operating guidelines are allowed under the FERC license to meet requests for flood control and minimum releases.

6.9.1.3. Frequency and Magnitude of Precipitation Events

Normal mean annual precipitation at the Kalispell, Montana station north of the proposed action is 16.24 inches.[148] June is the wettest month with a mean normal precipitation total of 2.56 inches and a record monthly total of 4.72 inches.

---

[148]National Oceanic and Atmospheric Administration. 1982. Climate of Montana, Climatography of the U.S. No. 60. National Climate Center, Ashville, North Carolina.



ANNUAL STREAMFLOWS, NORTH FORK JOCKO RIVER FIGURE 6.9-1

Maximum expected precipitation in the Polson area for events of six- and 24-hour duration has been calculated using National Weather Service data.[149] For a 100-year storm, more than three inches of precipitation can be expected in a 24-hour period. (Table 6.9-1)

Table 6.9-1 Maximum Projected Precipitation for Polson

	Return Period (years)					
Event Duration	2	5	10	25	50	100
6 hours	0.8"	1.1"	1.3"	1.5"	1.7"	1.8"
24 hours	1.4"	1.8"	2.1"	2.5"	2.8"	3.1"

Miller, J.F., R.H. Frederick, and R.J. Tracey. 1973. Precipitation-Frequency Atlas of the Western United States, Vol. I-Montana. U.S. Dept. of Commerce, NOAA, National Weather Service.

6.9.2. Surface Water Quality

6.9.2.1. Water Quality Standards

Three streams, as indicated in Table 6.9-2, have been classified by the Confederated Salish and Kootenai Tribes.[150,151] ~~Water Quality Bureau of the Montana Department of Health and Environmental Sciences (MDHES - WQB), Administrative Rules of Montana (ARM 16.20.606). These classifications have remained unchanged since their designation in 1988. Jocko River and other streams and water bodies in the area of the proposed action have not been classified. CSKT has an ongoing water quality collection program, but information from that program is not available for this document.~~

6.9.2.2. Water Quality Data

In general, water quality is excellent at high elevations, but decreases in the lower elevations due to return flows from irrigated agriculture, drainage from septic tanks and runoff from farm and ranch sites. Water quality analyses of the Jocko River above Tabor Canal near Dixon showed that water quality decreases, but not greatly, between upstream and downstream sampling sites ~~(Table 6.9-3)~~. Data collected for the Jocko River from above Arlee and near Dixon showed that temperature, dissolved solids, fecal coliform, alkalinity, and specific conductance increase between upstream and downstream sites. Water quality for Flathead Lake has been monitored continuously at

[149]Miller, J.F., R.H. Frederick, and R.J. Tracey. 1973. Precipitation-Frequency Atlas of the Western United States, Vol. I--Montana. U.S. Department of Commerce, NOAA, National Weather Service, Silver Spring, MD. 41 pp.

[150]Confederated Salish and Kootenai Tribes, Surface Water Quality Standards and Antidegradation Policy, effective April 27, 1995. On February 27, 1995, the Environmental Protection Agency approved the TAS (Treatment as a State) application from the Salish and Kootenai Tribes to administer Section 303 of the Clean Water Act. The Tribes have now adopted water quality standards of Reservation-wide applicability.

~~[151]Presented for information only. State of Montana water quality standards do not apply on the Flathead Indian Reservation.~~

Table 6.9-2 Water Quality Classifications

Classification	Description
B-2	Mission Creek (mainstem), from its U.S. Highway 93 culvert crossing near St. Ignatius downstream to its confluence with the Flathead River.
B-2	Crow Creek (mainstem) from the road crossing in Section 16, T20N, R20W, P.M.M. to the Flathead River, including Lower Crow Reservoir.
A-1	That portion of Flathead Lake within the Flathead Indian Reservation.
B-1	Flathead River from the U.S. Highway 93 bridge in Polson downstream to its confluence with the Clark Fork.

Confederated Salish and Kootenai Tribes of the Flathead Nation, Surface Water Quality Standards and Antidegradation Policy, Effective Date: April 27, 1995.

several stations since 1977 by the Flathead Lake Biological Station.[152] These data indicate a trend of deteriorating water quality (increased nutrient loads) during the period of record due primarily to rapidly increasing human population within the drainage basin. Discharge from the lake to lower the Flathead River at Polson is generally cleaner than water entering the lake since much of the suspended sediment settles out to the lake bed.[153] (Table 6.9-3)

In conclusion, available water quality data indicate a relatively high quality aquatic environment for both lakes and streams in the headwaters and a decreasing water quality in the lower elevation stream valleys.

6.9.2.3. Erosion Rates

Natural sedimentation rates have been estimated using average soil textures, slope, and vegetative cover. For a 10-year, 24-hour storm (the greatest amount of rainfall during a 24-hour period expected during a 10-year period), it is estimated that 0.01 ton of sediment per acre (0.0075 cubic yard) would result.

6.9.2.4. Sole-Source Aquifers and Wellhead Protection Areas

There are no designated sole-source aquifers in the area of the proposed action.[154]

Polson is in the process of delineating a wellhead protection area to the south and east of the town as shown on Figure 6.9-2.[155] The area includes two zones: Zone I is the most sensitive zone as it immediately surrounds the Polson municipal water supply wells; Zone II is a less sensitive buffer area situated farther from the wellhead.

~~A w~~Wellhead protection areas ~~are~~is also proposed in Pablo and on property owned by the public schools on the east side of Arlee. The delineation process either has not begun or has not progressed sufficiently to provide site boundaries or other specific information in these areas.

[152]Stanford, J.A., B.K. Ellis, D.W. Chess, J.A. Craft, and G.C. Poole. 1992. Monitoring Water Quality in Flathead Lake, Montana. Flathead Lake Biology Station, University of Montana, Open File Report 128-92. Polson, Montana 31 pp.

[153]Flathead Basin Commission. 1993. Flathead Basin Commission 1991-1992 Biennial Report (draft). Kalispell, Montana 64 pp.

[154]Personal communication with Mackin, C., Wellhead Protection Specialist, Water Quality Bureau, Water Resources Division, Montana; National Resources and Conservation Department, 1520 East Sixth Avenue, Helena, Montana. 1992.

[155]Ibid.

Table 6.9-3 Water Quality Parameters In The Jocko River Above Arlee and Near Dixon

Water Quality Parameter	May 18	June 15	July 13	August 24
Temperature (C°)				
Above Arlee	5°	9°	9.5°	9.5°
Above Dixon	8°	13°	14°	13°
Total Suspended Solids (mg/1)				
Above Arlee	1	2	<1	<1
Near Dixon	37	<1	5	2
Fecal Coliform (coliforms per 100 ml)				
Above Arlee	6	1	10	5
Near Dixon	66	18	67	76
Alkalinity (mg/1)				
Above Arlee	104	112	107	83
Near Dixon	99	119	127	141
Specific Conductance (nicromohs per cm)				
Above Arlee	170	190	210	180
Near Dixon	160	210	250	270

U.S. Fish and Wildlife Service. 1976.
Water quality parameters that were similar at both Arlee and Dixon are not presented.

Existing highway ditches intercept very shallow (generally less than 10-feet deep) aquifers at numerous sites, mainly in the Evaro, Post Creek and Ninepipe areas. Narrow wetland strips, most with abundant cattails, have developed along these wet ditches. The aquifers are developed in gravely and sandy alluvial fan deposits in the Evaro/Jocko Valley and St. Ignatius/Post Creek areas, and in gravely and sandy glacial and alluvial deposits in the Ninepipe, Ronan and Polson areas. The aquifers are supplied with water by natural infiltration of rain and snowmelt and, at many sites, by seepage from irrigated areas and nearby canals. ~~None of the shallow aquifers have any commercial or domestic use; existing wells all tap deeper aquifers.~~ These shallow aquifers~~, however,~~ are important water bodies since they can not be separated from the hydrologic unit because of surface-groundwater interaction. It is likely that shallow water is used for domestic purposes at several locations along the route. Wells in Arlee mostly draw water from a shallow aquifer developed in sand and gravel of the alluvial fan deposited by the Jocko River. Pablo has many shallow wells, many of them very old, hand dug wells which are not recorded -- these wells are mostly in the shallow aquifer.

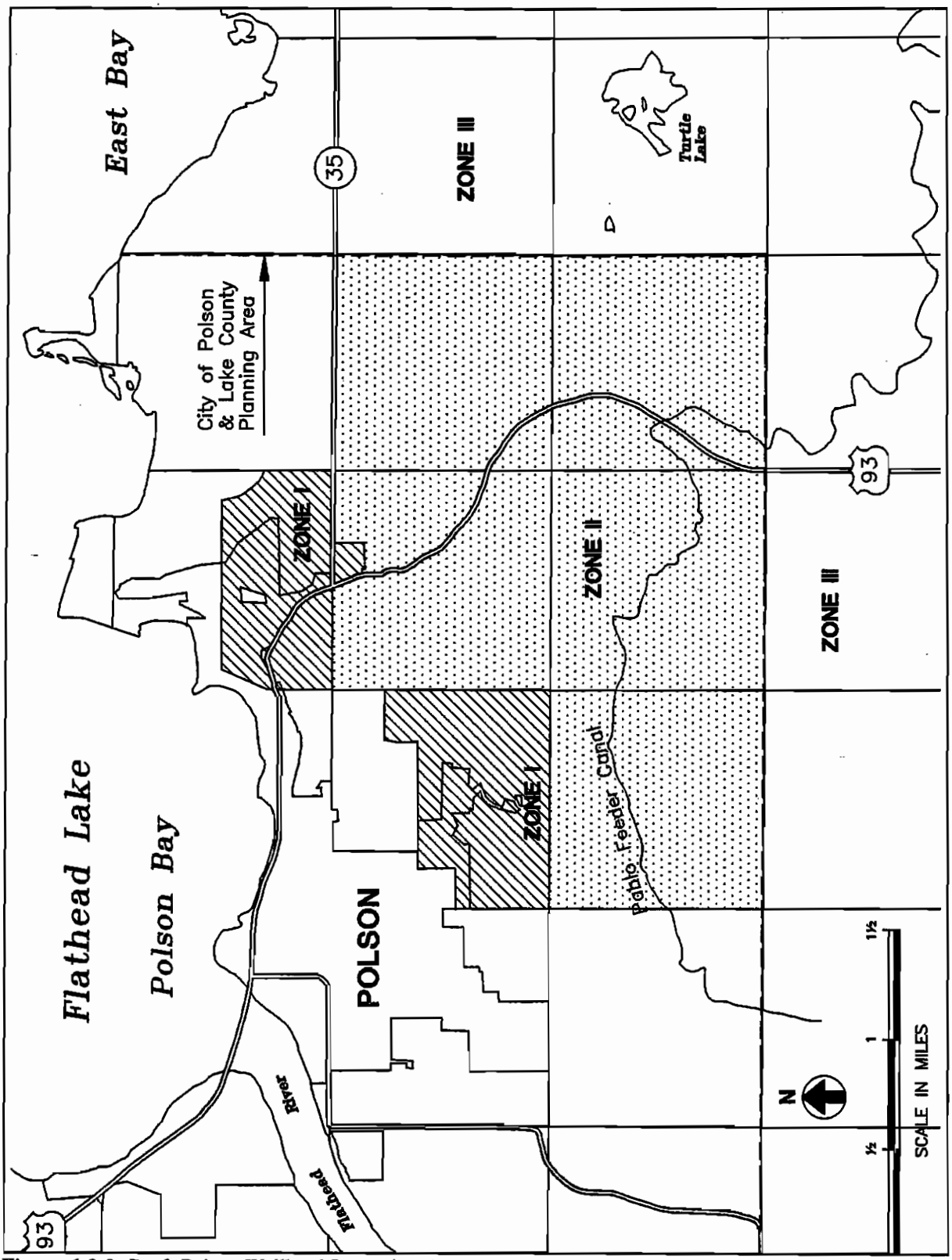


Figure 6.9-2 Draft Polson Wellhead Protection Areas

6.10. WETLANDS

US 93 traverses various wetlands and non-wetland riparian areas on the existing alignment. Additional wetlands and non-wetland riparian areas would be ~~are~~ crossed by the alignments under consideration at Arlee, Ronan and Polson. Wetlands, non-wetland riparian areas, and mixed wetland/riparian areas identified along the existing alignment were mapped on photo sheets and are presented in Appendix A. Each wetland along the existing alignment and Polson Alignments 1, 2 and 3 was delineated ~~mapped and described~~[156,157,158,159,160] ~~,~~ using the ~~draft process of the Montana Interagency Wetlands Group~~[161] ~~and~~ U.S. Army Corps of Engineers 1987 delineation manual ~~guidelines~~.[162] (Appendix A, aerial photographs and maps) Wetlands along the Arlee and Ronan alternative alignments were identified from national wetland inventory maps and color infra-red aerial photographs.

Generally, non-wetland waters of the U.S. occur as narrow perennial or intermittent channels which bisect wetland communities. As such, these channels were generally included within delineated wetland borders to minimize the "piece mealing" of jurisdictional areas. Non-wetland riparian areas were identified using the definition of riparian areas that was developed by CSKT and MDT in an MOA addressing wetland and riparian mitigation on tribal lands.

Each wetland and non-wetland riparian area along the existing and alternative alignments was classified, quantitatively evaluated in terms of its functions and values, and assigned an overall rating of Category I (exceptional value) to IV (low value) using the MDT wetland site evaluation method.[163]

The study complies with the requirements of Executive Order 11990, Section 404 of the Federal Clean Water Act as amended; ~~the Montana Stream Protection Act;~~ and Federal Highway Administration (FHWA) Technical Advisory T6640.8A.

Table 6.10-1, which is presented at the back of Appendix A, identifies a set of characteristics for each wetland and non-wetland riparian area along the existing and alternative alignments: classification; hydrologic type; hydrologic source; estimated size; prominent functions; overall rating; and estimated effects relative to each lane configuration under consideration. Four general wetland types are represented in the area: emergent (dominated by erect herbaceous species); shrub (dominated by woody species less than 20 feet tall); forested (dominated by woody species greater than 20 feet tall); and open water. Although many wetlands consist solely of emergent communities, many are comprised of a combination of these types. Non-wetland riparian areas are dominated by forested and/or shrub communities.

~~There are three types of wetlands in the area: Category I - ponds, Category II - marshes, and Category III - stream (riparian) zones.~~ Most open water areas occur as ~~ponds are in~~oval to circular potholes in the Ninepipe area; a few are in old borrow pits and abandoned river channels. ~~E~~mergent communities, ~~Marshes~~ the most abundant wetland type, occur in association with potholes, in strips along moist valley bottoms and in irregular patches in low springy

---

[156]Morrison-Maierle, 1993. Wetland Inventory and Delineation, Project F 5-1(9)6. Unpublished report prepared for Montana Department of Transportation, Helena, Montana.

[157]Reichelt, L.S., 1989. Wetland Inventory and Biological Assessment for Montana Department of Transportation, Project F 5-1(8)6 Evaro - Dirty Corner. Unpublished report prepared for Stensatter Druyvestein & Associates, Missoula, Montana. p. 22

[158]Reichelt, L.S., 1989. Wetland Inventory and Biological Assessment for Montana Department of Transportation, Project F 5-2(34)17 Dirty Corner - Ravalli. Unpublished report prepared for Morrison-Maierle, Helena, Montana. p. 19

[159]Reichelt, L.S., 1989. Wetland Inventory and Biological Assessment for Montana Department of Transportation, Project F 5-2(38)28 Ravalli - North. Unpublished report prepared for Stensatter Druyvestein & Associates, Missoula, Montana. p. 19

[160]Reichelt, L.S., 1990. Wetland Inventory and Biological Assessment for Montana Department of Transportation, Project F 5-2(33)48 Ronan -Polson. Unpublished report prepared for Neil Consultants, Great Falls, Montana. p. 18

~~[161]Montana Interagency Wetlands Group. 1989. Interagency Memorandum of Understanding: Management and Mitigation of Highway Construction Impacts to Wetlands in the State of Montana. Helena, Montana.~~

[162]Environmental Laboratory, U.S. Army Corps of Engineers. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. Department of the Army Waterways Experiment Station. Vicksburg, Mississippi. p. 100

[163]Montana Department of Transportation, Wetlands Site Evaluation Form. Unpublished methodology. Helena, Montana. 1994.

areas. Many of these sites have standing water or unchanneled surface flow during the spring and after rains, but they lack surface flow during the rest of the year. Narrow strips of emergent wetlands ~~marsh~~ also are in highway ditches wherever shallow groundwater is intercepted or surface runoff is blocked. Forested and shrub ~~Riparian~~ wetlands include large, complex areas along major creeks such as Post Creek and narrow, marshy to shrubby strips along small streams and roadside borrow ditches. Forested and shrub wetlands along drainages are often interspersed with non-wetland riparian areas. Similar marshy and shrubby wetland strips lie along canals with reliable water. Forested and shrub-dominated non-wetland riparian areas generally occur along active and historic drainage courses and adjacent to seeps and other wetland areas.

As determined using the MDT wetland site evaluation forms, the overall ~~functional~~ value of ~~each~~ individual wetlands varies from ~~is generally~~ low to exceptional ~~moderate~~, but the cumulative value of all the wetlands is high, especially for the Ninepipe area. Highest ratings were generally assigned to diverse, complex wetlands at Evaro Hill, in the Ninepipe area, and along perennial drainages (Table 6.10-1). Lowest ratings were generally assigned to monotypical roadside ditch wetlands. Prominent functions of wetlands and non-wetland riparian areas ~~values~~ include food chain support, wildlife ~~and plant~~ habitat, potential habitat for threatened and endangered species, flood attenuation and storage ~~of water~~, trapping and filtration of sediment, groundwater discharge/recharge and recreation. Some wetlands are heavily grazed. The Ninepipe area, which has high waterfowl use for both breeding and migration, is an area of national importance.

Wetlands in the Jocko Valley are at Finley Creek and the Jocko River, at crossings of many small streams and several canals with reliable water, and in many roadside ditches which intercept shallow groundwater. Most of the wetlands are comprised of forested/shrub communities associated with seeps and drainages between Evaro and the Schley homesites. In Ravalli Canyon there are a few wetlands in roadside ditches and narrow, low areas with shallow groundwater.

In the Mission Valley south of Post Creek Hill, most wetlands are narrow, forested or grassy strips at crossings of small streams, which have well-defined channels. Near Post Creek are many small springs, wet meadows, and several shallow streams.

Between Mileposts 39.5 and 44.1, the corridor leads directly north through the Ninepipe area of potholes. The potholes are either glacial kettles (shallow, closed depressions left after glacial ice blocks melted) or pingo scars (similar depressions where thick lenses of permafrost ice melted). Marshes, ponds, Ninepipe Reservoir (Milepost 40.8) and the Ninepipe National Wildlife Refuge are in the pothole terrain. Potholes are oval, circular, or irregular ~~in plain view~~, and contain ponds and marshes with cattails and sedges. Some of the pothole ponds are dry in mid- to late-summer.

North of the Ninepipe area, there are only a few wetlands at waterway crossings and along the roadway ditches. There are few ~~no~~ wetlands between Pablo and Polson Hill. Habitat values are high for waterfowl, pheasants, shorebirds, small mammals, furbearers, raptors, passerine birds, reptiles and amphibians. Hydrologic functions of individual potholes are minor because the watershed providing runoff is usually small. Collectively, these wetlands are regionally important for groundwater recharge and flood desynchronization. These wetlands are effective sinks for trapping and retaining sediment and nutrients.

Fish and wildlife use of wetlands and riparian areas are further discussed in Section 6.12.

6.11. FLOODPLAINS AND STREAM CROSSINGS

6.11.1. Flood Peaks

U.S. Geological Survey (USGS) Water-Resources Investigation Report 92-4048 was used to determine the 100-year flood peak.[164] The proposed action is in the West region defined by the USGS report. The regional analysis equations developed to predict flood peaks are based on drainage area and mean annual precipitation. The 100-year flood flows and drainage areas for each stream crossing are listed in Table 6.11-1.

6.11.2. Existing Floodplain Study

Flood insurance studies, under the National Flood Insurance Program (NFIP), have been performed for Missoula and Lake counties. Both counties have adopted the standards for floodplain management and are participating in the NFIP. The standards~~Standards have been which~~ require a floodplain permit for any encroachment or crossing of a designated floodplain.

CSKT is not participating in the NFIP so the floodplain regulations are not in effect on tribal lands. This situation produces a checkerboard pattern of land subject to and not subject to floodplain regulations.

The type of floodplain delineations for the area are summarized in Table 6.11-1.

6.11.3. Existing Culverts and Bridges

Existing stream crossings along the proposed action include culvert and bridge crossings. Most of the existing stream crossings such as Finley Creek, Agency Creek, Spring Creek, Sabine Creek, Mission Creek and Mud Creek are crossed using culvert structures. The Jocko River, Post Creek and the Flathead River ~~and Post Creek~~ are crossed with bridges.

A summary of the existing culvert and bridge crossings for drainage areas greater than one square mile are listed in Table 6.11-1.

6.11.4. Fish Passage

~~As described in Section 6.12.1, s~~Several streams which cross the highway have fishery values, and design of crossings to provide fish passage will be important. The Bureau of Indian Affairs (BIA) has established interim instream flow requirements for several of these crossings as ~~these streams which include Jocko River, Spring Creek near Ravalli, Finley Creek, Post Creek, Mud Creek, Crow Creek, Sabine Creek, Spring Creek near Ronan and Mission Creek. Fish passage will be required for all crossings~~ listed on Table 6.12-1. (Section 6.12)

6.11.5. Specific Stream Crossings

The following paragraphs describe existing stream crossing problems at specific sites along the highway.

Agency Creek

The highway crosses Agency Creek near Milepost 15.9. Agency Creek flows out from the mountains onto an alluvial floodplain located above the highway crossing. The channel on this fan is perched, or higher than the

[164]U.S. Geological Survey, Analysis of the Magnitude and Frequency of Floods and the Peak-Flow Gaging Network in Montana, Water-Resources Investigations Report 92-4048, July 1992.

Table 6.11-1 Stream Crossing Summary

Milepost	Stream Name	Drainage Area (Sq Mi.)	100-Year Flood Flow (CFS)[1]	NFIP Delineation	Culvert	Bridge	Size
7.8	Frog Creek	2.0	35	None	X		36" RCP
9.6	Finley Creek, Left	3.1	80	None	X		72" CSP
9.7	Finley Creek, Right	10.7	230	None	X		72" CSP
10.0	Unnamed Creek	1.8	35	None	X		36" RCP
10.3	Unnamed Creek	2.2	60	None	X		4X4' Box
10.8	Drainage	1.2	37	None	X		36" RCP
11.8	Schley Creek	2.4	66	None	X		60" RCP
12.2	East Fork, Finley Creek	6.6	153	None	X		6X8' Box
14.3	E Canal*	1.7	23	None	X		36" CSP
15.7	Agency Creek	8.4	212	Approx	X		18" CSP
19.0	Jocko River	153.2	2608	Approx		X	59' Span, 36' Wide
23.3	Spring Creek, Ravalli	22.2	371	Approx	X		3X6' Box
28.2	Drainage	1.4	26	None	X		36" RCP
28.3	Drainage	1.3	24	None	X		36" RCP
30.2	Drainage	1.2	22	None	X		4X6'Stockpass
30.5	Pistol Creek	3.1	56	None	X		60" RCP
30.7	Drainage	1.5	31	None	X		36" CSP
31.8	Sabine Creek	15.7	334	Approx	X		84" CSP
32.4	Mission Creek	48.6	994	Approx	X		12.9X8.3' CSPA
34.7	Drainage	1.2	23	None	X		36" RCP
35.4	Drainage	2.5	41	None	X		6X6' Box
37.8	Post Creek	61.1	1209	Approx		X	51' Span, 31' Wide
44.2	Crow Creek	49.3	1009	Approx	X		14'0"x9'8" SSPPA, TWIN
47.0	Spring Creek, Ronan	5.5	157	Approx	X		6'1"X4'7" SSPPA
51.0	Mud Creek	12.9	323	Approx	X		11'5"X7'3" SSPPA
61.1	Flathead River	7,000	77,500	Approx		X	1,536' Span 38.5' Wide

U.S. Geological Survey (USGS) Water-Resources Investigation Report 92-4048. [1]CFS = Cubic Feet Per Second * E Canal is listed because it also is a drainage crossing for an area more than one square mile. Other canals are not listed because they do not carry drainage water, or they serve smaller areas.

surrounding overbank in some areas. Flood water exceeding the channel capacity is lost to overbank flows which spread out over a wide area. There are also irrigation diversions which reduce the flows.

A county road crossing is located approximately 1,600 feet up-stream of the highway crossing. This crossing consists of a 30" corrugated steel pipe (CSP) and a 27" x 43" corrugated steel pipe arch (CSPA). The capacity of this crossing is approximately 75 cfs. The capacity of the channel between this crossing and the highway is no more than 75 cfs. Flood flows more than 75 cfs most likely do not reach the highway culvert by way of the stream channel.

The existing culvert underneath the highway is an 18" CSP. There is little headwater depth available to push water through the culvert. Additionally, the upstream banks are low where they cross the borrow ditch. The capacity of the existing culvert is about eight cfs. Excess water is diverted to the north down the east borrow ditch towards Arlee. Local MDT maintenance personnel report that runoff exceeds the culvert capacity almost every year, and the excess flow is carried in the east borrow ditch.

Water discharged from the existing 18" culvert drops down a steep channel into a gravel pit. Water ponds to a depth of approximately four feet above the pit floor before it overtops the bank elevations at the northwest corner. Water flowing out of the northwest corner of the gravel pit follows along the east side of the railroad tracks and eventually ends up in Finley Creek. Water flowing along this drainage path causes minor flooding of the railroad ROW and adjacent properties.

Spring Creek Near Ravalli

The highway crosses Spring Creek near Milepost 23.3. Spring Creek carries a base flow which is estimated to range from 25 to 50 cfs throughout the year. The existing crossing consists of a double three-feet high by six-feet wide concrete box culvert. Fish passage is a concern at this site. The existing culvert size is inadequate -- it is estimated that minimal roadway overtopping will occur with the 50-year flood. The channel of Spring Creek is parallel with and immediately adjacent to the existing highway for approximately 800 feet in the area upstream and downstream from the crossing. Most of this section of Spring Creek was modified by previous highway and railroad construction and is not in its natural channel.

Spring Creek in Ronan

A 290-feet long, six-feet, one-inch span by four-feet, seven-inch rise structural steel plate pipe arch (SSPPA) culvert currently carries Spring Creek across US 93, across a city block, across First Avenue Southwest and then discharges to a city park. The culvert will not accommodate the estimated 100-year flood flow.

6.12. FISH AND WILDLIFE

US 93 traverses wildlife habitat including aquatic habitat (lakes, streams and rivers), wetlands, riparian areas, agricultural croplands, prairie grasslands, conifer-dominated forests and urban areas. This habitat provides food and cover for fish, reptiles, amphibians, small mammals, birds, furbearers, and big game. Most wildlife species in the area of the proposed action (such as fish, waterfowl, meadow vole, ring-necked pheasant, elk, mountain lion, and grizzly bear) are associated with specific habitats, whereas others (such as magpie, red-tailed hawk, white-tailed deer, deer mouse, and coyote) are nearly cosmopolitan. The following sections describe wildlife-habitat associations.

6.12.1. Aquatic Habitats and Wetlands

Aquatic habitat includes the Flathead and Jocko rivers, Flathead Lake, streams, reservoirs, ponds, and springs. Streams are periodically crossed over the length of the highway. Ponds, reservoirs, and associated wetlands are primarily in the Ninepipe area between St. Ignatius and Pablo.

There are few amphibians in the area. Prior to the 1970s, leopard frogs were common in the Ninepipe-Pablo wetlands; however, since that time, their numbers have been greatly reduced.[165] The cause of the local population decline of this species is not known. Long-toed salamanders, tiger salamanders, spotted frogs and western toads are found in aquatic habitats, particularly during breeding season in the spring. In 1979, Peterson reported the tailed frog from Revais Creek, west of the highway.

Reptiles in the area include ~~rattlesnakes,~~ bull snakes, garter snakes, rattlesnakes and painted turtles. Painted turtles are locally abundant in the Ninepipe area in ponds and reservoirs. Many turtles are killed by vehicles while crossing US 93 between Ninepipe and Crow Creek.

Streams with important fishery values that would be traversed by the highway include the Flathead and Jocko rivers, Jocko Spring Creek (also known as Valley Spring Creek), Finley Creek, Post Creek, Mud Creek, Crow Creek, Sabine Creek, Ronan Spring Creek and Mission Creek. ~~Jocko River provides habitat for brown, rainbow, brook, bull, and westslope cutthroat trout, mountain whitefish, and non-game species such as slimy sculpin, longnose dace, redside shiner, northern squawfish, peamouth chub, longnose sucker, and largescale sucker. Lower Jocko River (between Ronan and Arlee) provides critical spawning and rearing habitat for rainbow and brown trout.[166] Resident trout and trout from Flathead River spawn in lower Jocko River.[167]~~

~~Bull trout are rare in Jocko River and occur primarily in the upper portions of the drainage.[168] The South and Middle forks of Jocko River are managed for native populations of westslope cutthroat trout. Jocko River is managed for catch and release fishing, but limited harvest may be allowed in the future if populations increase sufficiently.~~

The Jocko River, upstream of Arlee, is managed primarily for native species. The Jocko River below Arlee is a non-native rainbow and brown trout fishery. Lake trout have also been recently discovered within this area. Eastern brook trout are scattered throughout this drainage. Fishing regulations are catch and release for all species except brook and lake trout.[169]

---

[165]Morrison-Maierle; personal communication with West. 1992.

~~[166]DosSantos, J., J. Darling, and D. Cross. 1988. Lower Flathead System fisheries study. Main River and tributaries, Volume II. Final Report FY 1983-1987. Confederated Salish and Kootenai Tribes, Pablo, Montana.~~

~~[167]Morrison-Maierle; personal communication with DosSantos. 1991.~~

~~[168]Ibid.~~

[169]Confederated Salish and Kootenai Tribes, comments on the draft EIS dated 27 June 1995.

The section of the Flathead River crossed by the existing US 93 bridge at Polson, ~~within the area of the proposed action~~ is inhabited primarily by non-game species such as northern squawfish, peamouth chub, and other minnow species.[170] Longnose and largescale suckers are found in this section of the river~~lakes throughout the area~~, and westslope cutthroat and bull trout are occasional seasonal visitors~~ to the South Bay of Flathead Lake and connecting Flathead River~~. However, the area contains no spawning grounds and no critical habitat for any fish species.[171]

Post and Mission creeks also provide spawning habitat for rainbow and brown trout and largescale sucker from the Flathead River, and they have resident spawning populations of rainbow, brown, and brook trout. Mud Creek and Crow Creek are important spawning streams for brown and rainbow trout which migrate upstream from Crow Creek Reservoir. Jocko Spring Creek has resident populations of rainbow, brown, and brook trout and provides spawning habitat for mountain whitefish moving upstream from the Jocko River.[172] Ronan Spring Creek has resident populations of rainbow and brook trout and mountain whitefish. Finley Creek supports populations of brook trout, cutthroat trout, brown trout, mountain whitefish, slimy sculpin, and longnose dace.[173] Westslope cutthroat trout are present in Finley Creek, upper Jocko River (above the proposed action), and Sabine Creek.

Non-game fish species in streams traversed by US 93 include largescale sucker, peamouth chub, northern squawfish, longnose dace, slimy sculpin, longnose sucker, black bullhead, and redside shiner. Ninepipe and Pablo reservoirs have reproducing populations of largemouth bass and yellow perch. Yellow and black bullhead, pumpkinseed sunfish and occasional rainbow trout also occupy Ninepipe Reservoir.

To protect critical fish habitat, the BIA has established instream flows for streams with important fisheries. Instream flows for reaches of streams traversed by US 93 are shown on Table 6.12-1. Fish passage will be required for all crossings listed on the table, except Agency Creek. Tribal biologists have indicated it will not be desirable to provide fish passage from Finley Creek to Agency Creek in order to protect the native cutthroat trout population in Agency Creek. Providing fish passage will also be required in Spring Creek near Ravalli, Sabine Creek and Spring Creek in Ronan.

Wetlands in the Ninepipe-Pablo and Polson areas provide breeding habitat and important resting areas for numerous species of migratory waterfowl and shorebirds. The most numerous nesting species are Canada goose, mallard, redhead, ring-billed gull, red-winged blackbird, yellow-headed blackbird, and California gull. Pintail, American widgeon, shoveler, blue- and green-winged teal, ruddy duck, gadwall, and coot also are common.[174] Waterfowl numbers vary seasonally. As many as 80,000 waterfowl may be present in October and November on the Ninepipe and Pablo National Wildlife Refuges.[175]

During migration, numerous waterfowl and shorebirds are transient visitors in the area. Tundra swans are commonly observed and trumpeter swans are occasional migrants.[176] Nesting colonies of double-crested cormorant and great blue heron are located in trees along the margin of Ninepipe and Pablo reservoirs.

More than 190 bird species have been identified for wetlands in the Ninepipe-Pablo area.[177] Of these species, approximately 75 are known to nest in the area.

---

[170]Carter-Burgess; personal communication with DosSantos. 1993.

[171]Carter-Burgess; personal communication with DosSantos. 1993.

[172]Decker-Hess, J. 1989. An inventory of the spring creeks in Montana. Unpublished report. Montana Department of Fish, Wildlife and Parks, Kalispell, Montana.

[173]Riggs, V. and R. Skates. 1978. Acid spill within Flathead Indian Reservation, September 20, 1978. U.S. Fish and Wildlife Service, Kalispell, Montana.

[174]U.S. Fish and Wildlife Service. 1983. Ninepipe and Pablo National Wildlife Refuges. RF 6-61541-1.

[175]Ibid.

[176]Morrison-Maierle; personal communication with Bishop. 1992.

[177]Ibid.

Table 6.12-1 Instream Flows For Streams In the Study Area

Stream	Minimum Instream Flow
Finley Creek	8.5 cfs
Agency Creek	8.0 cfs
Jocko River	43.0 cfs
Mission Creek	20.0 cfs
Post Creek	22.0 cfs
Crow Creek	22.0 cfs
Mud Creek	0.8 cfs

U.S. Department of the Interior, Bureau of Indian Affairs, 1990. Flathead Agency Operating Procedures for Irrigation and Fisheries.

Portions of both the Ninepipe National Wildlife Refuge and Flathead Lake adjacent to US 93 are important feeding areas of shorebirds such as avocet, black-necked stilt, phalaropes, killdeer, and sandpipers. Shallow areas of the reservoir are often exposed mudflats during periods when the reservoir is below full capacity. Alternating periods of inundation and exposure provide optimum feeding habitat for shorebirds where shorelines slope gently down to mudflats and shallow water.

Avocets and other shorebirds and waterfowl are present during migration at a small wetland north of Arlee near Spring Creek ("avocet pond"). This small pond (less than 0.1 acre), created by excavation for gravel or borrow material, is a popular area for viewing birds.

Muskrat, mink, and beaver are common mammals closely associated with wetlands. River otter, infrequent in the area, occur in habitats along the Jocko River and Mission Creek.[178] Raccoon are common and usually associated with wetlands and riparian areas. Striped skunk are common.

6.12.2. Riparian Areas

Riparian or streamside vegetation is composed of plant communities which grow in a transitional zone between aquatic and terrestrial ecosystems. Riparian plant communities have distinctive vegetation and soils and are characterized by the combination of high species diversity, high species density, and high productivity. Riparian areas provide important feeding and breeding habitat for numerous species of birds and other wildlife. Riparian zones along the Flathead River and Lake, Finley Creek, Post Creek, Mission Creek, the Jocko River, and Crow Creek are travel corridors for wildlife because the dense vegetation allows animals to move with greater security

[178]Mack, C., A. Soukkala, D. Becker, and I. Ball. 1990. Impacts of regulated water levels on raptors and semiaquatic furbearers in the lower Flathead drainage, Flathead Indian Reservation, Montana. U.S. Fish and Wildlife Service Cooperative Wildlife Research Unit, Missoula, Montana.

through open grasslands and agricultural areas. Species with affinities for riparian habitat include numerous songbirds, ruffed grouse, ring-necked pheasant, beaver, mink, raccoon, bobcat and white-tailed deer.

6.12.3. Agricultural Lands and Grasslands

Agricultural lands are predominantly irrigated and non-irrigated hay meadows and small grainfields. Hay meadows are interspersed with wetlands in the Ninepipe-Pablo area.

Grasslands include remnants of the native Palouse prairie, but most grasslands are abandoned fields and pastures seeded with non-native species and colonized by invader species. Palouse prairie grasslands are dominated by rough fescue, Idaho fescue, bluebunch wheatgrass, and a variety of forbs, whereas abandoned fields are dominated by grasses such as reed canarygrass, quackgrass, creeping meadow foxtail, Kentucky bluegrass, red-top, and basin wildrye. Remnants of Palouse prairie occur in the Ravalli area near the National Bison Range and south of Polson. However, most of the area south of Polson contains agricultural habitats.

Some grassland and agricultural areas have been purchased by the federal government as waterfowl production areas (WPAs). US 93 ROW is adjacent to the Kicking Horse and Duck Haven WPAs, which are located north of Ninepipe National Wildlife Refuge. Typically WPAs include grassland/wetland complexes, managed to favor nesting waterfowl. Common wildlife species associated with the complex of hay meadows and wetlands are meadow vole, shorttail weasel, longtail weasel, striped skunk, badger, ring-necked pheasant, gray partridge, short-eared owl, long-eared owl, northern harrier, red fox, and white-tailed deer. High densities of nesting short-eared owl were observed on the Duck Haven WPA, abutting the proposed action. Shelterbelts of shrubs and trees in grassland/wetland complexes provide critical nesting and perching sites for a variety of birds. Typically, perching and roosting sites for hawks and owls are limited in grassland/wetland complexes.

A colony of bank swallows has excavated several hundred nests in the silt and clay roadcut south of Ravalli. Bank swallows breed and rear young approximately from early-May through July. They may arrive in the area in mid-April and reside here into August. These colonial birds typically nest in firm soil banks and cliffs. The colony south of Ravalli inhabits steep banks comprised of glacial lake sediments where the existing highway is constructed between the Jocko River and the steep hillside.

6.12.4. Coniferous Forests

Coniferous forests occur primarily in the Evaro area, but small stands also remain near Pablo and Ravalli. The Evaro area may be important to wildlife because of the narrow zone of forest linking isolated montane habitats of the Mission and Rattlesnake mountain ranges to the north and east with the Ninemile-Squaw Peak-Bitterroot Mountains to the west and south. The coniferous forest provides security for wildlife moving between large portions of habitat, isolated by human development in the Evaro area.

Currently expanding subdivision development and past construction of pipelines, powerlines, US 93 and other roads have reduced forest cover and have displaced wildlife species from the area. Species which use the coniferous forests of the Evaro area include elk, mule deer, white-tailed deer, mountain lion, moose, bobcat and black bear. Species which occasionally may be present in this habitat include grizzly bear, wolf, lynx, wolverine, northern goshawk, sharp-shinned hawk, pileated woodpecker, great gray owl and pine marten.

6.12.5. Urban Areas

Most urban habitat is in the city of Polson. This area is predominantly private businesses and residential property. Although wildlife is limited, some species do use the area. A variety of small mammals, including deer mice, house

mice, striped skunks, and raccoons may be found.[179] Depending on the season, a variety of bird species may occur here; common species are American robin, rock dove, blue jay, European starling, evening grosbeak, house finch, and house sparrow.[180]

6.12.6. Species of Special Concern

The Montana Department of Fish, Wildlife and Parks (MDFWP)[181] and the Montana Natural Heritage Program have designated fish and wildlife species of "special concern" in Montana. These species have been designated on the basis of their relative rarity or concern for their continued existence in their current range.[182] Species of special concern, known or suspected to occur in Flathead and Lake counties, are listed in Table 6.12-2.

Of the 17 sensitive species known or suspected to occur in Lake and Flathead counties, two mammals (grizzly bear and gray wolf) are occasionally present in portions of the area (Section 6.13). A nursery colony of Townsend's big-eared bats occurs within 0.25 mile of US 93 in the Ravalli area. This colony is comprised of approximately 60 females.[183]

Four mammals have a low probability to occur in the area--California bat, fisher, wolverine, and lynx. California bats are usually associated with caves, mine tunnels, and bridges; they could occasionally use highway bridges for day roosts. Fisher, wolverine, and lynx are uncommon in Montana. If present in the area of the proposed action, they would be in conifer forests as transients between mountainous habitat on the east and west.

Two sensitive fish are present in streams that would be traversed by the highway--cutthroat trout and bull trout. Cutthroat trout are present in the Jocko River, Sabine Creek, and Finley Creek. Bull trout are present in the Jocko River.

Tailed frog is the only sensitive species of amphibians or reptiles known to be present near the area. In 1979, Peterson found the tailed frog in Revais Creek, several miles west of the highway.

Sensitive bird species known to occur in the area are common loon, harlequin duck, osprey, bald eagle, Cooper's hawk, long-billed curlew, peregrine falcon, prairie falcon, long-eared owl, and clay-colored sparrow. None of these species are known to nest on the area, and most are present for only short periods as seasonal migrants. Bald eagle and osprey nest near Polson on Flathead Lake and near the Flathead River. Bald eagles also are present as winter residents along the Flathead River.

Six occurrence records of plant species of special concern occur in the vicinity of T. 20 N., R. 20 W. These are: California waterwort (Elatine californica), Toothcup (Rotala ramosior), Oregon checker-mallow (Sidalcea oregana), Columbia water-meal (Wolffia columbiana), and spotted water-meal (Wolffia punctata, at two sites). The California waterwort and toothcup sites are beside pothole ponds near Kicking Horse Reservoir; the Oregon checker-mallow is in weedy rangeland south of Ronan; the Columbia water-meal and spotted water-meal are by pothole ponds near Ninepipe Reservoir.

---

[179]Ratti, J.T. 1990. Mammals and Birds of the Flathead Indian Reservation. Confederated Salish and Kootenai Tribes of the Flathead Reservation. Pablo, Montana.

[180]Ratti, J.T. 1990. Mammals and Birds of the Flathead Indian Reservation. Confederated Salish and Kootenai Tribes of the Flathead Reservation. Pablo, Montana.

[181]Flath, D. 1984. Vertebrate species of special interest or concern. Montana Department of Fish, Wildlife and Parks, Helena, Montana.

[182]Board of Oil and Gas Conservation. 1989. Programmatic environmental impact statement on oil and gas drilling and production in Montana. Helena, Montana.

[183]Morrison-Maierle; personal communication with Butts. 1992.

Table 6.12-2 Species of Special Concern Known Or Suspected To Occur In Flathead and Lake Counties

Species		Habitat	Probability Of Occurrence in Study Area
MAMMALS	Pygmy shrew	Wooded and open areas	Unknown
	California bat	Tunnels, bridges, and caves	Low
	Townsend's big-eared bat	Caves, mine adits, and bridges	Present
	Grizzly bear	Mountains and adjacent areas	Occasionally present
	Fisher	Mountainous areas	Low
	Wolverine	Mountainous areas	Low
	Wolf	Primarily remote mountainous areas	Occasionally Present
	Lynx	Mountainous areas	Low
	Hoary marmot	Alpine areas	None
	Northern bog lemming	Alpine areas	None
AMPHIBIANS	Coeur d'Alene salamander	Coniferous wetlands and moss	Very low
	Tailed frog	Mountain streams	Present (rare)
	Wood frog	Moist forests	Very low
FISH	Cutthroat trout	Coldwater streams	Present
	Bull trout	Coldwater streams	Present
	Arctic grayling	Coldwater lakes	None
	Shorthead sculpin	Coldwater streams	Unknown
BIRDS	Common loon	Remote lakes	Present as migrants
	Harlequin duck	Turbulent mountain streams	Present as migrants
	Osprey	Lakes and rivers	Present

(Continued)

Table 6.12-2 Species of Special Concern Known Or Suspected To Occur In Flathead and Lake Counties (Continued)

Species		Habitat	Probability Of Occurrence In Study Area
BIRDS (Continued)	Bald eagle	Lakes and rivers	Present
	Cooper's hawk	Riparian and conifer forests	Present
	Northern goshawk	Conifer forests, often old growth	Low
	Ferruginous hawk	Prairies and grassland	Very low
	Long-billed curlew	Prairies and grassland	Present
	Merlin	Riparian and conifer forests	Low
	Peregrine falcon	Cliffs and waterbodies	Present
	Prairie falcon	Cliffs	Present
	Upland sandpiper	Prairies and grasslands	Unknown
	Northern pygmy owl	Conifer forests	Low
	Barred owl	Conifer forests	Low
	Great gray owl	Conifer forests	Low
	Long-eared owl	Forests and prairies	Present
	Northern saw-whet owl	Riparian and conifer forests	Unknown
	Pileated woodpecker	Conifer forests	Present
	Olive-sided flycatcher	Conifer forests	Low
	Swainson's hawk	Riparian forests	Low
	Western bluebird	Open woodlands and grassland	Present (rare)
	Clay-colored sparrow	Prairies and shrublands	Present (rare)
	Brewers sparrow	Sagebrush and alpine meadows	Very Low

Flath. 1984.

6.12.7. Wildlife Movement Corridors

Wildlife crosses US 93 at locations where vegetation, topography, and low levels of disturbance allow relatively secure movement across the highway between portions of suitable habitat. Movement corridors exist near Evaro, and at Ravalli Canyon, Mission Creek, and Post Creek. High levels of local movement by birds, turtles, frogs, waterfowl and other birds, mink, and muskrat occur near Ninepipe Reservoir.

High levels of wildlife mortality have been documented at points where animals regularly cross US 93. Approximately 50 deer per year are killed by vehicles in the Evaro area, and big game is regularly killed at Ravalli Canyon, Mission Creek, and Post Creek.[184] Numerous turtles, waterfowl, and other wetland species are killed by vehicles near Ninepipe Reservoir. There is an unconfirmed report of a grizzly bear being killed by a vehicle at the Post Creek bridge[185] and confirmed reports of road-killed black bears near Evaro.[186]

Although movement of wildlife across US 93 poses mortality risk due to high traffic levels, continued movement across the highway is essential to prevent further fragmentation of habitat, particularly in regard to lynx, wolverine, wolves and grizzly bears. Habitat fragmentation isolates populations and leads to loss of genetic diversity, which in turn can lead to population decline and eventual extinction.[187] Because grizzly bears and wolves are present in such low numbers, inhibition of breeding among population segments could result in reductions in population viability.

The Evaro movement corridor is important when its role as a local and regional wildlife travel corridor and habitat linkage zone is considered relative to plans of the USFWS to reestablish grizzly bears in the Bitterroot Mountains.[188] Evaro Pass would be the most likely linkage for grizzly bears in the Northern Continental Divide Ecosystem and a reestablished population in the Bitterroot Mountains.

If grizzly bears were successful in recolonizing the Bitterroot Mountains, genetic exchange between the Northern Continental Divide Ecosystem and the Bitterroot Mountains would be essential. According to computer simulation models, at least 50 to 90 grizzly bears are necessary for a minimum viable population, defined at 95% probability of survival for 100 years. Although 50 to 90 grizzly bears are considered to be a minimum viable population, this number is much lower than populations needed to prevent loss of genetic diversity. Isolated populations of grizzlies must number from 1,670 to 2,000 bears to maintain adequate genetic diversity over the long term.[189] Evaro Pass would be the linkage through which genetic exchange from the Northern Continental Divide Ecosystem would supplement genetic variation in the Bitterroot Ecosystem.

---

[184]Morrison-Maierle; personal communication with Becker. 1992.

[185]Ibid.

[186]Ibid.

[187]Allendorf, F., R. Harris, and L. Metzger. 1990. Estimation of effective population size of grizzly bear by computer simulation. Proceedings of the Fourth International Congress of Systematic and Evolutionary Biology.

[188]Servheen, C. 1992. Grizzly bear recovery plan - Second review draft. U.S. Fish and Wildlife Service, Missoula, Montana.

[189]Allendorf, F., R. Harris, and L. Metzger. 1990. Estimation of effective population size of grizzly bear by computer simulation. Proceedings of the Fourth International Congress of Systematic and Evolutionary Biology.

6.13. THREATENED AND ENDANGERED SPECIES

Four species listed under the Endangered Species Act are present periodically in the area. Listed species are either in danger of extinction (gray wolf and peregrine falcon) or threatened (grizzly bear and bald eagle).

6.13.1. Grizzly Bear

Before extensive settlement and development of agriculture, grizzly bears probably used habitat throughout the Flathead Valley. As a result of habitat alteration and increased mortality due to human encounters, grizzly bears have been restricted to the mountainous habitat of the Mission Mountains and lowlands adjacent to the mountains.

Grizzlies in the Mission and Rattlesnake mountains exhibit patterns of elevational movement with different seasons. Bears spend from five to six months in winter dens, located in the mountainous terrain above 6,600 feet in elevation, and emerge from dens in spring and move to lower elevations when early green vegetation and other food sources, such as carrion and insects, become available. Important spring habitat (April 15 to June 15) exists in the Mission Valley where seeps and riparian areas provide abundant plant species eaten by bears. Heavily used spring habitat several miles to the east of the proposed action is present at the base of the Mission Mountains near Marsh, Mollman, Post, Poison Oak, and Valentine creeks.[190] Grizzlies periodically use habitat to within about one mile of US 93 near Allentown and the Ninepipe National Wildlife Refuge, and may cross US 93 at Post Creek.[191] Grizzly bears may occasionally follow the riparian zone of Post Creek and use habitat near the National Bison Range. A grizzly, observed near the National Bison Range in 1990, possibly followed Post Creek from the Mission Mountains westward.[192] Residents living along Post Creek report relatively frequent sightings of grizzly bears close to US 93.

During summer, grizzlies usually move to higher elevations in the Mission and Rattlesnake mountains where they feed on newly emergent vegetation and insects, such as ladybird beetles and army cutworm moths. In late-summer and early-fall, bears move back to lower elevations on west slopes of the Missions to feed on domestic fruit in orchards and on native fruits and berries.

The Evaro area is marginal grizzly bear habitat due to high levels of human activity (subdivisions, US 93, and numerous roads, pipelines, transmission lines, and small farms and ranches). Geographically, however, it is important as a movement corridor separating the Mission and Swan ranges from the Ninemile-Squaw Peak and Bitterroot Mountains. High levels of human activity, such as at a primary highway, railroad, pipelines, and associated development, are thought to inhibit movement by grizzly bears between adjacent areas of suitable habitat, thereby causing fragmentation of habitat. As bear populations and habitat become smaller and more isolated, grizzlies become more vulnerable to man-induced mortality.

CSKT and Missoula County have recognized the importance of the Evaro area for grizzly bears. As part of their Grizzly Bear Management Plan, CSKT has designated the Evaro area as important habitat where efforts will be made to maintain or improve habitat and minimize human-induced conflict or bear mortality.

Although the highest grizzly bear densities in the area are in the Mission Mountains and adjacent lands in the Mission Valley, grizzlies have been reported periodically in the Evaro ~~area~~, Dixon, Ninepipe and Post Creek areas and west of US 93 near Perma and Magpie Creek. In 1992, Jonkel[193] reported that during the Border Grizzly Project radio-collared grizzlies were traced repeatedly through Evaro Pass. Grizzly bears were observed in the

---

[190]Servheen, C. 1981. Grizzly bear ecology and management in the Mission Mountains, Montana. Ph.D. dissertation. University of Montana, Missoula, Montana.

[191]Morrison-Maierle; personal communication with Becker. 1992.

[192]Ibid.

[193]Jonkel, C. 1992. Evaro Pass, wolves and bears. Unpublished report. Ursid Research Center, Institute of the Rockies, Missoula, Montana.

Evaro area in 1978[194] and in the early-1980s.[195] In 1981, a grizzly bear den was inadvertently destroyed in the Finley ~~Flats Logging Unit~~ area by road construction.[196] Two sub-adult grizzlies were observed during July and August of 1978. These bears were relocated into the South Fork of the Jocko River from the west slope of the Mission Mountains where their mother was shot.[197] These young bears used habitat on both the east and west sides of US 93. The pipeline ROW, approximately paralleling the highway on the west, was heavily used as a feeding area by both grizzly and black bears during July, August, and September of 1978. The prolific production of fruit on serviceberry bushes along the pipeline ROW provided a productive and attractive summer food source for bears.

6.13.2. Gray Wolf

Gray wolf populations in Montana have been increasing in recent years. Successful wolf reproduction has been documented in Glacier National Park, near Marion in northwestern Montana, and in the Ninemile area near the southwestern portion of the Flathead Indian Reservation. There have been several reported wolf sightings in the Evaro area over the last two or three years.[198] A female wolf, with a radio collar, moved from Glacier National Park, down Swan Valley, through the Evaro area into the Ninemile area, where she established a territory.[199] Two other wolves also are thought to have used the Evaro area as a travel corridor between habitat in the Mission-Swan area and Ninemile-Bitterroot area. There also were credible reports of wolf sightings near Evaro, Arlee, Dixon, and Ninepipe Reservoir.[200] Information on wolves in the area indicates that wolf sightings are associated with lone wolves that have moved over large areas. There is no evidence the area of the proposed action is part of the home range of packs.

6.13.3. Bald Eagle

Bald eagles nest on Flathead Lake (three nesting pairs), and at Pablo National Wildlife Refuge (one nesting pair). Bald eagles nested at Ninepipe National Wildlife Refuge in 1988-89, but there has been no nesting observed since 1989.[201] Bald eagles also are reported to nest near Kicking Horse Reservoir.[202] Bald eagles are seasonal migrants through the area and winter near ice-free bodies of water, such as Jocko and Flathead rivers. (Figure 6.13-1)

Bald eagles nesting on Flathead Lake and the Flathead River confine their foraging activities during the breeding season to riparian and aquatic habitats associated with these waters. Fish are the most common prey (60%) followed by birds (27%), mammals (11%), and crustaceans (two percent). The most frequently captured fish are suckers, peamouth, and northern squawfish, whereas mallards, common mergansers, and ring-necked pheasants are common birds preyed upon by bald eagles.[203]

The Flathead Valley is a traditional wintering area for bald eagles, typically providing habitat for 43 to 61 birds, with peak numbers being present in December and January.[204] However, only four to 12 eagles may use the area

---

[194]Servheen, D. and L. Lee. 1979. An assessment of the grizzly bear population size and status, and a description of important use sites in the Finley Logging Unit, Flathead Reservation, Montana. University of Montana, Border Grizzly Project, School of Forestry, Missoula, Montana.

[195]Morrison-Maierle; personal communication with Becker. 1992.

[196]Ibid.

[197]Servheen, D. and L. Lee. 1979. An assessment of the grizzly bear population size and status, and a description of important use sites in the Finley Logging Unit, Flathead Reservation, Montana. University of Montana, Border Grizzly Project, School of Forestry, Missoula, Montana.

[198]Morrison-Maierle; personal communication with Fontaine. 1992.

[199]Ibid.

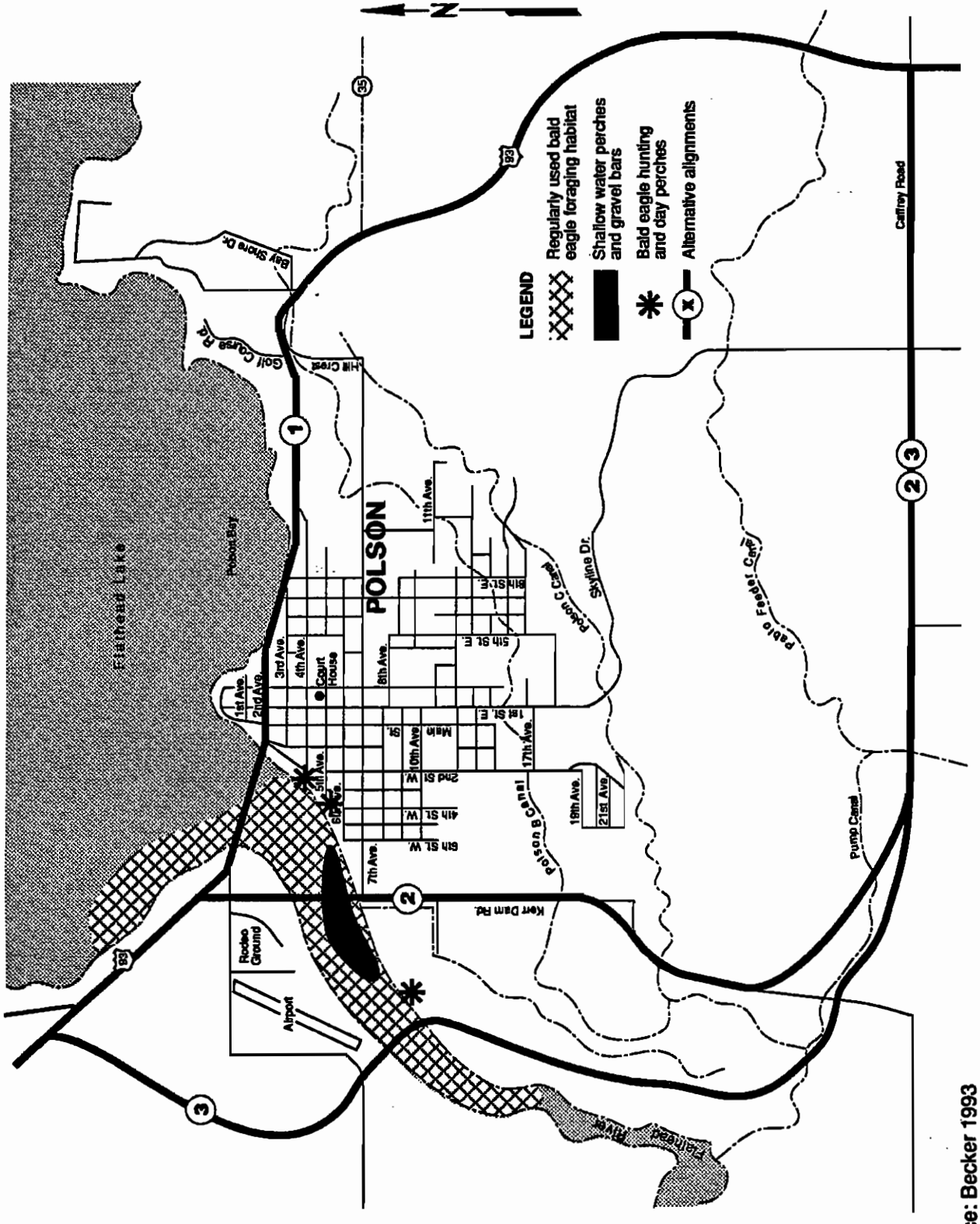
[200]Morrison-Maierle; personal communication with Becker. 1992.

[201]U.S. Fish and Wildlife Service. 1990. Ninepipe and Pablo National Wildlife Refuges. Annual report. Moiese, Montana.

[202]Morrison-Maierle; personal communication with Becker. 1992.

[203]Mack, C., A. Soukkala, D. Becker, and I. Ball. 1990. Impacts of regulated water levels on raptors and semiaquatic furbearers in the lower Flathead drainage, Flathead Indian Reservation, Montana. U.S. Fish and Wildlife Service Cooperative Wildlife Research Unit, Missoula, Montana.

[204]Ibid.



Source: Becker 1993

BALD EAGLE HABITAT LOCATIONS ALONG POLSON ALIGNMENTS 1,2 & 3

FIGURE 6.13-1

near Polson at any one time during the winter months. Most wintering eagles forage and perch near open waterbodies, primarily Flathead Lake and the Flathead River. Primary perch sites on the Flathead River are located near the sewage lagoon and on shallow water and gravel bars within the Flathead River[205] (Figure 6.13-1). During winter, primary
prey are birds (mallards and American coot), with fish being the second most frequent prey item. Mammals were a small portion of the winter diet, but carrion from cattle and deer also may be important.[206]

6.13.4. Peregrine Falcon

Peregrine falcons pass through the area as seasonal migrants. They are often seen in the Ninepipe area in the fall when large concentrations of waterfowl and shorebirds are present.[207] There are no known nest sites in the vicinity of the proposed action; however, CSKT has a peregrine falcon reintroduction project in the vicinity of Ninepipe Reservoir. It is likely that reintroduced peregrine falcons will rely heavily on the wetland areas in the Ninepipe-Pablo area as sources of prey.[208] The Flathead River and portions of Flathead Lake near Polson are also used by migrant falcons.[209]

[205]Morrison-Maierle; personal communication with Becker. 1993.
[206]Ibid.
[207]Ibid.
[208]Morrison-Maierle; personal communication with Becker. 1992.
[209]Morrison-Maierle; personal communication with Becker. 1993.

6.14. CULTURAL RESOURCES

6.14.1. Setting and Background Information

Native Americans have occupied western Montana for at least 12,000 years. Evidence of aboriginal occupation is abundant throughout western Montana, and includes campsites, food processing sites and pictographs. Today, the descendants of three main tribal groups occupy the Flathead Indian Reservation, the "Bitterroot Salish" (incorrectly referred to as the "Flathead" by non-Indians during the historical period), the Lower Pend d'Oreille and the Kootenai[210]. The current reservation boundary incorporates only a fraction of the area traditionally used by these tribes. When considered together, their aboriginal territories covered much of what is now known as eastern Washington, the Idaho Panhandle, the southern part of the Canadian provinces of British Columbia and Alberta, and approximately the western one-third of the state of Montana.

People hunted, fished, ~~harvested~~gathered and established campsites throughout their respective territories. Until recently, Indian people obtained whatever they needed directly from the natural environment. This traditional way of life was based upon a primary relationship between people and natural resources. Animals, birds, fish and plants provided food, medicine and clothing--everything needed to sustain life, both physical and spiritually. The Confederated Salish and Kootenai Tribes have indicated that subsistence activities are not just an activity conducted in the past[211].

Today, Salish and Kootenai oral history and cultural traditions maintain the connection between Indian people and their aboriginal territories. In particular, Coyote stories refer to specific landmarks both within and outside the Flathead Indian Reservation boundaries, and explain the origin of "The People" and their relationship to the land.[212]

Tribal members continue to practice their traditional religious beliefs, as well as subsistence activities both within and outside the reservation.

6.14.2. Outline of Reservation History

In 1855, representatives of the Salish[213] and Kootenai Tribes signed the Hellgate Treaty. Their intent was to establish a peaceful relationship with other Native American groups in the area as well as with the ~~Euro-Americans~~Euroamericans who were beginning to settle in the region.

The Hellgate Treaty provided that the Confederated Salish and Kootenai Tribes "ceded, relinquished, and conveyed" to the United States their "right, title, and interest" in much of what is now western Montana, reserving the present Flathead Indian Reservation to the exclusive use and occupancy of the Tribes. Pursuant to the Hellgate Treaty, the Tribes also retained certain specific proprietary and usufructuary rights to the use of their off-reservation aboriginal homelands. The Tribes reserved to themselves hunting, fishing, harvesting and grazing rights in their aboriginal territory, as well as the right of passage through such aboriginal territory, in perpetuity, among other rights. The Tribes reserved as their "permanent homeland" an area of land known today as the Flathead Indian Reservation.

~~In signing the treaty, the Salish and Kootenai agreed to cede to the United States vast tracts of aboriginal territory in western Montana. However a portion of this area was to be reserved and set aside as the Flathead Indian Reservation. The lands within its boundaries were to be reserved for the exclusive use of the Salish and Kootenai people.~~

---

[210]The "Bitterroot" Salish and the Pend d'Oreille speak dialects of the same language. The Kootenai speak a language that is unrelated to Salish.

[211]Confederated Salish and Kootenai Tribes, comments on the draft EIS dated 27 June 1995.

[212]Germaine White, telephone communication with Janene Caywood, 1993.

[213]The term "Salish" as used here includes both "Bitterroot" Salish and Lower Pend d'Oreille.

~~The Salish and Kootenai also retained the right to hunt, fish and gather resources according to their traditions on open and unclaimed lands within the ceded territory[214]. The Salish and Kootenai retained the exclusive right to hunt, fish, and gather resources according to their traditions within the reservation boundaries. They also retained a right, held in common, to hunt and fish on open and unclaimed lands within their ceded territory.[215] The leaders of the Salish and Kootenai who signed the treaty understood the establishment of the reservation and the right to hunt, fish and gather resources on open and unclaimed lands outside the reservation boundary were meant to guarantee to Native Americans the retention of their traditional way of life.~~

In the ~~138~~141 years since the signing of the Hellgate Treaty, the Salish and Kootenai have faced numerous challenges to the preservation of their traditional cultural values. A major effect on the integrity of the reservation occurred in the early-1880s, when representatives of the Northern Pacific Railroad Company received permission from the federal government to construct the mainline for their railroad through, rather than around, the reservation. Many Indians feared construction of the railroad would bring non-Indians into closer proximity with the reservation, increasing pressure to open the lands within the reservation boundary to non-Indian settlement.

In 1882, Flathead Indian Agent, Peter Ronan convened a council between the Indians and representatives of the railroad. During the council, various Indian leaders expressed their opposition to the railroad. Eneas, one of the Chiefs attending the council, stated the following:

> I wish the Great Father to do me a favor, and consult my wishes, and not let the road go through this reservation. ... This reservation is a small country, and yet you want five depots upon it. These are the best spots on the reservation. What is the reason I should be encouraged when you take the best part of my country? My country was like a flower, and I gave you its best parts. What I gave I don't look for back, and I never have asked for it back. ... What are we doing to do, when you build the road? We have no place to go. That is why it is my wish that you should go down the Missoula river. I am not telling you that you are mean; but this is a small country, and we are hanging on to it like a child on to a piece of candy[216].

In 1883, Peter Ronan wrote:

> A fierce spirit of opposition still prevails on the part of many of the Indians to the construction; they [regard] the road as fatal to their interests, and the sure precursor of the abandonment of their homes and lands to the whites[217].

Clearly, the Salish and Kootenai people were concerned about the ramifications of the presence of a railroad within their reservation. Although a variety of factors ultimately led to the opening of the reservation to non-Indian settlement, the existence of the railroad provided access for both people and goods to a previously isolated area and likely hastened the process.

In 1887, passage of the General Allotment Act (also referred to as the Dawes Act) provided for allotment in severalty for all tribes residing on Indian reservations in the U.S. The act established the legality of assigning individual land allotments to individual Indians[218]. Allotment in severalty would be applied to any tribe the

---

~~[214]Charles J. Kappler, Indian Laws and Treaties, 7 Volumes. Volume II Treaties (Washington D.C., Government Printing Office, 1907) pp. 722-725.~~

[215]Treaty of Hellgate, 1855.

[216]Notes of a Council. Held by Hon. Jos. K. McCammon Assistant Attorney General, appointed by the Secretary of the Interior to Negotiate an agreement with the Indians on the Flathead Reservation, for rights-of-way for the Northern Pacific Railroad through the Reservation "NA Aug. 30, 1882. Letters Received by the Office of Indian Affairs, 1881-1907. RG. 75, NA.

[217]Peter Ronan to Commissioner of Indian Affairs, February 1, 1883, Flathead Special Case no. 55. RG 75, NA, as Referenced in Timber, Tribes and Trust; a History of BIA Forest Management On The Flathead Indian Reservation (1855-1975), Historical Research Associates, (NP, 1977) p. 14.

[218]Article 6 of the 1885 Hellgate Treaty contains a provision allowing the assignment of lots to individual Indians residing within the Flathead Indian Reservation. Charles J. Kappler, Indian Laws and Treaties, 7 Volumes. Volume II Treaties (Washington, D.C., Government Printing Office, 1907) pp. 722-725.

President deemed to be "sufficiently civilized to become farmers and its reservation good enough to be cultivated."[219] Surplus lands (those left over after allotments were issued), would be sold by the government and the proceeds used for the benefit of the tribe.

Although Salish and Kootenai leaders opposed allotment in severalty,[220] the U.S. Government had begun "enrolling" Indians living within the Flathead Indian Reservation in 1902--in anticipation of issuing allotments. In 1903, Congressman Joseph Dixon introduced a bill calling for immediate allotment in severalty for the Salish and Kootenai and sale of unallotted lands. The Salish and Kootenai fears were realized in 1904, when Dixon's bill became law.

By 1910, the majority of "enrolled" Indians had been issued allotments, and the remaining reservation lands were opened to non-Indian settlement under existing homestead laws. The initiation of the Flathead Irrigation Project in 1909, which promised the potential for irrigation of dryland sites, made unallotted land within the Flathead Indian Reservation even more attractive to non-Indians[221].

The 1910 opening of the reservation resulted in the current pattern of land ownership within the reservation boundary. The largest consolidated blocks of tribal land occur in mountainous timbered areas, mostly along the borders of the reservation, and the area directly adjacent to the Flathead River. The more economically valuable irrigated cropland and grazing land in the valley bottom is largely owned by non-Indians.

6.14.3. Current Concerns

The concerns expressed by the Flathead (Salish) and Kootenai cultural committees regarding the proposed action are similar ~~in some aspects~~ to those expressed in the early-1880s, when the Northern Pacific Railroad Company proposed construction of a rail line through the Flathead Indian Reservation. Although the Salish and Kootenai people each have their own unique cultural traditions, for both groups, the retention of these values depends in part upon permanency of the natural landscape and ecosystems, and the retention of a real sense of cultural "community." Improved access, such as may result from the proposed action, is a concern since it threatens the primary relationship between people and nature that is the basis for traditional cultural values. Although the representatives of the Flathead and Kootenai cultural committees recognize the need for improving the safety of the existing highway, they believe the proposed action should be balanced with the need to minimize effects on the cultural values of the reservation. Improving the highway may accelerate the changes that already are taking place within the reservation.

As stated by the Flathead Cultural Committee, all of the lands within the reservation continue to be of cultural importance to the Salish and Kootenai people:

> It is not just the rural character of our area that we seek to preserve. It is also what we call the cultural environment. For our culture to survive, our people must live in a place that continues to hold a powerful

---

[219]Frederick Merk, History of the Westward Movement (Alfred A. Knopf, New York 1978), p. 425.

[220]See discussion of "Flathead" Indians opposition to allotment in severalty as discussed in John Fahey *The Flathead Indians* University of Oklahoma Press, Norman 1974 pp. 246, 264.

[221]The Flathead Irrigation Project was one of several large-scale irrigation projects undertaken on Indian reservations in the west. The earliest projects fell under the supervision of the reservation agents or superintendents. However, in 1907 the Bureau of Reclamation assumed control of the larger Indian irrigation projects (including the Flathead Project), and was responsible for constructing the improvements. Ultimately, the Indian irrigation projects did not serve either of the purposes for which they were intended; they did not provide employment for, nor improve the agricultural prospects of Indian people. Prucha makes the following statement in assessing the outcome of Indian irrigation projects in general:

> "The overriding question in the end, however, was whether and to what extent the irrigation projects in fact benefited the Indians. Were the Indians actually using the lands for successful irrigated agriculture? The answer was no. It became increasingly clear through the 1920s that irrigation projects were authorized for Indian reservations, not with the primary intent of aiding Indian advance toward self-sufficiency, but to develop the arid West for the benefit of white interests." (p.894). All from Francis Paul Prucha, 1984 The Great Father: The United States Government and the American Indians, Vol. II University of Nebraska Press, Lincoln pp 888-894.

sense of tribal identity, of community, of familiarity. The open spaces need to be kept open, the pristine places that nurture our bodies and souls need to be kept pristine, and the preponderance of tribal people in certain areas of the reservation needs to be protected[222]

In addition to the overall cultural significance of the lands within the reservation boundary, specific sites or areas may possess individual cultural/spiritual significance. Critical characteristics associated with these types of sites may include "purity," "privacy," "isolation" and "permanency." In some instances, the continued use of these areas is dependent upon the site being isolated and unchanged. Although improving the existing roadway is not likely to directly affect specific areas of importance, increased development--especially if it extends into more isolated areas, may threaten sites of spiritual significance to the Salish and Kootenai people.

6.14.4. Recorded Cultural Resource Properties

Cultural resource inventories have resulted in the identification of several types of cultural resource properties[223]. It is important to make the distinction between properties that have been formally recorded and subjected to the Section 106 review process, and those that are of spiritual significance to the Tribes.[224] Information regarding the latter type of site is confidential, thus these properties were not formally recorded, assigned numbers and entered into Montana Statewide Cultural Resource Site Files. The Salish and Kootenai cultural committees prefer to deal directly with construction engineers during project design in order to avoid these types of culturally sensitive sites.

Various formally recorded cultural resource properties are located within or adjacent to the proposed action. The recordation of most of these properties has occurred in conjunction with the completion of specialist reports for the proposed action. In the rural portions of the area, previously recorded properties consist primarily of Indian Allotments and Euro-American homesteads. Physical manifestations of these two activities include clusters of one or more buildings, or the archaeological remains of these resources (concrete foundations, building components, etc.).

Other types of properties recorded in the rural segments of the area include structures and buildings associated with the Northern Pacific Railroad, now operated under MRL, irrigation structures associated with the Flathead Irrigation Project, small commercial establishments, and an abandoned roadway. In addition, one historic Euro-American grave site, and two sites with prehistoric artifacts have been identified. In urban areas, previously recorded cultural resource properties include domestic homesites, community buildings such as schools and commercial buildings.

The built environment for residential housing in the Polson area consists primarily of modest dwellings of pre-World War II construction. Bungalows with numerous variations and small cottages predominate. Common variations on the bungalows include ~~draftsman~~Craftsman style and clipped gables.

---

[222]Letter from Flathead Culture Committee to Mr. Michael T. Pablo, Chairman of the Confederated Salish and Kootenai Tribes. June 4, 1992, p.2.

[223]Cultural resource investigations conducted prior to preparation of this document have occurred at two levels of intensity. The existing road corridor from Evaro through Polson has been subjected to intensive pedestrian inventory wherein surface-visible prehistoric and historic properties have been recorded and subjected to review under the Section 106 process. Most of the recorded properties discussed below result from these inventories.

Arlee Alignments 3 and 4 and Ronan Alignments 2, 3, and 4 have received more limited coverage. Drive through surveys of architectural properties (those with standing buildings), coupled with courthouse research have been conducted for Arlee Alignments 3 and 4 and Ronan Alignments 2 and 3. This has resulted in a preliminary inventory of the buildings of historical age that lie adjacent to these alignments, with preliminary recommendations regarding their eligibility to NRHP. For Ronan Alignment 4, all buildings of historical age located adjacent to the alignment have been formally recorded and are in the process of being reviewed. Intensive archaeological inventories of the construction corridors of Arlee Alignments 3 and 4 and Ronan Alignments 2, 3, and 4 have not taken place.

[224]The Salish and Kootenai Culture Committees attribute cultural significance to the two prehistoric archaeological sites recorded during the course of this study. Thus, the distinction between formally recorded properties and those of cultural significance to the Tribes cannot be too finely drawn.

In Polson, commercial buildings date to the period between the late-1910s and late-1940s, and are dominated by brick storefronts. This is the primary style on both Main Street and US 93 as it bisects the central business district. Variations include art deco elements (added in the 1930s), wooden false-front storefronts, converted dwellings and modern commercial buildings of various styles.

The built environment for farm structures in the Polson area has shown an evolution from the initial small frame or log cabins to bungalows or novelty sided cottage farmhouses on more affluent farms. Western Ranch Aggregate style houses, where one or more structures have been relocated to abut a nucleus structure, are not uncommon. Grain bins have evolved from exposed frame, to stacked two-by-four, to round steel bins. Most barns in the area are relatively small frame structures to house small dairy operations or to stable a few horses.

All of the recorded properties have been evaluated against the criteria listed in 36 Code of Federal Regulations (CFR) Part 60, and which determine eligibility or ineligibility for listing in the National Register of Historic Places (NRHP).[225] For a property to be considered for listing in NRHP, it must possess integrity of location, setting, design, materials, workmanship, feeling and association. More importantly, it must be associated with significant historical patterns, events or people; or possess individual architectural/engineering distinction. In addition, archaeological properties may be determined eligible if they have yielded or have the potential to yield significant information regarding the prehistory and/or history of a given area. Individual properties that do not meet these criteria are designated as "ineligible" for listing in NRHP.

Of the various formally recorded properties, most have been determined to be ineligible for listing in NRHP[226]. Some have been determined eligible for listing in NRHP as indicated on Table 6.14-1 and described in following paragraphs.

Evaro School (24MO316)

The Evaro School is located on the north side of US 93, within the small town of Evaro. There are two buildings associated with this site--the one-room school and a small wood shed. The school is one story and has a gable roof and a bell tower. The exterior walls are covered with beveled wood siding, and the building contains one-over-one and six-over-six light double-hung windows.

Local residents constructed the school about 1920. Both Indian and non-Indian students attended the school until 1945. Since then the building has been used as a polling place and as a community center. Modifications associated with the latter use include conversion of the old teacher's quarters to a kitchen, and the addition of a handicapped access ramp. The building has been determined eligible for listing in NRHP under criteria A and C.

Northern Pacific Railroad Grade (24MO319/24LA199)

The main line of the Northern Pacific Railroad parallels the highway corridor between Evaro and Ravalli. In most areas improvements consist of a single grade with track and rails. This alignment has been used and maintained consistently since first constructed in the 1880s. The railroad has been determined eligible for listing in NRHP under criteria A and C.

---

[225]The quality of significance in American history, architecture, archaeology, engineering and culture is present in districts, sites, buildings, structures and objects that possess integrity of location, setting, design, materials, workmanship, feeling and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; and

B. That are associated with the lives of persons significant in our past; or

C. 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; or

D. They have yielded, or may be likely to yield, information important to prehistory or history (United States Department of the Interior (USDI), National Park Service (NPS) 1991:37). USDI NPS, National Register Bulletin 16, Guidelines for Completing National Register of Historic Places Forms 1991 US Government Printing Office, Washington.

[226]Site 24LA121 is a Euro-American grave site. Although ineligible for listing in NRHP, this site will either have to be avoided or the grave relocated prior to construction.

Table 6.14-1 NRHP Eligible Properties

Number	Description	Milepost Location
24MO316	Evaro School	6.8
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
24LA131	Ravalli School	27.0
24LA133	Salzman Residence	27.2
24LA158	Woods Agricultural Complex	38.5
24LA159	Jenkins/Rungborg Farmstead	39.2
24LA161	Anderson Farmstead - Barn	45.2
24LA211	Lake Flour Mill and Granary	47.1, Alignment 4
24LA89	Northern Pacific Railroad, Dixon-Polson Branchline	56.6 to 59.5
24LA167	Casey Dentist Office	61.0
24LA177	Faunce House	60.6
24LA197	Paul House	59.8
24LA188	Tiddy House	60.3
24LA175	Anderson Cottage	60.8
24LA181	Poage House	60.5
24LA204	Caffrey Place - Barn, Feature 8	59.1, Alignments 2 & 3 (2.6 Miles west of US 93)

Morrison-Maierle and Carter Burgess. 1994.

Flathead Irrigation Project Canals (24MO327, 24LA122)

The Flathead Irrigation Project E Canal (24MO327) is crossed by US 93 at approximately Milepost 14.3. The R Lateral is located adjacent to the east side of the highway from approximately Milepost 15.7 to 16.7. The K Lateral is adjacent to and crosses US 93 between Mileposts 19.3 and 19.7.

The E Canal and the R and K laterals have not been evaluated for significance and eligibility to NRHP. Rather, they have been treated under the provisions of the Irrigation Ditch Programmatic Agreement among MDT, the Montana Historic Preservation Office (MSHPO), FHWA and the Advisory Council on Historic Preservation

(ACHP). Under this agreement, regular inventory and evaluation under Section 106 is suspended if the ditches are in regular current use. These sites are not evaluated further in this document.

Ravalli School (24LA131)

The Ravalli School, 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.

Missoula County School District 28 funded the construction of Ravalli School in 1913. For the next nine years the building housed grades 1-8, 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. Ravalli School has been determined eligible for listing in NRHP under criteria A and C.

Salzman Residence (24LA133)

A historically significant property, the Salzman Residence (24LA133) is located adjacent to the existing alignment within Ravalli and has been determined eligible for listing in NRHP under criteria A and C.

Woods Agricultural Complex (24LA158)

The Woods agricultural complex is located approximately 90 feet from the west side of US 93. This complex contains seven buildings and a corral -- the barn has been determined eligible for listing in NRHP under criterion C -- the remainder of the complex has been modified and is not eligible.

Jenkins/Rungborg Farmstead (24LA159)

The Rungborg farmstead is a cluster of eight buildings located approximately 275 feet west of US 93. This agricultural complex consists of a house and garage of log construction, and six frame outbuildings. The outbuildings include a chicken coop, a large barn and several sheds.

Initial development of this property occurred in 1913 when Frazer Jenkins received a patent for the property. Buildings are believed to have been constructed during the 1910s and early-1920s. The property has been determined eligible for listing in NRHP under criterion A -- for its association with non-Indian agricultural development within the Flathead Indian Reservation.

Anderson Farmstead - Barn (24LA161)

Situated immediately west of US 93 and one mile south of Ronan, the Anderson property consists of a house, a garage, a shed, and two barns. The buildings are all in close proximity to one another, and are linked by an asphalt driveway and turn-around. Cultivated grasses, flowers, and a garden, surround the house. The site is protected from the southward expansion of Ronan by a pasture-land buffer. It has been determined the only eligible component of this property is the barn, which is eligible for listing under NRHP criterion C.

Lake Flour Mill and Granary (24LA211)

This flour mill is located adjacent to the Northern Pacific Railroad Dixon/Polson branchline on the western outskirts of Ronan. The building complex includes a large multi-component building that incorporates a granary, flour mill and flour warehouse with several loading platforms. This complex has been determined eligible for listing under NRHP Criteria A and C.

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.

Flathead Irrigation Project, Polson Z Canal (24LA90)

The Polson Z Canal is a concrete lined irrigation feature associated with the Flathead Irrigation Project. The ditch was constructed in 1922, and has continued to serve project users to the present.

This canal has not been evaluated for significance and eligibility to NRHP. Rather, it has been treated under the provisions of the Irrigation Ditch Programmatic Agreement among MDT, MSHPO, FHWA and ACHP. Under this

agreement, regular inventory and evaluation under Section 106 is suspended if the ditches are in regular current use. This site is not evaluated further in this document.

Paul Bunyan Tug Boat

The Paul Bunyan Tug Boat currently is housed at the Miracle of America Museum located on the southern outskirts of Polson. This boat has been determined eligible for listing in NRHP. However, ACHP has advised that the boat will not actually be listed until relocated to a more appropriate site. The boat is therefore not evaluated further in this document.

Casey Dentist Office

The Casey Dentist Office (24LA167) is a two story brick tavern on Polson's main thoroughfare (US 93) and retains most of the features associated with a brick-front commercial building. Although the facade windows have been recently in-filled, the basic configuration of the original plate glass windows is easily discernible. The building maintains its integrity of design, workmanship and feeling. It is eligible for NRHP under Criteria A and C.

Faunce House

The Faunce House (24LA177) is a small single story dwelling overlooking US 93 in Polson. Across the highway is the south shore of Flathead Lake. The Faunce House is a good example of a bungalow residence. Because it was apparently constructed at the same time as the other historic-age residences on the block, it is likely associated with the development of Polson immediately after the construction of the railroad branch line to the community. The Faunce House is eligible for NRHP under Criteria A and C.

Paul House

The Paul House (24LA197) is a Cottage Style single story dwelling with a daylight basement and attached garage. It is between US 93 and Flathead Lake in Polson. Constructed in 1942, it is a good example of a vernacular style dwelling. The site has excellent integrity, very good values of feeling, workmanship, materials, association, location and setting. It is in a neighborhood that has escaped strip commercial development despite its proximity to US 93. Based on the site's excellent integrity, it is eligible for NRHP under Criterion C.

Tiddy House

The Tiddy House (24LA188) is a single story duplex (Spanish Mission style) built in 1947 overlooking US 93 in Polson. Across the highway is the south shore of Flathead Lake. The site has excellent integrity, good values of feeling, association, location, setting, material and workmanship. Its values have remained relatively high because it is in an intact neighborhood that has for the most part escaped strip commercial development despite its proximity to US 93. The dwelling is a good example of the Mission Style; one of just two identified Mission Style structures in the town of Polson. Since the site has excellent integrity, it is eligible for NRHP under Criterion C.

Anderson Cottage

The Anderson Cottage (24LA175) is a small single story cottage on US 93 in Polson. It is an excellent example of a Minimal Traditional-style residence that is still located in a residential neighborhood. The residence retains the original features commonly associated with the style including the asbestos siding, windows, board and batten on the gable ends and the configuration. Although a wood deck and sliding doors have been added to the rear of the dwelling, they are not intrusive and keep in character with the property. The property is eligible for NRHP under Criteria A and C.

Poage House

The Poage House (24LA181) is a small single story dwelling overlooking US 93 in Polson. Across the highway is the south shore of Flathead Lake. The Poage House is an excellent example of a small Craftsman-style cottage. It retains all of the architectural features associated with the style, i.e., narrow reveal siding, Chicago-style windows, exposed rafters, brackets and configuration. The clipped gable roof, moreover, is an unusual feature of the residence. Based on the property's association with the early-20th Century development of Polson and its architectural integrity, the residence is eligible for NRHP under Criteria A and C.

Caffrey Place - Barn, Feature 8

The Caffrey Place (24LA204) is located along Caffrey Road south of Polson. The site consists of a large dairy barn, a bungalow dwelling, garage, three granaries, two grain bins, three pole hay barns, three equipment sheds, a potato cellar, a loafing shed, a modern metal shop, two trailer houses, and other assorted small structures.

The 65 x 82-foot dairy barn (Feature 8) is by far the most imposing structure on the farm. It was built around 1919 after the first barn burned down. Originally constructed with only the north shed roof extension, the opposite site shed extension was built around 1929. Because of the site's poor integrity, it is not eligible as a whole for NRHP. Only the dairy barn, Feature 8, is eligible for NRHP. The barn is one of the largest of its type in the Flathead Valley and is a good example of an early-20th Century dairy barn. Because its use ceased around 1970, it has had little modern alteration. Nor have any intrusive structures been built immediately adjacent to it. The dairy barn is eligible individually for NRHP under Criterion C.

6.15. PARKS AND RECREATION

The area has diverse recreation resources for outdoor activity.

Developed recreation occurs typically in community parks and recreation areas that feature picnic grounds, recreation fields for baseball and softball and school athletic fields and playgrounds in Arlee, St. Ignatius, Ronan, Pablo and Polson. The powwow and rodeo grounds at Arlee and the Lake County Fairgrounds at Polson are popular recreation centers located near US 93. Athletic fields for schools in Arlee and Ronan also are located near US 93.

In Polson, the Flathead River and Flathead Lake are the primary focus of recreation. Popular recreation activities include fishing, river rafting, sailing, motor boating, water skiing, wind surfing and canoeing.

Dispersed recreation occurs away from developed sites and includes activities such as hunting, hiking, driving for pleasure, golfing, bicycle touring, picnicking, softball, tennis and nature viewing.[227]

6.15.1. Parks and Recreation in Communities

There are nine parks and community recreation areas that have approximately 0.9 mile of frontage on the highway's existing ROW. The Arlee community park, St. Ignatius ballfield and Ronan ballfield each have approximately 0.1 mile of frontage on existing highway ROW. In Polson, five community parks/recreation areas combine to have 0.3 mile, and the Polson municipal golf course has approximately 0.3 mile of frontage on highway ROW.[228] (Appendix A, aerial photographs and maps)

Alignment alternatives away from the existing alignment also will be located in areas used for parks and recreation. At Arlee, Alignment 3 will be located between the community and the powwow and rodeo grounds, but the powwow and rodeo grounds will not have frontage on highway ROW. Alignment 3 also will be located near the school's athletic field, but without frontage on highway ROW. The Jocko River Trout Hatchery, located between Arlee and the Jocko River, provides land open to public recreation in the area of Alignment 3. Land between the hatchery and the schools is used by the schools to conduct athletic activities and science education studies and observations and is considered important by the schools.[229]

At Ronan, Alignment 2 (one-way couplet) will border the city park, the school's athletic field, and a ballfield. Ronan Alignments 3 and 4 will border another ballfield. At Polson, Alignment 2 (Caffrey Road - Kerr Dam Road) will pass along the west edge of the Seventh Avenue ballfield.[230]

6.15.2. Recreation Outside Communities

US 93 provides transportation services that support the goal of recreation management in providing a broad spectrum of recreation experience opportunities for the benefit and enjoyment of the public.

The scenic attractions in the region are prime destinations for tourism and recreation. According to a survey of persons who were from outside Montana and traveled US 93 in 1990, scenery was the major attraction for vacation visitors. Scenery was an attraction for 92% of visitors, while wildlife (48%), camping (38%), history (33%), local events (25%) and fishing (17%) were other important attractions.[231]

---

[227]Carter-Burgess. 1993.

[228]Morrison-Maierle. 1993.

[229]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.

[230]Carter-Burgess, 1993.

[231]Institute for Tourism and Recreation Research, The University of Montana. Nonresident Visitor Profile, U.S. Highway 93 Travelers. September 1992.

Photography, viewing wildlife, visiting historic sites, museums and visitors centers, and day hiking were the most popular activities for vacation visitors who traveled US 93 in 1990.[232] (Table 6.15-1)

There are popular recreation sites in the area. Fishing and birding occurs at the Ninepipe National Wildlife Refuge, with 8,000 annual visitors, and the Pablo Wildlife Refuge receiving 2,000 annual visitors.[233] USFWS also operates the Kicking Horse and Duck Haven waterfowl production areas. (Sections 6.12 and 7.12)

The National Bison Range near Ravalli is visited by 160,000 persons, approximately 33% from the surrounding area, 33% from other western states, 16% from eastern states and 16% from foreign countries.[234]

In 1991, Flathead Indian Reservation conservation use permits were issued to 5,805 residents and 11,538 non-residents. In addition, there were issued a total of 12,529 fish stamps and 2,432 bird stamps. Kicking Horse Reservoir, which is on the reservation and has access from US 93, receives 11,000 annual visitors who participate in picnicking, fishing, bird hunting, bird watching and training bird hunting dogs.[235]

There are nine scenic/historic turnouts and 20 recreation sites adjacent to the highway.[236] The recreation sites include formal sites, such as a fishing access site operated by MDFWP in the area of Ninepipe National Wildlife Refuge. Other less-formal sites are located where rivers, such as the Jocko River north of Arlee, and creeks, such as Mission and Post Creeks, cross the highway. There is a concentration of sites used for recreation in the Ninepipe area. In the Polson area recreation activities occur at mostly undeveloped, dispersed sites along roads. Informal turnouts, which generally are wide areas along the road with sufficient room to park a vehicle, provide access to many of the dispersed recreation sites. There are 32 roads that intersect with US 93 and provide access to recreation sites away from the highway.[237] (Appendix A, aerial photographs and maps)

MDFWP manages four state parks and four state recreation areas near Flathead Lake. Visitation at state parks during the month of July 1992 was: Big Arm 9,905; Wayfarers 15,404; West Shore 6,204 and Elmo 8,247.[238]

6.15.3. Section 4(f) and Section 6(f) Properties

Chapter 12 identifies 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.

---

[232]Ibid.

[233]Montana Department of Fish, Wildlife and Parks. 1992.

[234]U.S. Department of the Interior. National Bison Range. 1992.

[235]The Confederated Salish and Kootenai Tribes. 1992.

[236]The Confederated Salish and Kootenai Tribes have requested a change in wording for the Ravalli Hill historical sign. The Montana Department of Transportation, the Montana State Historical Preservation Office, the Confederated Salish and Kootenai Tribes and local governments will coordinate this change and any other changes of historical signs.

[237]Confederated Salish and Kootenai Tribes, Natural Resources Department. Planning information. 1993.

[238]Montana Department of Fish, Wildlife and Parks. Planning information. 1993.

Table 6.15-1 Activity Participation By Travel Groups

Activity	Percent
Photography	48
Viewing Wildlife	41
Visitor Centers	38
Day Hiking	37
Historic Sites & Museums	35
Auto/RV Camping	29
Picnicking	27
Fishing	16
Swimming	11
Naturalist Led Hikes	10
Powerboating	6
Special Events	5
Golf	5
Gambling	4
Horseback Riding	4
River Floating	4
Canoeing - Lake	2

Institute for Tourism and Recreation Research, The University of Montana. Nonresident Visitor Profile, U.S. Highway 93 Travelers. September 1992.

6.16. HAZARDOUS MATERIALS

6.16.1. Hazardous Material Assessments

A Phase I hazardous material assessment has been completed for the proposed action.[239] Phase I assessment involves conducting records research through local, state, and federal agencies for sites containing known releases of hazardous substances, generators of hazardous waste, underground storage tanks (UST), and other potential sources of hazardous materials. Also included in the Phase I assessment is a site walk-through and discussion with local property owners or residents, as necessary to identify additional potential sources.

Potential hazardous material sources adjacent to the highway were evaluated based on the use, storage and disposal practices observed from the public ROW. Residual contamination from past spills and releases on the highway also were considered in the evaluation. The primary contaminants identified during the assessment included petroleum hydrocarbons, agricultural products (fertilizer, herbicides and pesticides), solvents and degreasers and the unknown contents of observed drums. Most of the commercial facilities located adjacent to the existing highway ROW are connected to septic systems which, if used for waste disposal other than sanitary, also are considered a threat.

Areas of potential environmental concern were identified as listed on Table 6.16-1. As indicated on the table, areas of concern are ranked high, medium or low with regard to the likelihood that existing or new ROW has been adversely affected by hazardous materials or petroleum substances.

US 93 from Evaro through Polson has commercial vehicle traffic that carries petroleum products, fertilizers, pesticides and other materials. As indicated on Table 6.16-1, and as explained by tribal and local governments, several highway related hazardous material spills have occurred during recent years. Some have resulted in contamination of soils, streams and groundwater. Though no incidents resulting in human injury have occurred, the potential exists particularly where the highway passes through the communities of Arlee, Ronan and Polson and other populated areas.

[239]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.

Table 6.16-1 Areas of Hazardous Materials Concerns

MILEPOST INVERVAL	FACILITY NAME	POTENTIAL CONTAMINANT	LIKELIHOOD THAT RIGHT-OF-WAY HAS BEEN AFFECTED	REMARKS
6.75	Abandoned gasoline station	Petroleum hydrocarbons	Low	Possible location of USTs are out of ROW.
6.90	Former post office/17095 US 93	Petroleum hydrocarbons	High to Moderate	USTs are located adjacent to highway ROW. Owner has received permit to remove tanks. Montana Department of ~~Environmental Quality~~~~Health and Environmental Sciences~~ (~~MDEQ~~~~MDHES~~) will require soil sampling to document whether tanks have leaked. Risk based on results of closure samples.
7.05	MDT maintenance yard	Petroleum hydrocarbons, solvents, waste oil	Low	Location of USTs and maintenance activities are not immediately adjacent to ROW.
9.95	Joe's Smoke Ring gas station	Petroleum hydrocarbons	High	USTs are located adjacent to ROW. Spills and overfills may have affected soil adjacent to ROW.
16.05	Kelly's Auto Glass & Salvage yard	Unknown	Low	Facility is too far from highway to affect soil adjacent to ROW.
16.70	Mission Valley Power Arlee substation	PCBs	Low	Transformers have reportedly never contained PCBs at this substation.
16.80	Unnamed Post & Pole business	Copper napthenate, petroleum hydrocarbons	High	Treated post storage yard in ROW. Facility also concern of Alignment 2 through Arlee.
Arlee, Alignment 1				
17.40	Vacant lot south end of Arlee (formerly McClures service station)	Petroleum hydrocarbons	High	Two USTs located approximately 25 feet east of ROW during metal detector survey. Location of USTs may affect construction activities.
17.50	Sanders Automotive	Petroleum hydrocarbons, solvents, waste oil	Low	Facility is too far from highway to affect soil adjacent to ROW.
	Auto parts store (former gas station)	Petroleum hydrocarbons	High	Locals indicate USTs were removed; however, no soil testing was done to document whether tanks had leaked. Disturbed area observed approximately 10 feet west of ROW.
17.55	Longhorn Cafe (formerly Arlee Mercantile gas station)	Petroleum hydrocarbons	High	Possible UST fill port observed approximately 3 feet from existing highway. No hits with metal detector. UST may be located in ROW.

Table 6.16-1 Areas of Hazardous Materials Concerns (continued)

MILEPOST INVERVAL	FACILITY NAME	POTENTIAL CONTAMINANT	LIKELIHOOD THAT RIGHT-OF-WAY HAS BEEN AFFECTED	REMARKS
17.60	Vacant lot north of Stockmans Bar (former gas station)	Petroleum hydrocarbons	High	Possible UST fill ports observed in pavement along highway. No permission to perform metal detector survey of lot. Construction activities may be affected.
	Longhorn Bar (former gas station)	Petroleum hydrocarbons	High	No evidence of USTs observed and no hits with metal detector, though USTs may be close to ROW.
17.65	Jocko Medical Center (formerly CENEX gas station)	Petroleum hydrocarbons, solvents, waste oil	High	Documented petroleum contamination of soil and groundwater. Site being invested under DHES LUST Program.
	Arlee Station Auto Repair	Petroleum hydrocarbons, solvents, waste oil	Low	Facility is too far from highway to affect soil adjacent to ROW.
17.70	Star Movies (former gas station)	Petroleum hydrocarbons	High	No evidence of USTs but locals indicate two tanks are still in ground. No permission to conduct metal detector survey.
17.80	Joe's Food Farm and Conoco Station	Petroleum hydrocarbons	High	USTs are located approximately 25 feet west of ROW.
17.85	Fuel spill north of Joe's Food Farm	Petroleum hydrocarbons	High	Incident occurred on highway and affected ROW. Cleanup may not have been adequate.
18.90	Jocko Hollow Campground (formerly Jocko Mercantile gas station)	Petroleum hydrocarbons	Low	Owner indicated one tank removed from site. No USTs detected during metal detector survey. Former location of UST too far to affect soil near ROW.
No likely hazardous materials sites have been identified on Arlee, Alignments 2, 3 and 4				
22.00	Truck wreck fuel spill	Petroleum hydrocarbons	High	Incident occurred on highway and affected ROW. Cleanup may not have been adequate.
23.30	Midway Store gas station	Petroleum hydrocarbons	High	Gas pumps located on border of ROW.
	Midway Store dump	Volatile organic compounds	Low	Dump out of ROW. Not likely that effects to soil have occurred along highway.
26.70	Residential dumping in Ravalli	Unknown	Low	Dump out of ROW. Not likely that effects to soil have occurred along highway.

Table 6.16-1 Areas of Hazardous Materials Concerns (continued)

MILEPOST INVERVAL	FACILITY NAME	POTENTIAL CONTAMINANT	LIKELIHOOD THAT RIGHT-OF-WAY HAS BEEN AFFECTED	REMARKS
26.75	4-Star Bar (former gas station)	Petroleum hydrocarbons	High	Concrete pedestal with protruding pipe west of building. Survey plans indicate gas pumps south of building (former fruit stand). No hits with metal detector at either location. Locals say USTs beneath building addition.
26.85	Rocky Mountain Pellet Mill	Solvents, waste oil	High	ROW at edge of building.
26.90	Keith's Ag Equipment	Solvents, waste oil	High	ROW at edge of building.
27.00	Former Mission Feed and Grain and bulk fuel plant	Petroleum hydrocarbons, agricultural chemicals	Low	No indication of former development.
27.05	DuMontier Oil Company Sinclair Station	Petroleum hydrocarbons	High	Product lines in ROW.
27.10	MDT maintenance yard	Petroleum hydrocarbons, solvents, waste oil	Low	USTs out of ROW. Not likely that effects to soil have occurred along highway.
27.25	Jocko Trading Post (formerly Blue Bell Antiques & gas station)	Petroleum hydrocarbons	High	Site under investigation through ~~MDEQ~~MDHES LUST Program.
27.30	Ravalli Cash Store	Petroleum hydrocarbons	High	ROW close to pump islands.
27.35	Goods Muffler (formerly Brown's Texaco)	Petroleum hydrocarbons	Moderate	USTs removed with no soil contamination. Spills and overfills may have affected ROW soil.
27.40	Bison Inn and Cafe (former gas station)	Petroleum hydrocarbons	Moderate	Locals indicate USTs are beneath new building addition and close to ROW.
27.55	Mission Valley Power Ravalli substation	PCBs	Low	Transformers have reportedly never contained PCBs.
32.45	Mission Creek diesel spill	Petroleum hydrocarbons	High	Incident occurred on highway and affected ROW. Cleanup may have not been adequate.

Table 6.16-1 Areas of Hazardous Materials Concerns (continued)

MILEPOST INVERVAL	FACILITY NAME	POTENTIAL CONTAMINANT	LIKELIHOOD THAT RIGHT-OF-WAY HAS BEEN AFFECTED	REMARKS
32.65	Doug Allard's Indian Museum and Trading Post (gas station)	Petroleum hydrocarbons	High	Product lines and USTs in ROW.
33.00	Starvin Marvin's (abandoned gas station and auto repair)	Petroleum hydrocarbons, solvents, waste oil	High	USTs in ROW.
33.55	Mission Valley Power St. Ignatius substation	PCBs	Low	Transformers have reportedly never contained PCBs.
37.00	Post Creek Store (R & R Auto Repair)	Solvents, waste oil	Moderate	USTs have been removed and petroleum not detected in soil samples. Facility within ROW. Spills and overfills from past fuel dispensing or automotive maintenance activities may have affected soil.
42.05	MDT maintenance yard	Petroleum hydrocarbons, solvents, waste oil	Moderate	USTs have been removed and petroleum not detected in soil samples. ROW through yard of facility. Spills and overfills from past fuel dispensing or equipment maintenance activities may have affected soil.
42.15	Countryside Cafe & Truck Stop	Petroleum hydrocarbons, solvents, waste oil	High	USTs have been removed but results from closure samples not yet received by ~~MDHES~~MDEQ. ROW through former tank area. Spills and overfills from past fuel dispensing activities may have affected soil.
42.25	Long's Livestock and Trucking	Petroleum hydrocarbons	Low	UST out of ROW. Not likely that soil adjacent to highway has been affected.
45.55	Western Ag Sales and Service	Petroleum hydrocarbons, pesticides and other agricultural chemicals	High	Fertilizer tanks close to ROW. Areas of stressed vegetation observed on premises.
Ronan, Alignment 1				
46.25	CENEX Farm & Home Supply Store	Petroleum hydrocarbons	High	Tanks close to ROW. Documented petroleum contamination to groundwater beneath highway. Site under investigation through ~~MDHES~~MDEQ LUST Program.
46.25	CENEX bulk plant	Petroleum hydrocarbons	High	ROW through yard of bulk plant. Documented petroleum contamination to soil and groundwater. Site under investigation through ~~MDHES~~MDEQ LUST Program.

Table 6.16-1 Areas of Hazardous Materials Concerns (continued)

MILEPOST INVERVAL	FACILITY NAME	POTENTIAL CONTAMINANT	LIKELIHOOD THAT RIGHT-OF-WAY HAS BEEN AFFECTED	REMARKS
46.30	Scott Lynch Fencing	Copper napthenate, penta, petroleum hydrocarbons	High	ROW close to post storage yard. Surface runoff of wood treating compounds may affect ROW soil.
46.40	Abandoned New Holland Ford Dealership	Petroleum hydrocarbons	Low	USTs removed and petroleum not detected in soil samples.
46.50	George's Exxon	Petroleum hydrocarbons	Moderate	Tanks far enough away from ROW but spills and overfills may have affected ROW soils (staining visible)
46.75	Exxon Town Pump	Petroleum hydrocarbons	High	Tanks and pumps close to existing ROW.
46.85	Jensen Oil Company and Conoco Station	Petroleum hydrocarbons	High	Pumps close to existing ROW. Tanks located about 25 feet west of ROW.
47.00	Ronan State Bank (former gas station)	Petroleum hydrocarbons	Moderate	Tanks all removed from site but spills and overfills from fuel dispensing activities may have affected ROW soils.
47.10	Arnie's Gas and Tire Center	Petroleum hydrocarbons	High	Tanks and pumps close to existing ROW.
47.20	Don Aadsen Ford Dealership	Petroleum hydrocarbons, solvents, waste oil	Moderate	Location of UST not close to ROW but 1983 spill of crank case oil from UST to sewer may have affected ROW soil.
47.30	J's Convenience Store and gas station	Petroleum hydrocarbons	Low	Tanks not below ground and away from ROW. New piping installed and soil remediation performed.
Ronan, Alignment 2				
46.25	CENEX Bulk Plant	Petroleum hydrocarbons	High	See Alignment 1 remarks above.
46.30	Scott Lynch Fencing	Copper napthenate, penta, petroleum hydrocarbons	High	See Alignment 1 remarks above.
ND	Hodge Radiator (former gas station)	Petroleum hydrocarbons, solvents, waste oil	High	Possible fill port at northeast corner of property may be in ROW. Fifty years of auto maintenance may have affected soil.

Table 6.16-1 Areas of Hazardous Materials Concerns (continued)

MILEPOST INVERVAL	FACILITY NAME	POTENTIAL CONTAMINANT	LIKELIHOOD THAT RIGHT-OF-WAY HAS BEEN AFFECTED	REMARKS
ND	Ronan Power Products (former gas station)	Petroleum hydrocarbons	High	Pump island at southeast corner of property. Tanks may still be in ground and close to ROW.
ND	Mission Valley Power maintenance yard	PCBs, penta, solvents, petroleum hydrocarbons	Moderate	Treated poles stored in yard and soil staining evident on property. According to power company official, no pole treating performed or PCB-containing equipment stored on site.
ND	School District vehicle maintenance yard	Petroleum hydrocarbons, solvents, waste oil	Low	No evidence of UST fill ports or vent lines. No hazardous material storage observed in yard.
47.20	Don Aadsen Ford Dealership	Petroleum hydrocarbons, solvents, waste oil	High	UST near proposed ROW. See Alignment 1 remarks above.
47.30	J's Convenience Store and gas station	Petroleum hydrocarbons	Low	See Alignment 1 remarks above.
Ronan, Alignment 3				
ND	Lake County road maintenance yard	Petroleum hydrocarbons, solvents, waste oil	High	Treated poles stored in yard. Stained soil observed on property.
ND	Ronan City Shop	Petroleum hydrocarbons, solvents, waste oil	Low	Site is far enough away from potential ROW. Effects to soil not likely.
ND	Automotive garage	Solvents, waste oil	Moderate	Stained soil and drums observed on property. Facility not on ROW.
ND	Post and Pole storage yard	Copper napthenate, penta, petroleum hydrocarbons	High	Treated poles stored on site.
Ronan, Alignment 4				
ND	MLS Feeds	Pesticides	Low	Facility west of railroad tracks and out of ROW.

Table 6.16-1 Areas of Hazardous Materials Concerns (continued)

MILEPOST INVERVAL	FACILITY NAME	POTENTIAL CONTAMINANT	LIKELIHOOD THAT RIGHT-OF-WAY HAS BEEN AFFECTED	REMARKS
ND	CENEX/Co-op Supply Store	Petroleum hydrocarbons, agricultural chemicals	Low	Main facility on west side of railroad tracks. Material storage east of tracks mostly lumber. No hazardous material observed on east side of tracks.
ND	Westland seed plant west of substation	Agricultural chemicals, pesticides	High	Evidence of chemical (fertilizer) spillage observed in and around building. Plant near potential ROW.
ND	Mission Valley Power Ronan substation	PCBs	Low	No PCB equipment reportedly used or stored at the site.
ND	Lake County Weed District	Herbicides	High	Documented soil contamination on property. Potential ROW close to site.
ND	Bulk fuel plant	Petroleum hydrocarbons	High	Potential ROW close to site.
47.55	Ronan Auto Body & Chrysler Dealership	Petroleum hydrocarbons, solvents, waste oil	Low	Repair bays and UST not close to ROW.
51.90	Joe's Jiffy Stop	Petroleum hydrocarbons	High	Tanks near highway. Vapor extraction system in place near ROW. Site under investigation through ~~MDHES~~MDEQ LUST Program.
52.00	Tribal Fish and Game	Solvents, waste oil	Low	Sufficiently distant from highway.
	BC Auto Center	Petroleum hydrocarbons	High	Pumps and USTs near highway.
52.10	Road maintenance yard	Solvents, waste oil	Low	ROW not near tanks.
52.30	Mission Valley Power Pablo substation and storage yard	PCBs, penta, petroleum hydrocarbons	Low	No ROW into yard.
53.20	Bob's Auto Mart	Solvents, waste oil	Low	Maintenance activities not near ROW.
53.2-53.4	Plum Creek Lumber Manufacturing Company	Solvents, waste oil	Low	Maintenance activities and chemical storage not near ROW.

Table 6.16-1 Areas of Hazardous Materials Concerns (continued)

MILEPOST INVERVAL	FACILITY NAME	POTENTIAL CONTAMINANT	LIKELIHOOD THAT RIGHT-OF-WAY HAS BEEN AFFECTED	REMARKS
53.40	Jim & Wanda's Country Store	Petroleum hydrocarbons	High	Tanks and pumps close to ROW.
54.60	Castlio Drilling and waste pit	Solvents, waste oil	Moderate	Stained soil observed near ROW.
54.70	Unnamed construction company	Petroleum hydrocarbons, solvents, waste oil	High	Maintenance shop close to ROW.
54.80	Tire's-R-Us	Petroleum hydrocarbons	High	Maintenance activities close to ROW.
54.85	Mikesell's Auto and Equipment	Solvents, waste oil	Low	Maintenance activities not near ROW.
54.90	Polson Auto Salvage	Unknown	Moderate	ROW goes through part of yard.
54.8-55.0	Lake County wood waste disposal pit (old Polson landfill)	Petroleum hydrocarbons, volatile organic compounds	Low	UST and waste disposal activities away from ROW.
Polson-Alignment 1				
56.5-56.6	Pioneer Chevrolet Dealership US 93 & Caffrey Road	Petroleum hydrocarbons, solvents, waste oil	Low	Automotive maintenance and USTs at site. ROW does not include site. Also concern of Alignments 2 and 3.
56.6	AT & T Repair 56605 US 93 South	Solvents, waste oil	Low	Automotive maintenance performed at site. ROW does not include site.
57.1-57.2	Polson Ready-Mix Concrete 57093 US 93 South	Petroleum hydrocarbons, solvents, waste oil	Low	Equipment maintenance performed at site. ROW does not include site.
57.8	Automobile wreck and gasoline spill Bottom of Polson Hill	Petroleum hydrocarbons	Low	Most of spill recovered.

Table 6.16-1 Areas of Hazardous Materials Concerns (continued)

MILEPOST INVERVAL	FACILITY NAME	POTENTIAL CONTAMINANT	LIKELIHOOD THAT RIGHT-OF-WAY HAS BEEN AFFECTED	REMARKS
58.2	Mechanics Mall 58116 US 93 South	Solvents, waste oil	Moderate	Automotive maintenance performed at site. Soil staining evident but not on ROW.
58.4-58.7	Pack River Lumber Company 58719 US 93 South	Petroleum hydrocarbons, solvents, waste oil	Low	Documented release from UST also equipment maintenance performed on premises. ROW does not include site.
58.4	Asphalt oil spill Lumber company driveway	Petroleum hydrocarbons	Moderate	Most of oil spilled on lumber company driveway and highway ROW. Bentonite chips spread to absorb spill.
59.00	Tradewinds Realty (formerly Gulf Oil gas station) Junction US 93 & 35	Petroleum hydrocarbons	High	ROW through area currently occupied by USTs.
59.05	ReMax Realty (formerly Standard Oil gas station) Junction US 93 & 35	Petroleum hydrocarbons, solvents, waste oil	High	Fill port visible in concrete. ROW within 20 feet of tanks.
59.65	Cherry Hill Motel 1810 US 93	Petroleum hydrocarbons	High	Documented soil contamination within 10 feet of ROW due to releases from old refinery or leaking heating oil USTs.
59.72	Polson Town Pump 1714 US 93	Petroleum hydrocarbons	High	Documented soil and groundwater contamination in ROW. Probable contamination beneath highway. ~~MDHES~~MDEQ LUST Program has requested further investigation of this site.
59.75	Video Station (formerly Sloan's Appliance and Town Pump) 1702 US 93	Petroleum hydrocarbons	High	Documented soil and groundwater contamination in ROW. ~~MDHES~~MDEQ LUST Program has requested further investigation of site.
59.95	Polson Bay Grocery and gas station US 93	Petroleum hydrocarbons	Moderate	Highway ROW may be affected due to spills and overfills. No documented release from USTs.
60.17	Driftwood Restaurant (former gas station) US 93	Petroleum hydrocarbons	High	Tanks closed in place during mid-1970s. Location of tanks thought to be within 20 feet of existing highway ROW. Spills, overfills, or releases from USTs may have affected highway ROW.
60.75	KwaTaqNuk Resort (formerly Roy's Bayview 76) 303 US 93	Petroleum hydrocarbons	Moderate	Southwest corner of resort property formerly occupied by gas station. Spills, overfills, or releases from USTs may have affected highway ROW.

Table 6.16-1 Areas of Hazardous Materials Concerns (continued)

MILEPOST INVERVAL	FACILITY NAME	POTENTIAL CONTAMINANT	LIKELIHOOD THAT RIGHT-OF-WAY HAS BEEN AFFECTED	REMARKS
60.80	Car Wash (formerly Flathead Lake Chevron) 209-2nd Avenue East	Petroleum hydrocarbons	Moderate	Soil testing during UST closure indicate tank systems did not leak; however, spills and overfills may have affected highway ROW.
60.87	93-Exxon 107-2nd Avenue East	Petroleum hydrocarbons, solvents, waste oil	High	No documented release from USTs but spills and overfills may have affected existing highway ROW. Property has been used for automotive repairs.
60.92	Safeway Store 104-2nd Avenue East	Petroleum hydrocarbons	High	Documented soil and groundwater contamination associated with site. ~~MDHES~~MDEQ LUST Program has requested further investigation of this site.
60.93	Denesen Gallery 13-2nd Avenue East	Petroleum hydrocarbons	High	Documented soil and groundwater contamination associated with site. Soil removal has been performed in conjunction with tank removal but residual soil contamination may exist in highway ROW. ~~MDHES~~MDEQ LUST Program has requested further monitoring of site.
60.93	Beacon Tire Center 14-2nd Avenue East	Petroleum hydrocarbons, solvents, waste oil	High	Documented soil and groundwater contamination associated with site. Soil removal has been performed in conjunction with tank removal but residual soil contamination may exist in highway ROW. ~~MDHES~~MDEQ LUST Program has requested further monitoring of site.
61.00	Tanstaafl & Company (formerly Bigfoot Alpha Discount) 1-2nd Avenue East	Petroleum hydrocarbons	Moderate	Near-surface soil contamination associated with tank excavation below building. Deep soil contamination (15-18 feet below ground surface) (bgs) in highway ROW from migration of petroleum products on top of groundwater from north Polson release sites. ~~MDHES~~MDEQ LUST Program has requested further investigation of site.
61.02	Former Salish Hotel 110 Main Street	Petroleum hydrocarbons	Moderate	Soil contamination associated with tank excavation. Deep soil contamination (15-18 feet bgs) in highway ROW from migration of petroleum products on top of groundwater from north Polson release sites. ~~MDHES~~MDEQ LUST Program has requested further investigation of site.
61.02	Pier 93 9-2nd Avenue West	Petroleum hydrocarbons	High	Documented release from this facility is not considered to have contributed to groundwater contamination in north Polson area. However, spills and overfills may have affected soil within 20 feet of existing highway ROW. Deep soil contamination (15-18 feet bgs) in highway ROW from migration of petroleum products on top of groundwater from north Polson release sites.
61.03	Glacier Bank 14-2nd Avenue West	Petroleum hydrocarbons	Moderate	Suspected soil contamination at 15 to 18 feet below ground surface in highway ROW related to migration of petroleum products on top of groundwater from north Polson release sites.

Table 6.16-1 Areas of Hazardous Materials Concerns (continued)

MILEPOST INVERVAL	FACILITY NAME	POTENTIAL CONTAMINANT	LIKELIHOOD THAT RIGHT-OF-WAY HAS BEEN AFFECTED	REMARKS
61.46	MDT maintenance facility and Lake County shop West of Polson	Petroleum hydrocarbons, solvents, waste oil	High	Historic use of site for equipment maintenance and fuel dispensing may have caused adverse effects to soil within 50 feet of existing highway ROW. This site is also a concern of Alignment 2.
61.50	3-Dog Down & Dixie Antiques (former Cenex gas station) 61541 US 93	Petroleum hydrocarbons	High	Spills, overfills or releases from USTs may have affected soil within 30 feet of existing highway ROW.
Polson, Alignment 2				
ND	Pioneer Chevrolet Dealership US 93 & Caffrey Road	Petroleum hydrocarbons	Low	See description under Alignment 1 above. Also concern of Alignment 3 alignment.
ND	Gravel pit Caffrey Road, 0.25 miles west of Skyline Drive	Petroleum hydrocarbons	Moderate	Spills and overfills from fuel storage and dispensing activities may have affected soil near new highway ROW. Also concern of Alignment 3.
ND	Wastewater treatment plant Kerr Dam Road	Nutrients, Bacteria. Metals	Moderate	Unlikely that soil would be adversely affected by potential contaminants.
ND	MDT maintenance facility and Lake County shop West of Polson	Petroleum hydrocarbons, solvent, waste oil	High	See description under Alignment 1 above.
Polson, Alignment 3				
ND	Pioneer Chevrolet Dealership US 93 and Caffrey Road	Petroleum hydrocarbons	Low	See description under Alignment 1 above. Also concern of Alignment 2 alignment.
ND	Gravel pit Caffrey Road, 0.25 miles west of Skyline Drive	Petroleum hydrocarbons	Moderate	See description under Alignment 2 above.

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.
ND = Not Determined
ROW = Right-of-way

6.17. VISUAL

6.17.1. Landscape Character and Visual Quality

The landscape of the area of the proposed action is typical of northwest Montana, characterized by forested mountain ranges and the valleys that separate them. US 93 passes through the Rattlesnake Mountains and Evaro Canyon at the south end of the area, into the Jocko Valley bounded by the Jocko Hills on the east and the reservation divide on the west. Passing through Ravalli Canyon and the National Bison Refuge, the highway then travels through the Mission Valley bounded on the east by the Mission Mountain Range and on the west by the Salish Mountains~~Ranges~~.

In communities, the most important visual resource is the existing streetscape and community character and identity. The streetscape is comprised primarily of built structures and associated site development arranged linearly along the corridor. The quality scale and texture of development including building styles and materials, parking lots, landscaping, signage, overhead utilities and natural features all contribute to visual character and image. In all of communities, (less so in Ronan and Polson) the texture of the development is small and fragmented. Existing setbacks are minimal and pedestrian amenities limited. Undefined access, signage, overhead utilities and parked vehicles visually encroach on the corridor.

In general, the visual quality viewed from US 93 is above average, encompassing canyons and valleys. Five landscape units, each with distinct characteristics, include Evaro Canyon, Jocko Valley, Ravalli Canyon, Mission Valley and Polson. Figure 6.17-1 identifies the areas of the landscape units, along with the topographic viewshed. Unique characteristics of each landscape unit and existing visual quality are described below.

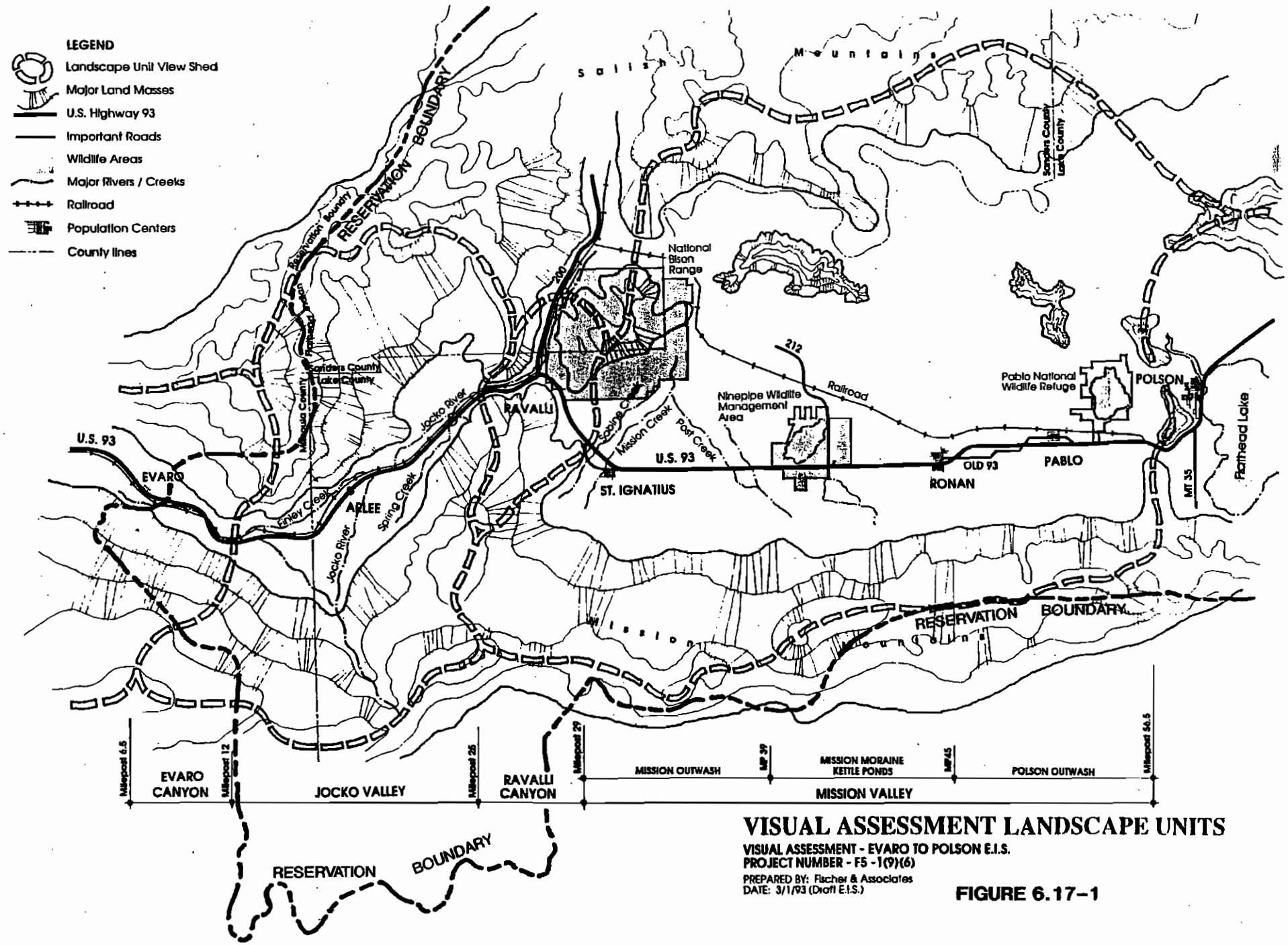
Evaro Canyon

The Evaro Canyon Landscape Unit is exceptionally scenic, with many majestic mountain views in the background framed by mature foreground conifers along most of the roadside. Views from the road display diversity as the curvilinear road alignment reveals a dramatic sequence of changing views with contrasting colors, texture, line and form. Foreground and high background views dominate this unit because nearly continuous mature conifers along the roadside eliminate mid-distance views. Strong color, texture and vertical form in the foreground contrast dramatically with the rough land mass of the mountains against the sky. Land use is mixed including undeveloped and forested natural areas, agriculture, scattered residential, limited strip commercial and the Evaro townsite. Existing visual quality is high offering diversity in views, landform and land cover. The scenic quality of the natural environment in the highway corridor is visually encroached upon by man-made development and an occasionally awkward interface, or connection, of the road with the landscape.

The Jocko Valley

The Jocko Valley presents wide views of an open, agricultural river valley surrounded by steep hills and mountains. The predominant land use is pasture and agriculture with scattered residences. Limited vegetation consist of mixed conifers and deciduous species. Deciduous species dominate low areas along drainages, roadside ditches, canals and the Jocko River,introducing strong lines and an occasional interruption to otherwise long, and distant views. The valley's outstanding natural setting is encroached upon by man-made development, most noticeably overhead utilities, signs, billboards and scattered development, located along the existing highway route. The scenic valley setting and encroachments from development combine to provide only a slightly above average rating of existing visual quality.

The town of Arlee occupies a visually closed position approximately midway through the Jocko Valley, snug between the toe of the slopes west of Finley Creek and the tall tree line along the Jocko River east of town. The southern entrance is defined by the abrupt curve and super elevation at Dirty Corner. The northern entrance is identified by the Jocko River crossing and the vertical tree mass in the wetlands. While Arlee has a distinctive setting with well defined natural perimeters, the town itself lacks visual definition along US 93. Views of small scale development, large overhead-utilities poles, parked vehicles and signs, combined with uncontrolled access and



VISUAL ASSESSMENT LANDSCAPE UNITS

VISUAL ASSESSMENT - EVARO TO POLSON E.I.S.
PROJECT NUMBER - F5 -1(9)(6)
PREPARED BY: Fischer & Associates
DATE: 3/1/93 (Draft E.I.S.)

FIGURE 6.17-1

inadequate highway drainage, negatively affect visual quality. Some attempt has been made to coordinate building character with a rustic theme. Cedar siding on several buildings and a split rail fence at the community center provide rustic character to Arlee.

Ravalli Canyon

The Ravalli Canyon Landscape Unit is exceptionally scenic, presenting a dramatic sequence of changing views, which are striking in diversity and unique in character. The unit "bridges" two valleys, framing intermittent mountain views with mixed riparian vegetation of the Jocko River on the southern end and simple rolling hills of the National Bison Range grasslands on the northern end. Land use is mixed including the conservation lands of the National Bison Range, undeveloped pastureland, and the community of Ravalli located near the intersection of MT 200, encompassing scattered residential, agriculture and strip commercial. The elevated railroad, river vegetation and highways are dominant lines at the southern end of this narrow valley. At the northern end, with the exception of overhead utilities, the relative lack of development emphasized by the simplicity of land forms, contrasting with the open sky, is striking.

The existing visual quality of the natural landscape of Ravalli Canyon is outstanding, offering unusual diversity in views, landform and land cover. The exceptional scenic quality of the natural environment is visually encroached upon by man-made development including highways, railroad, commercial sprawl and overhead utilities. The connection of the road and natural forms is awkward, particularly near the Jocko River floodplain and occasionally where it abruptly cuts into hills.

The Mission Valley

The Mission Valley presents panoramic views of an open valley nearly 30 miles in length and width. Bordered by the Salish Mountains to the west and the Mission Mountains to the east, it includes three distinct geological units, described as The Mission Outwash (Mileposts 29 to 39), the Mission Moraine Kettleponds (Mileposts 39 to 45) and the Polson Outwash (Mileposts 45 to 56.5).

The Mission Valley's scenic setting is encroached upon by man-made development, most noticeably overhead utilities, signs, billboards, community commercial sprawl and scattered development, located along the existing highway route. The Mission Valley's mountain scenery combines an uninteresting highway alignment and man made encroachments, to provide only a slightly above average rating of the existing visual quality.

Lines of mixed, primarily deciduous vegetation traverse the Mission Outwash following creeks and drainage courses, adding foreground interest and occasionally framing distant views in this otherwise open landscape. A three-mile stand of scattered, mature lodgepole pine frames intermittent views of the mountains from the existing highway corridor and defines the east edge of the town of Pablo, adding a distinctive identity to the community.

Kettleponds and two large reservoirs are features unique to the Mission Moraine area. High ground water has noticeably limited development and agricultural use of this zone. The predominant use is recreation and wildlife conservation. These interesting landscape features go unnoticed by travelers as the road elevation and alignment preclude visual access.

Although development has affected the viewshed in many areas, the majority of the Mission Valley corridor remains outstanding aesthetically, especially in the undeveloped agricultural and wildlife management areas. The Mission Mountains, which are devoid of forest clearcuts due to CSKT wilderness status, and kettleponds along the roadside attract tourists and local residents for their photogenic appeal.

Ronan is located in the center of the Mission Valley where the rolling land exposes views of prosperous agricultural lands. Spring Creek diagonally bisects the town of Ronan providing a strong line of vegetation, serving as the towns linear open space and crossing under the highway near its intersection with Main Street. Development along the existing highway corridor through Ronan consists of small to medium scale conventional highway commercial

with minimal setbacks. Visually the highway divides the town, and commercial sprawl, overhead utilities and encroachment of signs detract from the overall character of this intact western town.

The Mission Valley ends near the top of Polson Hill, with dramatic views of the Flathead Valley and Flathead Lake. Land use, which varies in response to groundwater, soils, land ownership and settlement patterns, encompasses fertile agriculture, wildlife refuges, pastureland, scattered residences and the communities of St. Ignatius, Ronan and Pablo. With the exception of Pablo, vegetation is sparse through most of this unit, a large portion of the land has been previously harvested for timber.

Polson

The Polson Landscape Unit is part of a broad valley with surrounding mountains and several drainages feeding bodies of water within the valley. It is characterized by Polson Bay (part of Flathead Lake) immediately north of Polson, the Mission Mountains to the east, CSKT forest lands~~Flathead National Forest~~ to the west, and the Flathead River which flows southwest from Polson Bay. US 93, ~~climbs~~ drops into Polson from prominent hills on both ends of the city.

The landscape unit as a whole consists of Flathead Lake, the Flathead River, several manmade canals, croplands, the developed urban environment of Polson, rural areas with ranches and scattered homesites, and existing vegetation - mostly native grasses, deciduous trees along waterways and scattered groups of evergreen trees on hilly outcrops. The most dominant visual characteristic of the area is Flathead Lake. The hilly terrain surrounding the area provides a variety of opportunities for viewing the lake. There are also views of the lake from the highway as it passes through Polson, adjacent to the lake.

Visual quality along the proposed action ranges from open vistas of distant peaks to views of Flathead Lake and the Flathead River.

6.17.2. Viewers

Viewers from the Road

Groups of viewers from the road include local traffic, commuters, commercial traffic, and tourists. Viewer groups share common characteristics that determine how they evaluate visual quality:

- Local traffic may coincide with other user groups, but for analysis, local traffic refers to short trip users making connections within the community. Safe and convenient connection with US 93 is the main concern for this group, especially during periods of peak traffic load. Community connections are critical to their lives and must be maintained; the visual quality of the view from the road shapes part of their community image.

- Commercial traffic is most concerned with the speed and efficiency of the through traffic movement. For them, visual quality means the road is "easy to read" for safe travel with maximum efficiency. Visual driver expectation focuses on normal highway standards with clear community connection opportunities for necessary facilities/services in all seasons.

- Commuters are frequent users of the route and, therefore, familiar with likely hazards. They travel during peak periods in all seasons, and winter driving is often in the dark. Commuters' visual concerns focus on maximum speed, efficiency and safety of the through traffic movement, but without the need for community connection for services. The scenery is a primary asset for living and working in the Mission Valley.

- The scenic quality of views from the road is most important to tourists, often determining the route selected to reach a destination. At the present time, most tourists visit the area during the warm weather months. Tourists are usually unfamiliar with the route traveled, therefore, highway

standards for design and safety must be "easy to read" and are critical for safe visual decision making. Community connection must be visually well defined to provide needed facilities/services of highway- and tourism-oriented businesses. Their visual quality demands are different than other viewer groups. Their travel pace is more leisurely; they can be delayed by attractions along the way and may travel at a slower speed, particularly if there is high visual quality. (Sections 6.5 and 7.5)

Viewers of the Road

Viewers of the road consist of residents, commercial neighbors, travelers and communities.

Residents are scattered in rural settings or concentrated in small communities adjacent to the highway. Residential viewers will be most sensitive to changes in their view of the road, including higher traffic volume, road widening that brings traffic closer to their dwellings, and construction activities that reduce existing spacial, landform, or vegetative buffers between them and the highway. Visual quality for scattered rural viewers of the road is variable depending on their proximity to the highway and how well the highway fits into the setting at each location. In general, negative visual effects increase as the highway encroaches on private space, because of traffic volume, speed and associated audio cues. If the highway grade is higher than adjacent property, it may intercept views of the community.

Commercial neighbors of US 93 are less sensitive to highway views because of daily activity levels in the business place. Commercial neighbors are concerned that foreground visual quality is adequate to attract business and to provide safe and convenient access.

Travelers become viewers of the highway when they stop to take advantage of commercial services and tourist attractions of highway related roadside facilities, including scenic turnouts, road side parks, and interpretive facilities. Travelers are concerned with the quality of roadside facilities, which may influence their length of stay, frequency of use and overall enjoyment of the experience.

The communities of Evaro, Arlee, Ravalli, St. Ignatius, Ronan, Pablo and Polson provide small concentrations of viewers of the road. In general, these communities have negative views of the highway. Where US 93 is a town's main street, development has occurred along the highway, starting when traffic volume was small, with a greater percentage of local traffic.

6.17.3. Visually Sensitive Resource Areas

Several Visually Sensitive Resource areas, namely the National Bison Range and the Ninepipe National Wildlife Refuge and the Mission Mountains, exist along the highway route where users/viewers are engaged in activities negatively affected by highway views.[240]

[240]Identification of visually sensitive resource areas is based on FHWA visual impact assessments for highway projects. Visual impact assessment considers qualities of vividness, intactness and unity. FHWA-HI-88-054

6.18. RELOCATIONS

Residences, businesses and other buildings located within 200 feet of the centerline of the existing highway or of each of the alignment alternatives under consideration are summarized on Table 6.18-1. Structures near the existing highway are affected by highway traffic operation and resulting safety, air quality, noise, visual and other highway-related conditions, as described in other sections of the final EIS.

Table 6.18-1 Residences and Buildings, Distance from the Highway

Segment	Distances From Highway Centerline to Face of Building (Feet)								
	Less Than 100 Feet			100 Feet to Less Than 150 Feet			150 Feet to 200 Feet		
	Residence	Business	Other	Residence	Business	Other	Residence	Business	Other
A	4	2	0	15	6	1	31	6	2
B1	8	13	10	10	1	9	18	0	12
B2	0	0	0	0	0	1	1	0	5
B3	0	0	1	0	0	2	1	0	1
B4	1	0	1	0	0	0	3	0	1
C	1	0	0	0	2	1	3	4	4
D	0	0	0	0	0	0	0	0	0
E	3	6	0	5	6	12	1	1	0
F	1	0	0	0	0	2	0	2	1
G	0	2	0	0	1	2	0	5	3
H	2	0	10	1	2	5	3	2	17
I	0	0	0	1	1	2	1	1	6
J1	0	3	0	0	0	0	0	0	0
J2	0	5	0	0	0	0	0	0	0
J3	1	0	5	0	0	1	0	0	0
J4	0	2	9	0	0	5	0	0	5
K	0	0	0	0	0	0	0	0	0
L	0	1	0	3	0	8	3	2	12
M	0	1	1	0	0	3	0	0	9
N-O-P1	11	60	6	17	25	5	27	14	12
N-O-P2	10	3	5	3	0	1	9	2	2
N-O-P3	8	1	3	2	0	0	4	0	1
Total	50	99	51	57	44	60	105	39	93

Morrison-Maierle, 1993.