US 93 Polson Corridor Study

Pre-NEPA/MEPA Corridor Study

FINAL

Prepared for:

CITY OF POLSON,
LAKE COUNTY,
CONFEDERATED SALISH AND KOOTENAI TRIBES
and
MONTANA DEPARTMENT OF TRANSPORTATION

Prepared by:

CDM

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Abbreviations and Acronyms

ARM	Administrative Rules of Montana
CFR	Code of Federal Regulations
CSKT	Confederated Salish and Kootenai Tribes
DEQ	Montana Department of Environmental Quality
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
GIS	geographic information system
IDCs	indirect costs
LOS	level of service
LWCF	Land and Water Conservation Funds
MCA	Montana Code Annotated
MDT	Montana Department of Transportation
MEPA	Montana Environmental Policy Act
MFWP	Montana Department of Fish, Wildlife & Parks
MNHP	Montana Natural Heritage Program
mph	miles per hour
MRL	Montana Rail Link
MT 35	Montana Highway 35
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHS	National Highway System
NINHS	Non-Interstate National Highway System
NRIS	Natural Resource Information System
O&D	Origin and Destination
PM_{10}	particulate matter with an aerodynamic diameter of 10 microns or less
ROD	Record of Decision
RP	Reference Post
S 354	Secondary Route 354
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SHPO	Montana State Historic Preservation Office
STIP	State Transportation Improvement Program
STP	Surface Transportation Program
STPS	Secondary Highway Systems
THPO	Tribal Historic Preservation Office
TMDL	Total Maximum Daily Load
TOC	Technical Oversight Committee
vpd	vehicles per day
US 93	US Highway 93
USACE	U.S. Army Corps of Engineers

USFWS	U.S. Fish and Wildlife Service
v/c	volume-to-capacity

Executive Summary

The City of Polson, Lake County, and the Confederated Salish and Kootenai Tribes (CSKT), in partnership with the Montana Department of Transportation (MDT) and the Federal Highway Administration (FHWA), initiated a pre-National Environmental Policy Act (NEPA)/Montana Environmental Policy Act (MEPA) corridor study for US Highway 93 (US 93) near Polson, Montana, to identify and analyze alternate route options for US 93 from Reference Post (RP) 56.5 to RP 63.0. The potential of an alternate route to US 93 through Polson was initially brought forward in the 1996 US 93-Evaro to Polson Final Environmental Impact Statement (FEIS) and alternate routes were proposed and evaluated in order to improve traffic operation and safety on US 93 from Evaro, Montana through Polson, Montana. Although the 1996 FEIS and Record of Decision (ROD), as well as the 2001 EIS Re-Evaluation and second ROD, deferred making a decision on the portion of US 93 traversing through the Polson community, the commitment was made in those documents that…*the three governments (i.e. CSKT, MDT and FHWA), Lake County, and the City of Polson will continue to work together to determine the appropriate improvement project applicable for US 93 from the US 93/MT 35 intersection north 3.8 miles through Polson to the vicinity of the US 93/Rocky Point Road intersection.* By completing this pre-NEPA/MEPA corridor study, these entities have fulfilled that commitment by beginning the decision-making process to identify what the appropriate future improvement will be.

This US 93 Polson pre-NEPA/MEPA Corridor Study contains a high level analysis of the US 93 corridor through the Polson community that will inform the environmental process and allow for better scoping of a project before moving into the project development process. Should this corridor study lead to a project (or projects), compliance with NEPA (if federal funding is utilized) and MEPA (regardless of funding source) will be required. Further, this corridor study will be used as the basis for determining the impacts and subsequent mitigation for the selected alignment in the future NEPA document. Any project (or projects) developed will need to be in compliance with the Code of Federal Regulations (CFR) Title 23 Part 771 and the Administrative Rules of Montana (ARM) 18, sub-chapter 2 which sets forth the requirements for documenting environmental impacts on highway projects.

The corridor study was strictly intended as a planning study, not a design project, and involved proactive outreach to the community, stakeholders, and resource agencies. A thorough evaluation of known and publically available resource and technical information was performed. Activities that were completed for the development of the study included the following:

- Research and analysis of existing US 93 roadway conditions,
- Research and synthesis of known environmental resources and applicable regulations in the study area,
- Documentation of future conditions,
- Identification of community, stakeholder, and resource agency concerns,
- Identification of corridor needs and objectives,

- Development and screening of alternate route options with consideration to costs, feasibility, community input, and known environmental resource impacts, and

- Documentation of potential funding mechanisms for alignment options.

ES.1 Corridor Issues

At the various informational meetings, statements made by the community suggested that congestion was an issue on US 93 but was only an issue during the summer months. Based on an evaluation of congestion, the existing roadway may likely carry year 2010 AADT traffic volumes, but may likely not carry year 2010 peak summer traffic volumes.

Based on the evaluation of the existing conditions of US 93 within the study area, roadway issues were identified. The issues included alignment geometry, roadway width, and higher crash trends compared to similar routes statewide. The identified issues are presented below:

Vertical Alignment

The vertical alignment directly affects the operational characteristics of the roadway. The vertical alignment from RP 57.2 to RP 57.8, near Polson Hill, does not meet current design criteria. However, a design exception was approved in April 2004 at this location. A section of roadway along US 93 was constructed to design standards in 1955. However, design standards have changed since 1955; therefore, west of Rocky Point Road at RP 62.5, the vertical alignment does not meet current design criteria.

Roadway Surface Width

Throughout the study area, the existing roadway surface width varies from 28 feet to 71 feet. The varying width does not meet the suggested surface width for US 93. According to the MDT National Highway System (NHS) Route Segment Map reference, the suggested roadway width for US 93 is 40 feet or greater. Currently, the section from RP 60.851 to 63.0 does not meet this suggested surface width. Given that the Route Segment Plan no longer defines a standard roadway width, the MDT Roadway Width committee would determine the appropriate width during future project development.

Crash Trends

Safety concerns were documented along the existing US 93 route through an evaluation of crash rates for the rural and urban-like portions of the roadway, and compared to statewide averages for roadways of similar type (see section 2.11). For the "rural" segments of US 93, the crash rate for all vehicles is higher than the average comparable rural routes throughout the state of Montana for the same analysis period. These "rural" segments include the southern portion of US 93, between Caffrey Road and MT-35 (all vehicle crash rate of 1.58), and the northern portion of US 93 between Irvine Flats Road and RP 65 (all vehicle crash rate of 1.32). The average comparable all vehicle crash rate for rural routes statewide is 1.07. The section of US 93 between MT-35 and Irvine Flats Road exhibits "urban" characteristics, and therefore the all vehicle crash rate was compared to the average comparable all vehicle crash rate for urban routes throughout the state of Montana for the same analysis period. The "urban" segment of US 93 all vehicle crash rate of 2.33 was much less that the average comparable statewide urban route all vehicle crash rate of 5.06.

ES.2 Corridor Study Needs and Objectives

Based on the analyses of existing and future conditions of the US 93 corridor, the following needs and objectives were established for use in the development of potential alternate route options found later in this study. The needs or objectives followed by an asterisk implies a variation on the needs or objectives contained in the 1996 FEIS fully referenced in Chapter 9 of this document. Needs and objectives without an asterisk were developed by the community and/or TOC.

Need Number 1: System Linkage and Function

Preserve functionality of US 93 as a principal arterial.

Objectives

- Maintain connections of Polson with other Montana communities.
- Maintain connections to other major highways in the corridor.

Need Number 2: Transportation Demand and Operations

Accommodate existing and future transportation demand on US 93 through the planning horizon of the year 2030.

Objectives

- Maintain a level of service (LOS) B or better for roadway segments along US 93 (rural principal arterial), to the extent practicable. *
- Maintain a LOS C or better for roadway segments along US 93 (urban principal arterial), to the extent practicable. *
- Acknowledge the increase in non-motorized transportation uses and provide for appropriate infrastructure, to the extent practicable.

Need Number 3: Roadway Geometrics

Provide a facility that accommodates the diversity of vehicle types.

Objectives

- Provide appropriate lane configuration(s) to accommodate the vehicle demand expected under existing and future conditions, to the extent practicable.
- Provide for unique turning movements and grade requirements for specialized vehicles such as semi-trucks and recreational vehicles, to the extent practicable.
- Improve the road and bridge surfacing widths to meet current MDT design criteria, to the extent practicable.

- Provide modifications to the roadway horizontal alignment and vertical alignment to meet current MDT design criteria, to the extent practicable.

Need Number 4: Safety

*Improve the safety of US 93. **

<u>Objectives</u>

- Provide adequate clear zones along US 93 by identifying and removing obstacles, upgrading shoulder widths, and providing urban roadway features in accordance with MDT design criteria, to the extent practicable.
- Manage community access points and private approaches by providing appropriate features commensurate with the types and volumes of traffic encountered at each approach, and/or by consolidating or closing approaches, to the extent practicable.

Need Number 5: Livability and Connectivity

Reduce conflicts by enhancing connectivity and minimizing impacts within the US 93 corridor.

<u>Objectives</u>

- Minimize impacts to existing neighborhoods. *
- Minimize impacts to environmental, sensitive and recreational resources, including trails. *
- Be responsive to land use plans and future transportation needs. *

Need Number 6: Truck Traffic

Minimize the impacts of US 93 thru truck traffic.

<u>Objectives</u>

- Provide appropriate signage to direct thru truck traffic.
- Minimize the number of vertical grade changes for thru truck traffic.
- Provide acceptable travel times with minimal delay for thru truck traffic.

Other

The following are potential objectives that do not correlate to any of the five needs described above.

- Be responsive to long-term maintenance requirements. *
- Limit construction disruption as much as practicable. *
- Community preference.

ES.3 Improvement Options

Potential alternate routes for US 93 were evaluated by reviewing existing engineering and known environmental resource information and soliciting input from the community, stakeholders, and resource agencies. Eleven (11) potential alignments were established to address the needs and objectives for the US 93 corridor. The 11 alignments are various alternate routes that have the potential to be developed to satisfy the long-term needs of US 93. The development and locations of the potential alignments are considered in terms of general corridor "swaths". Exact centerline locations are not developed at this time, so "swaths" represent approximate locations of potential alignment options. Exact alignment would be determined in the project development phase, if a project is forwarded on from this study, and additional avoidance and minimization measures would be implemented.

Screening criteria were developed to evaluate the 11 potential alignments of US 93 between RP 56.5 and RP 63.0. Screening criteria provide a means of reducing the number of potential alignments for consideration by comparing them both quantitatively and qualitatively with a set of specific measures. The screening process was a high level evaluation that was utilized to identify alignment options that satisfied the needs and objectives identified for this corridor, and which could be carried forward for further consideration if a project moves forward.

ES.4 Conclusion

The corridor study recommends two alignment options be considered for any future project development process as these two alignments best met the identified needs and objectives. These alignments include the northern bridge crossing hybrid alignment and the southern bridge crossing hybrid alignment. Both routes satisfy the needs and objectives for the US 93 corridor. Because the pre-NEPA/MEPA study process is a high level planning study, design activities were not initiated, nor are exact future route configurations developed.

Information contained in this corridor study can be used to document why the other alignments were removed from further consideration. Potential improvements to the existing US 93, if necessary, will be identified in the Polson Area Transportation Plan. Either the northern or southern routes may be recommended. To continue the development of these alignments as alternate route(s), the following steps will be needed:

- Identify and secure a funding source (or sources), and
- Preserve the corridor surrounding the route(s).

Note: Although local government can begin preserving right-of-way along either of the two recommended alignments, project-level environmental documentation will still need to consider the two alignments, along with improvements to the existing US 93, as part of the NEPA/MEPA process.

Chapter 1 Introduction

1.1 Study Purpose

The City of Polson, Lake County, and the Confederated Salish and Kootenai Tribes (CSKT), in partnership with the Montana Department of Transportation (MDT) and the Federal Highway Administration (FHWA), initiated the US 93 Polson Pre-National Environmental Policy Act (NEPA)/Montana Environmental Policy Act (MEPA) Corridor Study near Polson, Montana, to identify and analyze alternate route options for US 93. The US 93 Polson Corridor Study begins at Reference Post (RP) 56.5 and extends approximately 6.5 miles north to RP 63.0. The potential of an alternate route to US 93 through Polson was initially brought forward in the 1996 US 93-Evaro to Polson Final Environmental Impact Statement (FEIS) and alternate routes were proposed and evaluated in order to improve traffic operation and safety on US 93 from Evaro, Montana through Polson, Montana.

The US 93 Polson Corridor Study area boundary was developed to accommodate the alignments that were initially brought forth in the 1996 FEIS and to assess the feasibility of an alternate route to US Highway 93 (US 93) through the Polson community. The subject corridor study contains a high level analysis of the US 93 corridor through the City of Polson.

In the corridor study area, US 93 carries a diverse mix of traffic including trucks, recreational vehicles, passenger vehicles, and non-motorized uses. During the peak summer tourism season, traffic volumes elevate in numbers, causing perceived congestion and delays on the roadway and adjacent intersections. This study was initiated to address both MDT's concerns to enhance traffic flow and the local governments' desire to enhance livability and connectivity within their community. Figure 1-1 shows the corridor study area.

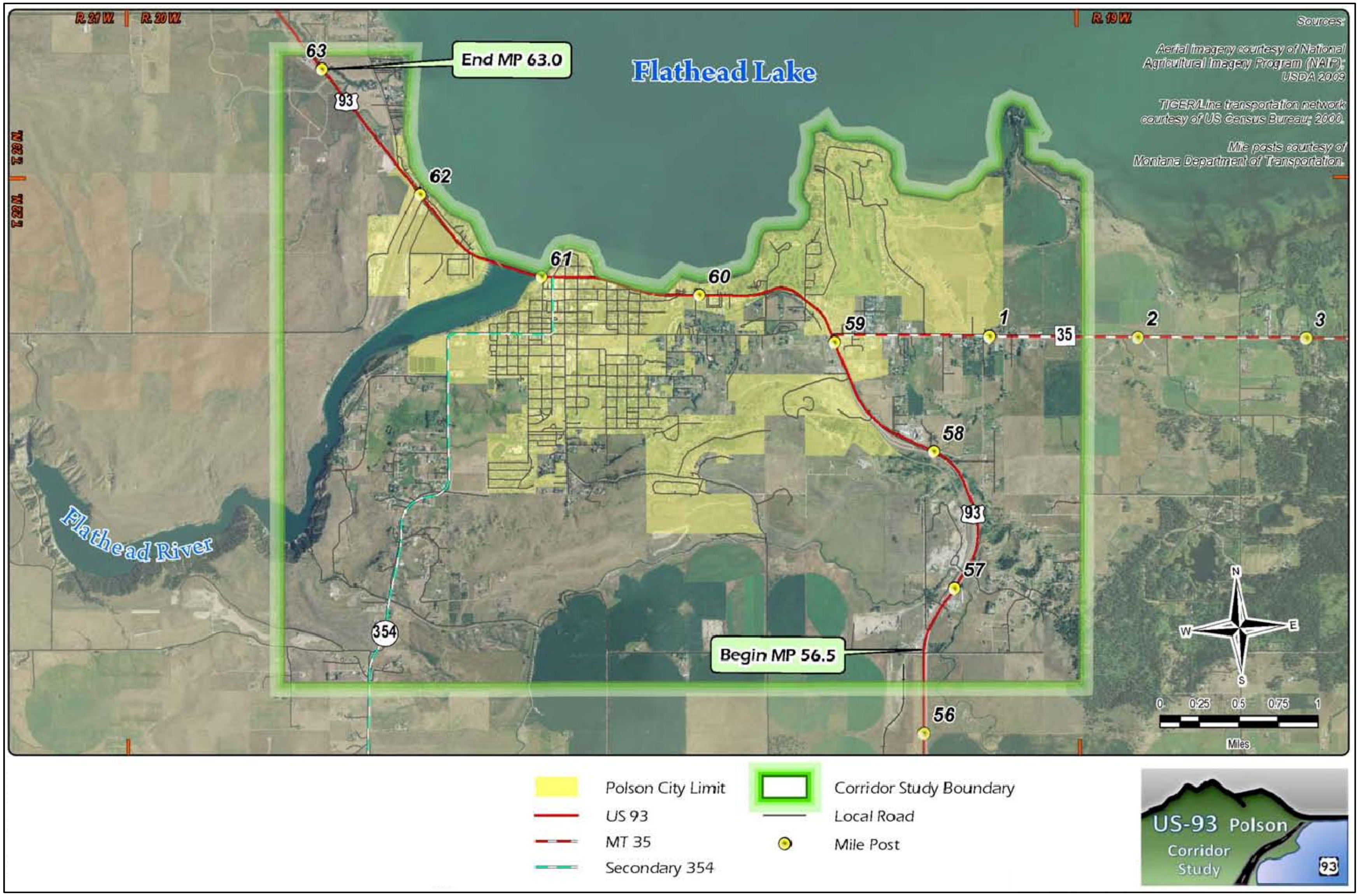
1.2 Corridor Study Process

MDT has established the corridor planning process in order to link the current transportation planning processes and the NEPA/MEPA. The NEPA/MEPA environmental review process is an approach to balance transportation decision making that takes into account the impacts on the human and natural environment with the need for safe and efficient transportation. The Corridor Planning Study is a pre-NEPA/MEPA process that allows for earlier planning-level coordination with the community, resource agencies, and other entities. Through the corridor study process, data and analyses are developed that can be used in the environmental review process if a project (or projects) are forwarded from the study. The NEPA/MEPA process discloses the environmental, social, and economic impacts, identifies potential mitigations measures that can be implemented, and documents the information for the community and decision makers before decisions are made and carried forward.

This Corridor Planning Study is developed strictly as a planning study to determine the feasibility of an alternate route to the existing US 93 and does not include project level design. The results of the study may be used to assist in determining the level and scope of environmental review required if a project is forwarded into project development.

This report identifies both the technical and known environmental conditions and issues that exist within the corridor, and identifies reasonable and feasible alignment options to increase safety and efficiency for the traveling public. Additionally it defines potential impacts to the surrounding environment resulting from the alignment options.

Figure 1-1 Study Area Boundary



Chapter 2 Existing Conditions of US 93

The purpose of this chapter is to portray the existing technical and environmental features along the existing US 93. The findings contained herein help inform the constraints and opportunities in developing alignment options.

US 93 is functionally classified as a rural principal arterial on the Non-Interstate National Highway System (NINHS) and is a major north/south highway providing a vital regional link between Idaho and Canada and between Missoula, Kalispell, and surrounding communities. Functional classification is a method by which roads and highways are classified according to the level of mobility and access they provide. A rural principal arterial network provides a high level of mobility at high speeds offering a link between interstates and other major highways. Highway functional classification is also used to establish guidelines for design and maintenance according to Federal and State guidelines. Roadway characteristics, projected conditions, and deficiencies are discussed below.

2.1 Existing Roadway Users and Traffic Volumes

Montana Highway 35 (MT 35) intersects US 93 near RP 59.0 at South Shore Road and is primarily used by local traffic, commercial trucks, and recreational vehicles. Secondary Route 354 (S 354) intersects US 93 east of the Flathead River Bridge and is primarily used by local traffic traveling within the downtown area, commuters who live off Kerr Dam Road, and commercial trucks, primarily those traveling back and forth to the dump. During the non-winter months, an increase in roadway users and traffic volumes is realized on US 93 and is primarily due to recreation and tourism in the area. MDT's Automatic Traffic Recorder (ATR) Station A-074 (the US 93 traffic recorder located closest to Polson, just south of MT 28) data suggests the months of July and August exhibit the highest peak traffic flows of 150.16% and 139.49 %, respectively, of average yearly traffic flow. The "weighted" average annual daily traffic for US 93 through the study area for 2009 was 9,884, which has decreased since a peak of 12,058 in 2004. In 2009, the percentage of truck traffic through the corridor reached 10.9 percent. Table 2.1 shows the most recent 10-year traffic volumes within the corridor study area.

Table 2.1 Average Annual Daily Traffic

No.	Length (miles)	Location	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1	0.332	US 93, RP 58.5 (.5 mile S of MT 35)	9,080	9,510	9,280	9,910	10,210	10,780	10,780	10,760	10,230	9,740	9,600
2	0.953	US 93, RP 59.5 (.5 mile N of MT 35)	11,430	9,860	12,610	12,410	13,590	14,690	14,690	14,660	13,440	12,590	11,760
3	0.400	US 93, East of 8th Street East in Polson	12,670	14,400	11,850	11,870	12,920	13,760	13,760	13,730	13,030	10,940	11,290
4	2.766	US 93, between 5th East and 2nd East in Polson	10,580	13,950	11,150	11,500	12,240	12,900	12,900	12,870	12,550	10,440	10,600
5	0.226	US 93 (2nd Avenue), between Main & 1st Street East in Polson	10,150	10,970	10,570	10,890	11,570	12,190	12,190	12,170	11,120	8,790	8,140
6	1.266	US 93, either end of Flathead River Bridge in Polson	6,380	7,730	6,890	7,980	7,830	8,010	8,010	7,990	8,910	6,810	6,850
Weighted Average			9,862	11,638	10,397	10,809	11,424	12,058	12,058	12,586	11,766	9,943	9,884

Source: MDT Traffic and Data Collection Analysis

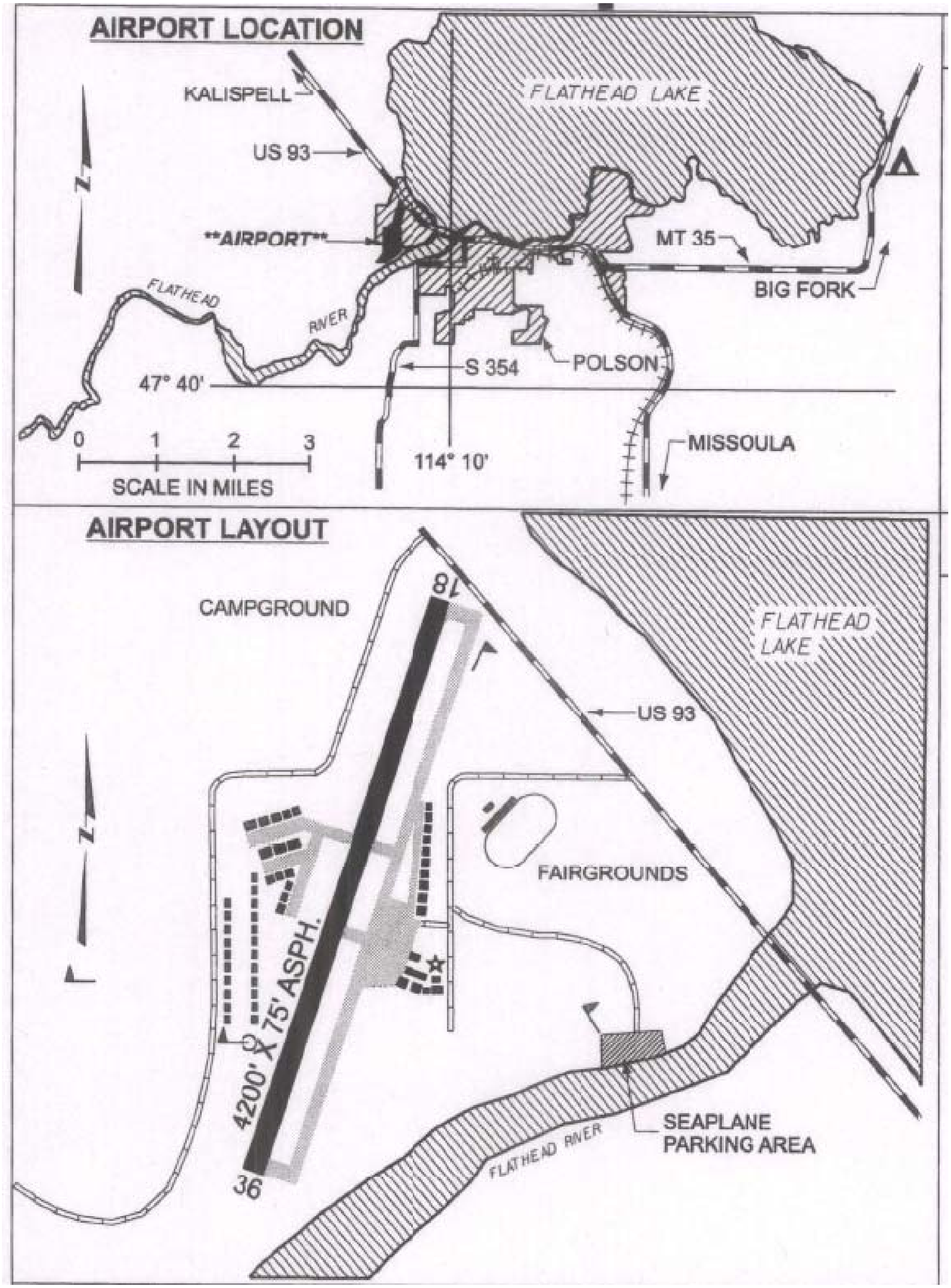
Figure 2-1 shows the locations of the MDT Traffic Count stations shown in the table above.

Figure 2-1 MDT Statewide Traffic Count Site Location Map

Right-of-Way and Jurisdictions

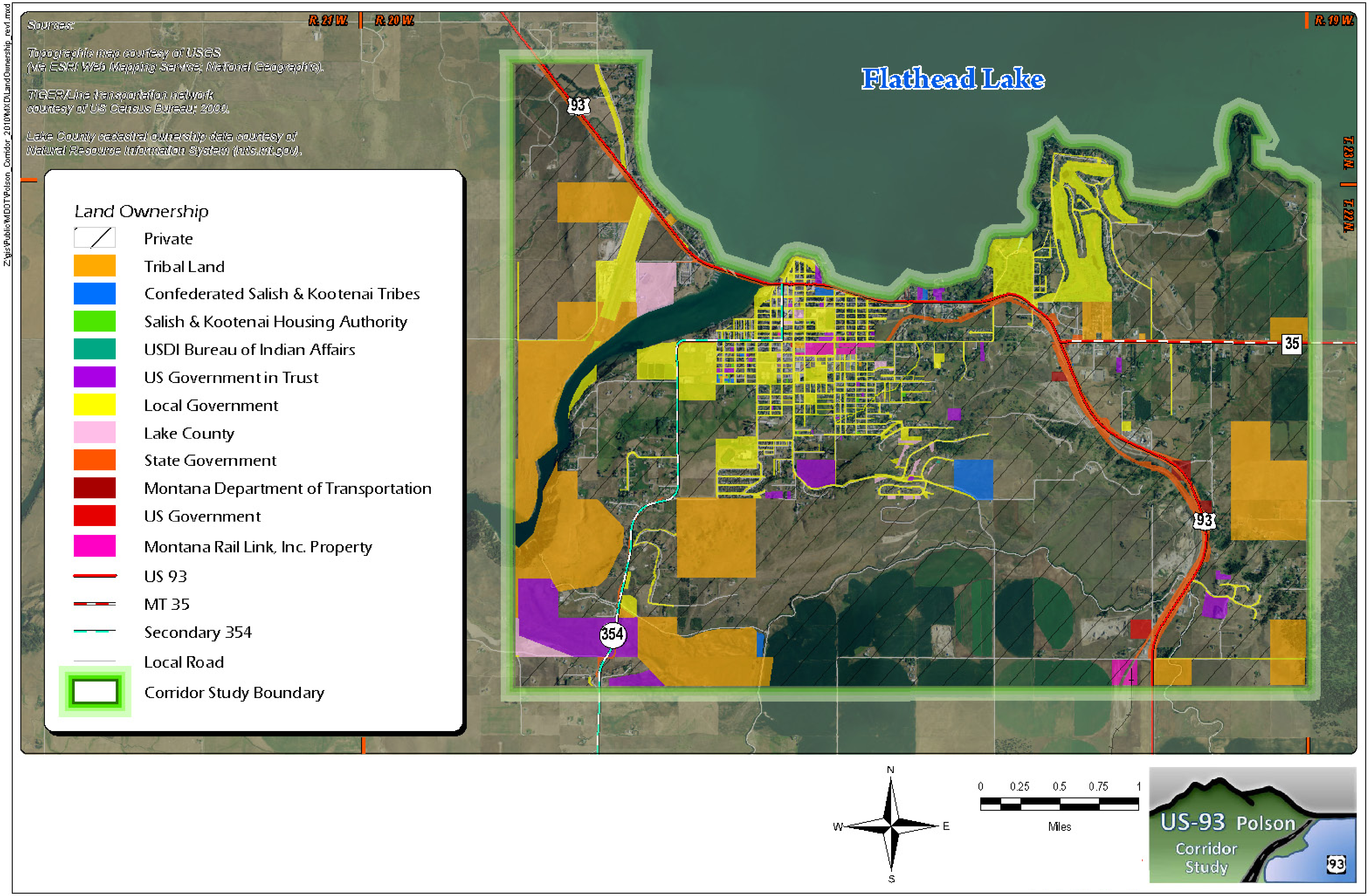
The existing US 93 corridor is located primarily along private property. The State of Montana maintains the right-of-way on each side of the highway. Three small sections of MDT land are within the study area boundary. Montana Rail Link (MRL) infrastructure and right-of-way is located within the corridor study area. MRL also has land ownership interspersed throughout the study area, primarily along 7th Avenue. The Polson Airport is located inside the study area boundary and west of the Flathead River and includes a seaplane landing area. The Federal Aviation Administration has jurisdiction of the Polson Airport. Figure 2-2 shows the location and layout of the Polson Airport. Appropriate coordination would need to occur if any improvement options were considered near the Polson Airport.

Figure 2-2 Location and Layout of Polson Airport



Proactive coordination with resource agencies is essential to ensure agency guidelines and requirements are considered as improvement options develop. Regulatory areas that will be considered and further addressed include, but are not limited to, wildlife habitat, threatened and endangered species, permitting, aquatic resources, air quality, cultural and historic resources, farmlands, and mapping considerations. Figure 2-3 shows the land ownership within the study area.

Figure 2-3 Land Ownership



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2.2 Physical Characteristics

At the south end of the corridor (RP 58.5), US 93 is a four-lane divided highway which transitions to a four-lane undivided highway with interspersed turning lanes. Just north of the junction of US 93 and MT 35, the four-lane segment of US 93 transitions to a two-lane roadway with interspersed turning lanes. The posted speed limit along the US 93 corridor varies from 25 miles per hour (mph) to 70 mph. Figure 2-4 shows the posted speed limits through the US 93 corridor.

Figure 2-4 Posted Speed Limits

US 93 enters the corridor study area at the southeastern section at RP 56.5 and traverses northward on primarily level terrain comprised of farm and agricultural lands. Continuing northward, US 93 curves slightly eastward crossing the Pablo Feeder Canal and around a bluff near RP 57.2, a location which many community members refer to as Polson Hill. US 93 continues to travel northwest to the southern bank of Flathead Lake, where it continues westward through the City of Polson. Once across the Flathead River, US 93 curves to the northwest exiting the corridor study area boundary at RP 63.0.

Work was recently completed on US 93 from Minesinger Trail to MT 35. The following reconstruction activities were completed:

- Construction of a 4-lane roadway to include two additional lanes
- Construction of an overlook of Flathead Lake from the top of Polson Hill
- Installation of one wildlife crossing structure
- Installation of two bike and pedestrian paths
    - *US 93/MT 35 junction east to Turtle Lake Road*
    - *Top of Polson Hill to ½ mile north of Caffrey Road*
- Installations of sidewalks along Haack Road and Anchor Way Frontage Road
- Installation of traffic signal at the junction of US 93 and MT 35
- Inclusion of two southbound, left-turn lanes and one northbound, right-turn lane
- Inclusion of turn bays at Walmart intersection, Frontage Road, and Ford/Caffrey Road intersection

2.3 Design Standards

Table 2.2 lists the design standards for rural and urban principal arterials according to MDT design criteria. The design speed for this corridor ranges from 45 mph to 70 mph. Although the segment of US 93 through the City of Polson is not classified as an urban principal arterial, MDT urban design standards will apply if improvement options are further developed from the study.

Table 2.2 Design Standards for US 93

Design Element			Design Criteria			
Design Controls	Functional Classification		Rural Principal Arterial		Urban Principal Arterial	
					2-Lane, Curbed	2-Lane, Uncurbed
	Design Forecast year		2030		2030	
	*Design Speed	Level	70 mph		40 - 45 mph	40 - 50 mph
		Rolling	60 mph			
	Level of Service		B		Desirable: B Minimum: C	
Roadway Elements	*Travel Lane Width		12'		12'	
	*Shoulder Width	Outside	Varies		Varies	
		Inside			N/A	
	Cross Slope	*Travel Lane	2%		2% Typical	2%
		Shoulder	2%		2% Typical	2%
	Median Width		Varies		N/A	
	TWLTL Width		N/A		16'	
Earth Cut Sections	Ditch	Inslope	6:1 (Width: 10')		N/A	Desirable: 6:1 Minimum: 4:1
		Width	10' Minimum		N/A	10' Minimum
		Slope	20:1 towards back slope		N/A	20:1 towards back slope
	Back Slope; Cut Depth at Slope Stake	0' - 5'	5:1		5:1	
		5' - 10'	4:1		Level/Rolling: 4:1	Mountainous: 3:1
		10' - 15'	3:1		Level/Rolling: 3:1	Mountainous: 2:1
		15' - 20'	2:1		Level/Rolling: 2:1	Mountainous: 1.5:1
		> 20'	1.5:1		1.5:1	
Earth Fill Slopes	Fill Height at Slope Stake	0' - 10'	6:1		6:1	6:1
		10' - 20'	4:1		4:1	4:1
		20' - 30'	3:1		3:1	3:1
		> 30'	2:1		2:1	2:1
Alignment Elements	DESIGN SPEED		60 mph	70 mph	40 mph	45 mph
	*Stopping Sight Distance		570'	730'	305'	360'
	Passing Sight Distance		2135'	2480'	N/A	N/A
	*Minimum Radius		1200'	1810'	533'	711'
	*Superelevation Rate		e_{max} = 8.0%		e_{max} = 4.0%	
	*Vertical Curvature (K-value)	Crest	151	247	44	61
		Sag	136	181	64	79
	*Maximum Grade	Level	3%		6%	6%
		Rolling	4%		7%	7%
	Minimum Vertical Clearance		17.0'		17.0'	

Source: MDT Road Design Manual Chapter 12, Figure 12-3 "Geometric Design Criteria for Rural and Urban Principal Arterials"

*Controlling design criteria (see Section 8.8 of the MDT Road Design Manual)

2.4 Roadway Geometrics

The MDT Road Design Manual specifies general design principles and controls which determine the overall operational characteristics of the roadway and enhance the aesthetic appearance of the highway. The physical and geometric design elements of the US 93 facility were evaluated to identify areas that do not meet current MDT design standards as shown in Table 2.2. The analysis was necessary to identify areas with substandard geometric design that may contribute to safety concerns.

Available information used to conduct this analysis includes as-built construction drawings and the 2011 Montana Road Log. Table 2.3 summarizes the findings of the roadway geometrics of US 93 through the study area and is further discussed in the sections that follow.

Table 2.3 Summary of US 93 Roadway Geometrics

Design Characteristic	Summary
Horizontal Alignment	Meets current design standards for design speeds of 45 mph and 60 mph
Vertical Alignment	Grades of 5.5% to 5.9% exceed 4% maximum
	Sag k-values of 128.81 and 130.15 are less 136 minimum
Roadside Clear Zone	Improvement options should be designed to current design standards
Surface Width	Surface widths of 28’ and 38’ are less than 40’ suggested width*

** A formal capacity analysis may indicate a four-lane or wider facility is needed to provide LOS B in the design year, indicating a potential surface width of 68’ or more.*

2.4.1 Horizontal Alignment

The horizontal alignment of US 93 has a major influence on traffic operation and safety and is comprised of elements that include curvature, superelevation, and sight distance. These parameters are directly related to the design speed. The horizontal alignment along US 93 meets current MDT design standards for design speeds ranging from 45 mph to 70 mph. Figure 2-5 shows the range of design speeds through the existing US 93 corridor.

Figure 2-5 Design Speeds along US 93

2.4.2 Vertical Alignment

Vertical alignment is a measure of elevation change of a roadway. The length and steepness of grades directly affects the operational characteristics of the roadway. The MDT Road Design Manual lists recommendations for maximum grades on rural and urban principal arterials according to the type of terrain in the area. Table 2.4 shows the maximum grade recommendations according to terrain.

Table 2.4 Maximum Grade

Terrain	Maximum Grade
Level - Rural	3%
Rolling - Rural	4%
Level - Urban	6%
Rolling - Urban	7%

The grade and terrain throughout the corridor study area varies from level to rolling and from rural to urban. In addition to reviewing compliance with recommended grades, vertical alignments must also meet recommended k-values (i.e., the horizontal distance needed to produce a 1% change in gradient). The vertical alignment of US 93 does not meet current design standards at five locations. These include:

1. From RP 57.2 to 57.8, the northbound grade goes from 5.9% to 5.7%, respectively. The nearly 6% grade exceeds the maximum allowable grade of 4% for a 60 mph rural design speed in rolling terrain. **A design exception was approved for this grade in April 2004.**

2. From RP 57.2 to 57.7, the southbound grade is 5.5% which exceeds the maximum grade of 4% recommended for a 60 mph rural design speed in rolling terrain. **A design exception was approved for this grade in April 2004.**

3. At RP 57.7, the vertical sag curve k-value of 130.15 does not meet the minimum k-value of 136. **A design exception was approved for this grade in December 2010.**

4. At RP 62.5, the grade of 4.8% exceeds the maximum grade of 4% recommended for a 60 mph rural design speed in rolling terrain. This section of roadway along US 93 was constructed to design standards in 1955. However, these design standards have changed since 1955; therefore, the vertical alignment does not meet current design criteria.

5. At RP 62.5, the vertical sag curve k-value of 128.81 does not meet the minimum k-value of 136.

2.4.3 Roadside Safety (Clear Zone)

The roadside clear zone, starting at the edge of the traveled way, is the total roadside border area available for safe use by errant vehicles. The area may consist of a shoulder, a recoverable slope, a non-recoverable slope, and/or a recovery area. The desired width varies depending on traffic volumes, speeds, and roadside geometry. Clear zones are evaluated individually and based on the roadside cross section. In an urban section, the clear zone is not reduced due to the presence of curb and gutter. The urban section through Polson has substantial development such as landscaping features, signs, mailboxes, signals, utilities, and luminaries, and it may be impractical to protect or remove the obstacles within the clear zone. Current MDT standards establish clear zone guidelines in rural and urban sections.

As improvement options develop, roadside clear zones should be designed, to the extent practicable, to meet current MDT urban and rural design standards.

2.5 Roadway Surface Width

The 2011 Montana Road Log prepared by MDT contains the most current highway statistics. According to MDT National Highway System (NHS) Route Segment Plan Map, the suggested surface width of US 93 is 40 feet or greater. However, the Route Segment Plan no longer defines a standard roadway width. The MDT Road Width Committee would determine the appropriate width during future project development. Table 2.5 shows the existing roadway surface width and surface thickness through the corridor study area. Due to the presence of turning lanes, which are not included in the Road Log, the total surface width may be greater than the sum of lane widths and shoulder widths.

Table 2.5 Existing Roadway Surface Width

Location Reference Post (RP)	Width (feet)			Thickness (inches		Travel Lanes
	Surface	Lane	Shoulder	Surface	Base	
RP 56.500 - 57.394	71	12	8	8.9	12.0	4
RP 57.394 - 57.897	71	12	8	10.7	12.0	4
RP 57.897 - 58.014	71	12	8	8.9	12.0	4
RP 58.014 - 58.479	71	12	8	5.9	6.9	4
RP 58.479 - 58.539	71	12	8	8.9	12.0	4
RP 58.539 - 58.947	71	12	8	10.7	12.0	4
RP 58.947 - 59.222	55	12	3	9.1	16.7	4
RP 59.222 - 59.559	39	12	7	4.8	24.0	2
RP 59.559 - 60.126	40	12	8	4.8	24.0	2
RP 60.126 - 60.736	39	12	7	4.8	24.0	2
RP 60.736 - 60.851	59	12	8	5.8	24.0	2
RP 60.851 - 61.116	38	12	7	5.8	24.0	2
RP 61.116 - 63.000	28	12	2	6.0	26.0	2

Source: 2011 Montana Road Log (pages 45-46)

Dark gray shading indicates sections of roadway that do not meet current suggested surface width criteria.

The Route Segment Plan does not extend into urban areas, due to certain constraints. Therefore, the section from RP 60.851 to 63.000 does not meet the current suggested surface width of 40 feet or greater. Along with the range of surface widths, the US 93 corridor has varying traffic flows, which can be seen in Figure 2-4.

2.6 Geotechnical

A detailed geotechnical investigation report was not developed for this corridor study. The US 93 Minesinger Trail – MT 35 project covered RP 55.5 to approximately 58.7. As-built drawings showed that the study area has no substantial geotechnical issues.

The Polson-East project covered RP 58.10 to RP 59.27. The geotechnical report for the Polson-East project noted subgrade materials generally consisting of glacial moraine sand and gravel with intermittent zones of low-plasticity fine-grained material. Frost susceptibility is a major concern during intermittent periods of moisture infiltration and freezing temperatures; particularly in cut areas with concentrated runoff.

Neither the drilling logs for the US 93 Minesinger Trail-MT 35 project nor the drilling logs for the Polson-East project indicate that bedrock was encountered. The study area is located in a moderate seismic risk area. Seismicity will need to be considered for any bridge foundation design. Polson is located within the Intermountain Seismic Belt, which appears to be predominately classified as a zone 3 on the Uniform Building Code seismic risk scale of 0 (low risk) to 4 (high risk). Seismic zones reflect the variation in seismic risk across the country and are used to permit different requirements for methods of analysis, minimum support lengths, column design details, and foundation and abutment design procedures.

2.7 Drainage

The corridor study area is located within the Lower Clark Fork and Flathead Lake watersheds. Flathead Lake is the major body of water, with the Flathead River providing water as a tributary to the Clark Fork River. The drainage has several unnamed streams that contribute to the Lower Flathead and Flathead Lake. Storm water drainage is in place for the City of Polson. Several irrigation ditches and canals exist within the corridor, and consideration will be given to drainage during the project development process if an improvement option is forwarded.

2.8 Hydraulic Structures

A full hydraulic analysis would be required if an alignment is developed. Based on a lack of historical flooding occurrences, it is presumed irrigation ditches, culverts, and bridges are hydraulically adequately sized.

2.9 Structural Crossings

Four structural crossings are located along the corridor. They include the Flathead River Bridge, the Pablo Feeder Canal structures, and two Wildlife Underpass structures. The Pablo Feeder Canal structure and two Wildlife Underpass structures were assessed in 2009, and the Flathead River Bridge was assessed in 2010. The assessments determined the Sufficiency Rating for each structure.

The Sufficiency Rating formula is a method of evaluating highway bridge data to obtain a numeric value indicating the sufficiency of the bridge to remain in service. The result of this method is the percentage in which 100 is an entirely sufficient bridge and 0 is an entirely deficient bridge. In order to receive funding through the Highway Bridge Replacement and Rehabilitation Program, structures must be *Structurally Deficient* or *Functionally Obsolete* **and** have a Sufficiency Rating of 80 percent or below. Structures with a Sufficiency Rating of 0 to 49.9 percent are eligible for replacement, and structures at 50 to 80 percent are eligible for rehabilitation unless otherwise approved by the FHWA.

All four structures are not structurally deficient and not functionally obsolete at the present time. Table 2.6 shows the sufficiency ratings of the four structural crossings.

Table 2.6 Bridge Sufficiency Rating

Structurally Deficiency Sufficiency Rating Criteria		Flathead River	Pablo Feeder Canal	Wildlife Underpass	Wildlife Underpass
Deck Rating	≤4	7	-	-	-
Superstructure Rating	≤4	7	-	-	-
Substructure Rating	≤4	7	-	-	-
Structure Rating	≤2	7	8	7	7
Waterway Adequacy	≤2	8	9	-	-
Functionally Obsolete Sufficiency Rating Criteria					
Structure Rating	≠3	7	8	7	7
Deck Geometry	≤3	4	9	5	5
Under Clearance	≤3	-	-	-	-
Waterway Adequacy	≠3	8	9	-	-
Approach Roadway Alignment	≤3	8	8	8	8
Design Loading		5 MS 18 (HS 20)	5 MS 18 (HS 20)	5 MS 18 (HS 20)	5 MS 18 (HS 20)
Sufficiency Rating		66.9	84.9	83.2	83.2
Structure Status		Not Deficient	Not Deficient	Not Deficient	Not Deficient

2.9.1 Flathead River Bridge

The Flathead River Bridge is a two lane structure located at RP 61.2. Constructed in 1966 on a horizontal tangent, the bridge is 1,562 feet long and 30 feet wide with 25 spans and a concrete cast-in-place deck. The Flathead River Bridge is categorized as ***not structurally deficient*** and ***not functionally obsolete***. In 2009, the Flathead River Bridge underwent a bridge deck rehabilitation project.

2.9.2 Pablo Feeder Canal

The Pablo Feeder Canal structure is a concrete box culvert located at RP 57.1. Constructed in 2006 on a horizontal tangent, the culvert spans the four-lane divided roadway of US 93 in addition to the two-lane frontage roads on both the east and west sides of US 93 for a total of 8 lanes of traffic. This culvert is 140 feet long and is 22 feet wide situated at a 33-degree skew. To address the moderate potential of strong ground motion in Seismic 3 areas, the appropriate National Earthquake Hazards Reduction Program seismic design parameters were included for a soil profile Type II. The Pablo Feeder Canal structure is categorized as ***not structurally deficient*** and ***not functionally obsolete***.

2.9.3 Wildlife Underpass structures

The Wildlife Underpass structures (Structure Nos. P00005057+07611 and P00005057+07612) are both two lane structures located at RP 57.8. Constructed in 2006 on a horizontal curve, the steel culvert is 25 feet long and 36 feet wide. The Wildlife Underpass structures are ***not structurally deficient*** and are ***not functionally obsolete***.

2.10 Crash Analysis

Safety issues are a concern along US 93 through the study area. In 2010, the MDT Traffic and Safety Bureau conducted a crash analysis along US 93 from RP 55.0 to RP 65.0 through the Polson area. The segments of US 93 between MT 35 and Irvine Flats Road exhibit more urban characteristics while the segments south of MT 35 and north of Irvine Flats Road are more rural; therefore the study area was divided into three segments. The analysis compared the study area with the average crash rates on NINHS routes statewide. The results are shown in Table 2.7.

Table 2.7 US 93 Crash Statistics (RP 55.0 – 65.0)
(from July 1, 2007 – June 30, 2010)

Statewide Average	Study Area			NINHS Rural Routes[1]	NINHS Urban Routes[2]
	South of MT 35*	MT 35 to Irvine Flats Road	North of Irvine Flats Road		
All Vehicles Crash Rate	1.58	2.33	1.32	1.07	5.06
All Vehicles Severity Index	1.95	1.57	1.86	2.14	1.67
All Vehicles Severity Rate	3.08	3.66	2.46	2.29	8.48
Commercial Vehicles Crash Rate	2.63	4.44	1.05	0.90	
Commercial Vehicles Severity Index	1.88	1.22	1.00	2.34	
Commercial Vehicles Severity Rate	4.94	5.42	1.05	2.11	
Commercial Vehicle Crashes	8	18	4		
All Vehicle Crashes	73	256	79		

** Segment reconstructed, completed in 2006. Data from 3-year time period July 1, 2007 – June 30, 2010.*
Dark gray shading denotes segments of "urban" character of US 93.
1. NINHS Route averages outside the city limits from 2005 through 2009.
2. NINHS Route averages within city limits from 2004 through 2008.
Source: MDT Traffic and Safety Bureau, 2010.

The crash rate within the US 93 corridor is higher than the average comparable rural routes throughout the state of Montana. The "urban" section from MT 35 to Irvine Flats Road is higher than the NINHS rural routes, but less than the NINHS urban routes. Currently, the section from MT 35 to Irvine Flats Road is not functionally classified as an urban section.

2.11 Railroad

MRL track, which ends just within the southern boundary of the corridor study area, is a factor in developing improvement options. Guidelines have been established defining construction requirements and development standards near railroad facilities. In addition to a short segment of track infrastructure, MRL also has land ownership interspersed throughout the study area, primarily along 7th Avenue. Any alignments developed along the railroad corridor would need to comply with specified railroad requirements.

2.12 Utilities

Several utilities exist throughout the corridor study area, primarily along the US 93 corridor. Utilities include power (overhead and underground), telephone, water, sewer, gas, and fiber optics. As potential alignments were developed, a cursory review of potential impacts to utilities was made. Utility adjustments and/or relocations may delay projects if they are not identified in the project development process.

2.13 Access Points

There are 115 access points along the existing US 93 (58 north/east and 73 south/west) from RP 56.5 (Caffrey/Ford Road) to RP 63.0. Access control is implemented along existing US 93 from the study area boundary north to MT 35. Table 2.8 contains a listing of approaches by approximate half-mile increments. It should be noted that between RP 56.5 and 63.0, the average density is 20 accesses per mile.

Table 2.8 Access Points along US 93

Reference Post (RP)	North/East of US 93		South/West of US 93		Total	
	No. Accesses	Density (access/mi)	No. Accesses	Density (access/mi)	No. Accesses	Density (access/mi)
56.5 to 57.0	2	4	2	4	4	8
57.0 to 57.5	1	2	0	0	1	2
57.5 to 58.0	0	0	1	2	1	2
58.0 to 58.5	1	2	1	2	2	4
58.5 to 59.0	1	2	1	2	2	4
59.0 to 59.5	8	16	4	8	12	24
59.5 to 60.0	16	32	11	22	27	54
60.0 to 60.5	8	16	20	40	28	56
60.5 to 61.0	13	26	23	46	36	72
61.0 to 61.5	2	4	3	6	5	10
61.5 to 62.0	3	6	4	8	7	14
62.0 to 62.5	2	4	1	2	3	6
62.5 to 63.0	1	2	2	4	3	6

2.14 Environmental Settings

An Environmental Scan Report was prepared for this corridor study (Appendix B) to identify known resources, potential impacts, and regulatory requirements that may result if alignments are forwarded from this study. In compliance with NEPA/MEPA regulations, all state and federal actions require a level of analysis to determine whether improvement options can be developed to avoid, minimize, or mitigate potential impacts to social, economic and environmental resources. The following environmental elements have been identified as potentially being impacted (see Appendix B – Environmental Scan Report for more detail) and are summarized below.

2.14.1 Physical Environment

Air Quality

Under the Federal Clean Air Act (Title 42 United States Code, Chapter 85), specific allowable ambient concentrations for criteria pollutants have been established in order to protect human health and welfare. These allowed pollutant concentration levels are known as the National Ambient Air Quality Standards (NAAQS). Certain areas of special natural, scenic, recreational, or historic value are provided special protection under the Clean Air Act from considerable deterioration. These areas have been designated as Class I Airsheds. The Flathead Indian Reservation has been designated as a Class I Airshed. As such, special protections apply within the study area.

In addition, certain geographical regions that violate the NAAQS are designated as 'non-attainment areas'. Non-attainment areas receive special attention and mitigation efforts in order to improve the ambient air quality to the established standards. The study area is located within a designated non-attainment area for particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}). The U.S. Environmental Protection Agency (EPA), in cooperation with CSKT, has regulatory authority in the study area. Because the study area is located in a nonattainment area, transportation conformity will be required. Transportation conformity ensures that any proposed project will comply with the approved plan to bring an area into compliance with the NAAQS. A regional emissions analysis will be necessary if the proposed project is considered "regionally significant" as defined in 40 CFR 93.101 since there is no metropolitan planning organization for the City of Polson. The project may also require a hot-spot analysis for PM_{10}, or any other pollutants that may be of concern at the time of project development.

Any alignments forwarded from the corridor study into project development will need to be evaluated to determine if the project is regionally significant. In addition, the effects of greenhouse gas emissions and climate change may need to be considered.

Soil Resources and Prime Farmland

The Farmland Protection Policy Act of 1981 was established to minimize the impact federal actions have on any unnecessary and irreversible conversion of farmland to nonagricultural uses and the compatibility with policies to protect farmland. Due to the presence of prime farmland and farmland of statewide and local importance, there is potential for farmlands to be impacted as alignment options develop. The U.S. Department of Agriculture Natural Resources Conservation Service has established form AD-1006, Farmland Conversion Impact Rating which evaluates the potential impact on agricultural land if converted to non-farm use. If a project is forwarded from this study the assessment form would be required in the environmental review process.

Water Resources

Surface Water

Polson is situated along the southern shore of Flathead Lake, the largest natural, freshwater lake in the western United States. CSKT administers Tribal Ordinances 64 A and 87A which deal with Flathead Lake shoreline structures and dredge and fill activities on all other waterbodies within the Reservation. In addition, the U.S. Army Corps of Engineers (USACE) administers Section 404 of the Clean Water Act, which regulates the discharge of dredge and fill materials into jurisdictional waterways.

Under Section 106 of the federal Clean Water Act (Title 33 United States Code, Chapter 26), the CSKT has been granted 'treatment as a state' by the EPA. The CSKT has authority to set water quality standards for waterbodies within the Reservation. The CSKT also has authority to implement the Section 401 program of the federal Clean Water Act. Section 401 certification from CSKT would be required for any permit issued by the USACE for the discharge of dredged or fill material.

According to the Montana Department of Environmental Quality (DEQ), Flathead Lake is an impaired waterbody which partially supports its aquatic life beneficial uses. The probable causes of impairment include mercury, total nitrogen, total phosphorus, polychlorinated biphenyls, and sedimentation/siltation. A Total Maximum Daily Load (TMDL) is required to address the factors causing these impairments. When TMDLs are prepared and implementation plans are in place, any construction practices will need to be evaluated for compliance with the requirements set forth in these plans.

If an alignment is forwarded into project development, impacts to surface water resources should be avoided to the greatest extent practicable. All unavoidable impacts will need to be mitigated as required by the CSKT and USACE. Potential mitigation sites should be investigated and constructed prior to project impacts.

The Polson Airport's runway extends to the Flathead River and includes a seaplane parking area. If an alignment is forwarded into project development, alignment of any river crossing will need to account for these facilities.

Irrigation

The Flathead Irrigation District is located within the study area. The Flathead pumping system supplies water to the Pablo Reservoir and to the western portion of the Polson area. The pumps are operated only when there is a need to supplement gravity supplies. In certain instances, irrigation ditches may be considered jurisdictional waterways; therefore, specific regulatory requirements may apply to work within these structures.

Wetlands

Formal wetland delineations will need to be conducted according to standard USACE defined procedures if an improvement options is forwarded during the project development process. Jurisdictional determinations of wetlands will also be conducted during the project development process. Wetland impacts should be avoided to the greatest extent practicable. All unavoidable wetland impacts will need to be mitigated as required by the USACE and other applicable regulations. Potential mitigation sites should be investigated and constructed prior to project impacts. The USACE generally requires that compensatory mitigation occur in the same watershed as the impacts. The Lower Clark Fork and Flathead watersheds are located within the study area. Coordination with USACE will be necessary to determine the appropriate location of any mitigation site.

Floodplains (EO 11988) and Floodways

Executive Order (EO) 11988, Floodplain Management, requires federal agencies to avoid direct or indirect support of floodplain development whenever a practicable alternative exists. EO 11988 and FHWA regulations (23 CFR 650 Part A) requires an evaluation of project alternatives to determine the extent of any encroachment into the base floodplain. Coordination with Lake County should be conducted during the project development process to determine if floodplain permits are required.

Hazardous Substances

The Montana Natural Resource Information System (NRIS) database was searched for documented leak sites within the study area. There were 21 identified leaking tank sites in Polson. Abandoned mine sites were also identified in the study area. Additional unknown contaminated sites may be identified during the project development process and/or during construction.

If an alignment is forwarded into project development, further evaluation may be needed at specific sites to determine if contamination will be encountered during construction. This may include reviewing DEQ files and conducting subsurface investigation activities to determine the extent of soil and groundwater contamination. If it appears that contaminated soils or groundwater could be encountered during construction, handling/disposing of the contaminated material will need to be conducted in accordance with State, Federal, Tribal, and local laws and rules.

2.14.2 Biological Resources

Biological resources in the study area were identified using maps, aerial photographs, Montana Natural Heritage Program (MNHP) data, and the endangered, threatened, proposed, and candidate species list for Montana counties. This limited survey is not intended to be a complete and accurate biological survey of the study area. Rather, a complete biological survey of the study area will be conducted in accordance with accepted practices if an improvement option is forwarded during the project development process. CSKT biologists should be contacted for local expertise of the project area.

Fish and Wildlife

The Pablo National Wildlife Refuge is located south of the study area. Within the borders and adjacent to this wildlife refuge, nesting Bald Eagles, trumpeter swans, and common Loons, as well as numerous small mammals and species of waterfowl have been documented.

Riparian and river, stream, or creek habitats should be avoided to the greatest extent practicable, including but not limited to, Flathead River and Flathead Lake. Fish and wildlife species use waterway corridors during all life stages. Encroachment into the wetted width of any waterway and the associated riparian habitat should be limited to the absolute minimum necessary for the construction of the proposed project. Soils, vegetation, and flooding data can be utilized in determining the extent of riparian habitat.

Threatened and Endangered Species

The Federal list of threatened and endangered species is maintained by the U.S. Fish and Wildlife Service (USFWS). Species on this list receive special protections under the Endangered Species Act (Title 16

United States Code, Chapter 35). Lake County has been documented to possess the threatened Grizzly Bear, the threatened Canada Lynx, and the threatened Bull Trout as well as critical habitats for these species. Transient movements of Grizzly Bears may occur within the study area. The study area is unlikely to possess any suitable habitat or see any transient use by Canada Lynx, however. The Flathead River along the western border of the study area contains a viable recreational fishery and critical habitats for the threatened Bull Trout. Effective May 5, 2011, the gray wolf was de-listed from the threatened and endangered species list.

Further evaluation of potential impacts to all threatened, endangered, proposed, or candidate species will need to be conducted during the project development process if an alignment is forwarded. Updated critical habitat maps should be consulted during the project development process.

Species of Concern

A search of the MNHP species of special concern database revealed eight animal species of concern in the study area. The Townsend's big-eared bat, gray wolf, common loon, bald eagle, bobolink, long-billed curlew, grasshopper sparrow, and bull trout were listed as potential species of concern.

The results of a data search by the MNHP reflect the current status of their data collection efforts. These results are not intended as a final statement on sensitive species within a given area, or as a substitute for on-site surveys. On-site surveys would need to be completed during the project development process.

Wildlife and Traffic Concerns

During the project development process, CSKT wildlife biologists will need to be consulted to determine what measures, if any, are needed to address wildlife crossings along the proposed improvement option. Some wildlife crossings have already been installed along US 93 within the study area.

Vegetation

Threatened and Endangered Species

The threatened, endangered, proposed, and candidate plant species list for Montana counties was consulted. This list generally identifies the counties where one would reasonably expect the species to occur, not necessarily every county where the species is listed.

According to the USFWS, two plant species are listed as threatened in Lake County: the Spalding's Campion and the Water Howellia. An evaluation of potential impacts to all threatened, endangered, proposed, or candidate species would need to be conducted during the project development process.

Species of Concern

A search of the MNHP species of special concern database revealed three plant species of concern in the study area. The sweet flag, lake-bank sedge, and scribner's panic grass were listed as potential plant species of concern in the study area.

The results of a data search by the MNHP reflect the current status of their data collection efforts. These results are not intended as a final statement on sensitive species within a given area, or as a substitute for on-site surveys. On-site surveys would need to be completed during the project development process.

Noxious Weeds

The following noxious weeds have been identified as present in Lake County: Leafy Spurge, Spotted Knapweed, Russian Knapweed, Dalmatian Toadflax, and Sulphur Cinqueful. Spotted Knapweed is known to be present within the study area. The study area will need to be surveyed for noxious weeds during the project development process.

To reduce the spread and establishment of noxious weeds and to re-establish permanent vegetation, disturbed areas will need to be seeded with desirable plant species. County Weed Control Supervisors should be contacted prior to any construction activities regarding specific measures for weed control.

2.14.3 Social and Cultural Resources

Demographic Information

To provide a context in which to evaluate social impacts, characteristics of the existing population are presented below in Tables 2.9 and 2.10.

Table 2.9 US Census Bureau Demographic Information

Area	Population (2008)	Population % Change (4/1/00 thru 7/1/08)	Median Household Income (2008)	Persons Below Poverty (2008)	Persons per Square Mile (2000)
Lake County	28,690	8.2%	$38,505	21.3%	17.7
State of Montana	967,440	7.2%	$43,948	14.1%	6.2

As shown in Table 2.9, Lake County has experienced a higher growth rate than the State of Montana as a whole. Lake County also has a greater percentage of persons living below the poverty line. As shown in Table 2.10 below, the median household income for the City of Polson was estimated to be $21,870 in the year 2000, well below the average for the state of Montana at that time.

Table 2.10 City of Polson US Census Bureau 2000 Data

Total Population	4,041
White (%)	78.2
African American (%)	0.1
American Indian/Alaska Native (%)	16.1
Asian (%)	0.5
Native Hawaiian/Pacific Islander (%)	0.1
Hispanic/Latino (%)	2.3
2 or more races (%)	4.5
Median Household Income	$21,870
Persons Below Poverty	19.8

Environmental Justice

Title VI of the US Civil Rights Act of 1964, as amended (Title 42 United States Code, Chapter 21) and EO 12898 require that no minority, or, by extension, low-income person shall be disproportionately adversely impacted by any project receiving federal funds. For transportation projects, this means that no particular minority or low-income person may be disproportionately isolated, displaced, or otherwise subjected to adverse effects. Environmental justice would need to be addressed if an alignment is forwarded during the project development process.

Archaeological Resources

The Montana State Historic Preservation Office (SHPO) was contacted to determine the presence of any known cultural and/or historic sites within the study area. The file search yielded one previously recorded cultural resource site. This site is listed as a prehistoric lithic scatter. Although only one cultural site was identified in the file search, there are undoubtedly many more archeological sites located along the Flathead River and in undeveloped areas outside of Polson. MDT has designated areas as 'sensitive' where there is a high likelihood that intact archaeological sites are present (Note: Not all of the areas designated as 'sensitive' have the potential for intact archaeological sites. The 'sensitive' designation includes other resources, as well.). If an alignment is forwarded into project development, on the ground fieldwork and coordination with CSKT and Tribal Historic Preservation Office (THPO) will be necessary to determine where additional cultural resources are located.

Historic Resources

The file search conducted by SHPO also revealed 62 previously recorded historic properties within the study area. Most of these historic properties are residences located within the City of Polson. The list of previously recorded cultural and historic sites is contained in the Environmental Scan Report (Appendix B).

If alignments are forwarded from this study and are federally-funded, a cultural resource survey of the Area of Potential Effect for this project as specified in Section 106 of the National Historic Preservation Act (Title 16 United States Code, Chapter 1; 36 CFR 800) will need to be completed. Coordination with the THPO would be required. Section 106 requires Federal agencies to "take into account the effects of their undertakings on historic properties."

Protected Resources

Reviews were also conducted to determine the presence of known Section 6(f) and Section 4(f) properties within the study area.

6(f) Resources

Section 6(f) of the Land and Water Conservation Funds (LWCF) Act (Title 16 United States Code, Chapter 1) applies to all projects that impact recreational lands purchased and/or improved with LWCF. The Secretary of the Interior must approve any conversion of property acquired or developed with assistance under this Act to other than public, outdoor recreation use. Eight 6(f) properties have been identified within the study area and are as follows:

- Polson Boettcher City Park
- Polson Waterfront Facility
- Polson Boettcher Park Sewer Improvement
- Polson Golf Course – Renovation
- Polson Tennis Courts Dev.
- Polson Sports Complex
- O'Malley Ballpark Improvements
- City of Polson Salish Point Project

4(f) Resources

Section 4(f) of the 1966 Department of Transportation Act (49 USC 303) applies if Federal transportation funds are used on a project and provides for the protection of publicly owned parks, recreation lands, historic sites, wildlife or waterfowl refuges, and any historic site of national, state, or local significance. If Section 4(f) properties are impacted, a Section 4(f) evaluation will be completed to demonstrate compliance. Under the requirements of Section 4(f), FHWA is required to consider avoidance alternatives to impacting Section 4(f) resources. If a feasible and prudent avoidance alternative to impacting a Section 4(f) resource exists, FHWA is obligated to select that alternative. If no feasible and prudent avoidance alternatives exist, FHWA is obligated to consider the alternative that results in the least harm to Section 4(f) resources. There are 23 potential parks and recreational areas within the City of Polson that are likely 4(f) resources. In addition to the 22 potential parks and recreations areas identified in the Environmental Scan Report, the Travis Dolphin Dog Park was identified by members of the public as a potential 4(f) site. These 4(f) resources include any historic or archaeological sites on or eligible for inclusion in the National Register as well as significant publicly-owned parks, recreational areas, and wildlife or waterfowl refuges.

Noise

If an alignment is forwarded into project development, an extensive noise study would be required to determine where noise-sensitive land uses are located, what existing noise levels those areas are experiencing, and to estimate what future noise levels will be as a result of the project. Previous noise studies have been conducted in the study area for the 1996 FEIS. If the project is expected to change traffic volumes on other routes, then off-project routes should also be studied for noise impacts. In areas of residential development, noise impacts (existing or predicted) may need to be mitigated. The most common mitigation is noise barriers in the form of walls and berms. Right-of-way acquisition to create a buffer zone is also a viable form of noise abatement.

Visual Resources

Visual resources refer to the landscape character, visual sensitivity, scenic integrity, and landscape visibility of a geographically defined view shed. The Polson view shed is part of a broad valley with surrounding mountains. Flathead Lake's Polson Bay is immediately north of the city. The hilly terrain surrounding the area provides a variety of opportunities for viewing Flathead Lake. The Flathead River flows southwest from Polson Bay, along the western side of the City of Polson. The Mission Mountains border the eastern portion of the city. The landscape also includes several man-made canals, croplands, existing vegetation, rural areas with ranches and scattered home sites, and the developed urban environment of Polson itself.

Chapter 3 Consultation, Coordination and Community Involvement

An important goal of the US 93 Polson Corridor Planning Study process was to have ongoing community involvement. Education and community outreach were an essential part of achieving this goal. A Public Participation Plan (Appendix C) was developed to identify community involvement activities needed to gain insight and build consensus about existing and future corridor needs. The purpose of the Public Participation Plan was to ensure a proactive community participation process that provides opportunities for the community to be involved in all phases of the corridor study process.

3.1 Informational Meetings

The purpose of the first informational meeting was to inform the community on the corridor study and gather community input on the existing conditions and concerns within the corridor. The purpose of the second informational meeting was to inform the community on the progress of the study and present potential US 93 alternate routes addressing safety and environmental concerns based on needs presented by the community, study partners, and resource agencies. A third and final informational meeting presented the findings of the corridor study and solicited comments from the community on the conclusions and recommendations contained in the report.

3.1.1 Meeting Description and Context

The first informational meeting for the US 93 Polson Corridor Study was held on Thursday, September 9, 2010, from 4:00 pm to 8:00 pm at the Polson City Library. A total of 76 members of the community were in recorded attendance at this first informational meeting. This number does not include individuals on the Technical Oversight Committee (TOC).

The second informational meeting for the US 93 Polson Corridor Study was held on Thursday, February 24, 2011, from 6:00 pm to 8:00 pm at the Polson High School Auditorium. A total of 38 members of the community were in recorded attendance at this second informational meeting. This number does not include individuals on the TOC.

The third and final informational meeting for the US 93 Polson Corridor Study was held on Wednesday, June 29, 2011, from 6:00 pm to 8:00 pm, at the Polson High School Auditorium. A total of 35 members of the community were in recorded attendance at this final meeting. This number does not include individuals on the TOC.

3.1.2 Community Notification

Display ads within the *Char-Koosta News, Polson Lake County Leader*, and the *Kalispell Daily InterLake* announced informational meetings both three weeks and one week prior to the meeting. The ads announced the meeting location, time, date, meeting format, meeting purpose, and locations where documents may be reviewed. News releases were submitted to the *Char-Koosta News*, *Polson Lake County Leader*, *The Valley Journal*, *The Missoulian*, *Kalispell Daily InterLake*, and *Flathead Beacon*. The newspapers published the news releases at their discretion. Additional notification was sent via email to interested individuals who provided contact information by participating in informational meetings and/or provided written comments on the study. Copies of approved meeting announcements are contained within Appendix A – Consultation, Coordination and Community Involvement.

3.1.3 Meeting Format

The first informational meeting began with a two-hour open house. The open house provided an opportunity for the community to interact one-on-one with the study team and provide input on the corridor issues and concerns. A formal PowerPoint presentation followed the open house which introduced the corridor planning study, allowed attendees to ask questions, and allowed attendees to solicit input on the existing conditions and concerns within the corridor. The presentation provided an overview of the corridor planning process and the history of the US 93 Polson corridor. Graphics showing known environmental resources and potential constraints within the corridor study boundary were displayed to present potential areas of concern throughout the corridor. After the formal presentation, an opportunity was given for the community to ask questions and provide comments regarding the corridor.

The second informational meeting began with a PowerPoint presentation reviewing conditions and characteristics of the existing corridor and presenting the needs and objectives of the corridor. Additionally, 11 potential alternate routes were presented based on the 1996 FEIS and Quantm software. After the presentation, an opportunity was provided for the community to ask questions and provide comments.

The third and final informational meeting was not equipped with a screen, so a PowerPoint presentation was not utilized, but instead, large display boards were used throughout the presentation. The presentation highlighted the results of the screening process, and explained the recommendations contained in the corridor study. The outcome of the screening process and consideration of other information resulted in two potential alternate routes that may be recommended for future consideration, should funding become available. However, as part of any alignment discussion through or around Polson, the existing US 93 corridor will need to be considered as an option. After the presentation, the community provided questions and input.

3.1.4 Issues and Comments by the Community

Following the PowerPoint presentation at the first information meeting, questions and discussion items were recorded. A detailed list of questions and discussion topics is present in the meeting minutes contained in Appendix A. Questions and discussion topics evolving from the meeting are summarized below:

- Traffic considerations such as peak summer traffic and vehicle types should be made.
- Analyze new and 1996 FEIS alignments, including a two-way couplet.
- Comments arose regarding information available to the public and the commenting process.

- Consider impacts to economics, bridges, wildlife, access points, connectivity to parks, bicycle/pedestrians, etc.
- Consider adding additional entities to the list of stakeholders.
- Look into soils classifications and flooding frequency (occasional/frequent).

A summary of the discussion items evolving from the second informational meeting are presented below. A detailed list of comments and questions/answers is provided in Appendix A on the CD.

- Issues and constraints were identified including the railroad tracks, transfer station, pump station, and noise pollution and exhaust from truck traffic in residential neighborhoods.
- Lake County has extensive geographic information system (GIS) information available for use.
- Quantm generated new bridge crossing locations and these alignments on the map are approximately 300 feet in width. They are preliminary "swaths".
- The community asked that the following list be taken into consideration: Improvements along 7th Avenue, the area from Cougar Ridge west to the hospital, access control, the approved Super WalMart property, and a couplet.
- Negative economic impacts resulting from a "bypass".
- Questions were asked about the corridor study process, cost of an alternate route, next steps including the NEPA/MEPA process, availability of information, the influence of Tribal Trust and Tribal Lands, a do-nothing option, the public's influence, and funding.
- Property values are impacted.
- Do Polson businesses rely on thru-traffic or passers-by? Or do businesses rely on destination traffic?
- Look at the 1910 Bridge location.

The questions and input resulting from the third and final informational meeting are summarized below:

- Commenters noted that traffic volumes have increased in the past 8 years and have also increased due to the aquatic center and shops. Traffic volumes would decrease at the museum if an alternate route were implemented.
- MT 35, Kerr Dam Road, and Back Road are seeing increased truck traffic.
- Consideration should be given to alleviate the increase in traffic near MT 35 and US 93.
- The potential negative impacts to 4(f) properties, homes, and farms along Kerr Dam Road and Ponderilla Hills Subdivision were noted. 4(f) properties are important when Federal funding is used for construction.

- Commenters asked about the final design issues such as potential grade issues on Kerr Dam Road, turn lanes needed for safety, right-of-way needed, and the location of an alternate route within current easements.
- Support was voiced for improvements to US 93. The flexibility for US 93 to transition from a 3-lane section to a 5-lane section, or vice versa was noted.
- Commenters asked if the existing bridge met design standards and if a second bridge near Glacier Bank has been considered.

3.2 Stakeholder Involvement

A stakeholder contact list was developed to include individuals, businesses, or groups identified by the TOC and community based on their knowledge of the study area and their usage within the study area.

The intent of developing the stakeholder list was to identify individuals and groups to actively seek out and engage in the various phases of the study. The following groups or businesses were included in the initial list, and study newsletters were sent out to each group as they were developed:

- CSKT Tribal Council
- City of Polson
- Lake County Commissioners
- Lake County Planner
- Polson Chamber of Commerce
- Polson Airport
- Polson K-12 School District
- Downtown Chamber of Commerce
- US 93 User's Group
- Water User's Group (Flathead Lake and Flathead River)
- Flathead Irrigation District
- Polson Bike Group
- Lake County Community Development
- Tribal Law and Order
- Tribal Fish and Wildlife
- Office of Emergency Management

- Montana Department of Fish, Wildlife & Parks (MFWP)
- County Fire Departments and Emergency Medical Personnel
- County Sheriff and Montana State Highway Patrol
- Montana Trucker's Association
- Interested Landowners
- Employers:
    - *KwaTaqNuk Resort*
    - *St. Joseph Medical Center*
    - *Businesses along US 93*

3.3 Resource Agency Workshop

A resource agency workshop was held on September 30, 2010. The resource agency workshop was held to introduce the US 93 Polson Corridor Study process and gather resource agency concerns regarding resources that could be affected by potential alternate routes. Each agency was sent an *Environmental Scan Report*, newsletter, and study area boundary map prior to the meeting to ensure adequate preparation for further discussion. The agencies involved in this meeting included MDT, FHWA, CSKT, Tribal Preservation Office, Lake County, City of Polson, DEQ, EPA, MFWP, and USACE.

The meeting began with a PowerPoint presentation containing an overview of the pre-NEPA/MEPA corridor study process, a summary of the community involvement at the first informational meeting, and an introduction to the resource areas potentially impacted. Following the presentation, there was an opportunity for specific discussion on resource areas that the agencies considered needed further investigation and addressing. Meeting notes from this meeting can be found in Appendix A.

3.4 Other Community Involvement Efforts

Three newsletters were produced to describe the corridor study process, potential alignments, the screening process, and the results from the screening process, and can be found in Appendix A. In addition to mailing each newsletter to the identified stakeholders, the newsletters were also made available as handouts during informational meetings and at the following locations:

- Polson City Hall
- Lake County Planning Department
- CSKT Tribal Land Use Planning Office
- Polson City Library
- MDT District 1 Office – Missoula

- MDT Area Office – Kalispell
- MDT Statewide and Urban Planning Section Office – Helena

A website was established to provide up-to-date information regarding the study as well as an opportunity for the community to provide comments on the study. The website www.mdt.mt.gov/pubinvolve/polsoncorridorstudy was maintained by MDT.

On December 9, 2010, the consultant project manager had the opportunity to meet with the Polson Chamber of Commerce membership. There were approximately 36 members in attendance. The meeting provided an opportunity for the Chamber to learn about the corridor planning process and also ask questions and identify concerns within the corridor.

On April 21, 2011, the consultant project manager attended the CSKT Tribal Council meeting. The meeting was an opportunity to present the outcome of the screening process.

Chapter 4 Corridor Needs and Objectives

Needs and objectives for the US 93 corridor within the study area were identified after a comprehensive review of existing data, plans, resource agency and TOC coordination and community input. The discussion and analysis leading to the development of these needs and objectives recognizes both MDT's concerns to enhance traffic flow and the local governments' desire to enhance livability and connectivity within the community.

The needs or objectives followed by an asterisk implies a variation on the needs or objectives contained in the 1996 FEIS fully referenced in Chapter 9 of this document. Needs and objectives without an asterisk were developed by the community and/or TOC.

4.1 Needs and Objectives:

4.1.1 Need Number 1: System Linkage and Function

Preserve functionality of US 93 as a principal arterial.

Objectives

- Maintain connections of Polson with other Montana communities.
- Maintain connections to other major highways in the corridor.

4.1.2 Need Number 2: Transportation Demand and Operation

Accommodate existing and future transportation demand on US 93 through the planning horizon of the year 2030.

Objectives

- Maintain a level of service (LOS) B or better for roadway segments along US 93 (rural principal arterial), to the extent practicable. *
- Maintain a LOS C or better for roadway segments along US 93 (urban principal arterial), to the extent practicable. *
- Acknowledge the increase in non-motorized transportation uses and provide for appropriate infrastructure, to the extent practicable.

4.1.3 Need Number 3: Roadway Geometrics

Provide a facility that accommodates the diversity of vehicle types.

Objectives

- Provide appropriate lane configuration(s) to accommodate the vehicle demand expected under existing and future conditions, to the extent practicable.
- Provide for unique turning movements and grade requirements for specialized vehicles such as semi-trucks and recreational vehicles, to the extent practicable.

- Improve the road and bridge surfacing widths to meet current MDT design criteria, to the extent practicable.

- Provide modifications to the roadway horizontal alignment and vertical alignment to meet current MDT design criteria, to the extent practicable.

4.1.4 Need Number 4: Safety

Improve the safety of US 93. *

<u>Objectives</u>

- Provide adequate clear zones along US 93 by identifying and removing obstacles, upgrading shoulder widths, and providing urban roadway features in accordance with MDT design criteria, to the extent practicable.

- Manage community access points and private approaches by providing appropriate features commensurate with the types and volumes of traffic encountered at each approach, and/or by consolidating or closing approaches, to the extent practicable.

4.1.5 Need Number 5: Livability and Connectivity

Reduce conflicts by enhancing connectivity and minimizing impacts within the US 93 corridor.

<u>Objectives</u>

- Minimize impacts to existing neighborhoods. *

- Minimize impacts to environmental, sensitive and recreational resources, including trails. *

- Be responsive to land use plans and future transportation needs. *

4.1.6 Need Number 6: Truck Traffic

Minimize the impacts of US 93 thru truck traffic.

<u>Objectives</u>

- Provide appropriate signage to direct thru truck traffic.

- Minimize the number of vertical grade changes for thru truck traffic.

- Provide acceptable travel times with minimal delay for thru truck traffic.

4.1.7 Other

The following are potential objectives that do not correlate to any of the five needs described above.

- Be responsive to long-term maintenance requirements. *

- Limit construction disruption as much as practicable. *

- Community preference.

Chapter 5 Alignment Identification

An important component of this corridor study is the identification of the process used to develop potential alternate alignments to US 93 for potential forwarding into the screening process. The identification of potential alignments was based on analysis results of the Quantm Alignment Planning System (i.e., Quantm) route optimization software, as well as the assessment of potential alignments contained in the 1996 US 93-Evaro to Polson FEIS. General corridors were identified based on input from local government, the community, and resource agencies.

The identification of alternate alignments is necessary to determine which alignments are most relevant to carry forward into the screening process and determine whether a single, feasible alternate alignment is possible. Although a No Build option was not considered in the screening process, during a NEPA/MEPA environmental review, a No Build option is carried forward in order to provide a baseline by which the other alternatives are evaluated. Since an EIS was previously prepared for US 93 in the Polson area with no conclusion on this section of US 93, it was necessary to evaluate the EIS alignments in this identification process. Additionally, because the Quantm route optimization software was available to the study team, it was decided that any new routes generated by Quantm should also be explored.

5.1 Design Criteria

In order to generate new alignments, minimum geometric design criteria for the roadway must be known. Since the corridor study area incorporates both urban and rural land, MDT's Road Design Manual criteria for rural principal arterials and urban principal arterials were utilized. The minimum geometric design criteria listed in Table 2.2 were used for alignment identification. Portions of the roadway (whether existing or proposed) falling within the Polson city limits were categorized as "urban", while portions outside of the Polson city limits were categorized as "rural".

In some cases, minimum design criteria cannot be achieved. In these circumstances, design exceptions need to be sought and accepted by MDT's roadway design staff. For alignment identification purposes, the need for design exceptions is not explicitly addressed in this corridor study. The existing US 93 does have vertical roadway grade design exceptions on Polson Hill, as the vertical grades in both directions are over the MDT design criteria of 4 percent for a rural principal arterial.

5.2 Data Gathering

The primary objective in gathering data was to identify potential constraints within the study area that could inhibit the development of an alignment. If information was not available within MDT's internal repositories, other GIS data repositories such as NRIS were searched. Additional information was gathered from public sources, interviews with local governments, and staff input. Specific Tribal sensitive area data was provided by CSKT. Information contained within the Environmental Scan Report (Appendix B) for the study area was also included.

In order to determine the preliminary alignments for the study, the TOC reviewed the identified constraints and prioritized the information. The TOC determined which features should be avoided, which data should be considered sensitive, which should be considered an additional cost to the project, and which should be shown on the mapping for reference only. The TOC's conclusions are listed in Table 5.1.

Table 5.1 Feature Identification and Prioritization

<table>
<tr><td colspan="2">Linear Features</td><td>Roads, railroad, irrigation canals, streams, drainages</td></tr>
<tr><td rowspan="3">Special Zones</td><td>Avoid Areas</td><td>4(f) / 6(f) resources (schools, parks, etc.), cemeteries, public water supply, abandoned mines, landfills, sewage lagoons</td></tr>
<tr><td>Sensitive Areas</td><td>Wildlife habitat & crossings, Fairgrounds, native grasslands, specific lands of tribal importance</td></tr>
<tr><td>Additional Costs</td><td>Hazardous areas (underground storage tanks), wetlands*</td></tr>
<tr><td colspan="2">Additional Data</td><td>Study area boundary, Polson city limits, topography, land ownership, vegetation</td></tr>
</table>

*Note: For wetlands, the Clean Water Act requires avoidance and minimization measures to be implemented first before any impacts/mitigation is allowed.

The identification of "avoid" areas and "sensitive" areas was important in the process because Quantm recognizes the importance of certain features based on these two definitions and attempts to route alignments that stay clear of these areas whenever possible. Accordingly, very few of the Quantm generated alignments were found to traverse through an "avoid" area. This process allows the community to identify and prioritize certain features within the community, and results in efforts to stay clear of these areas during the development of potential alternate alignments.

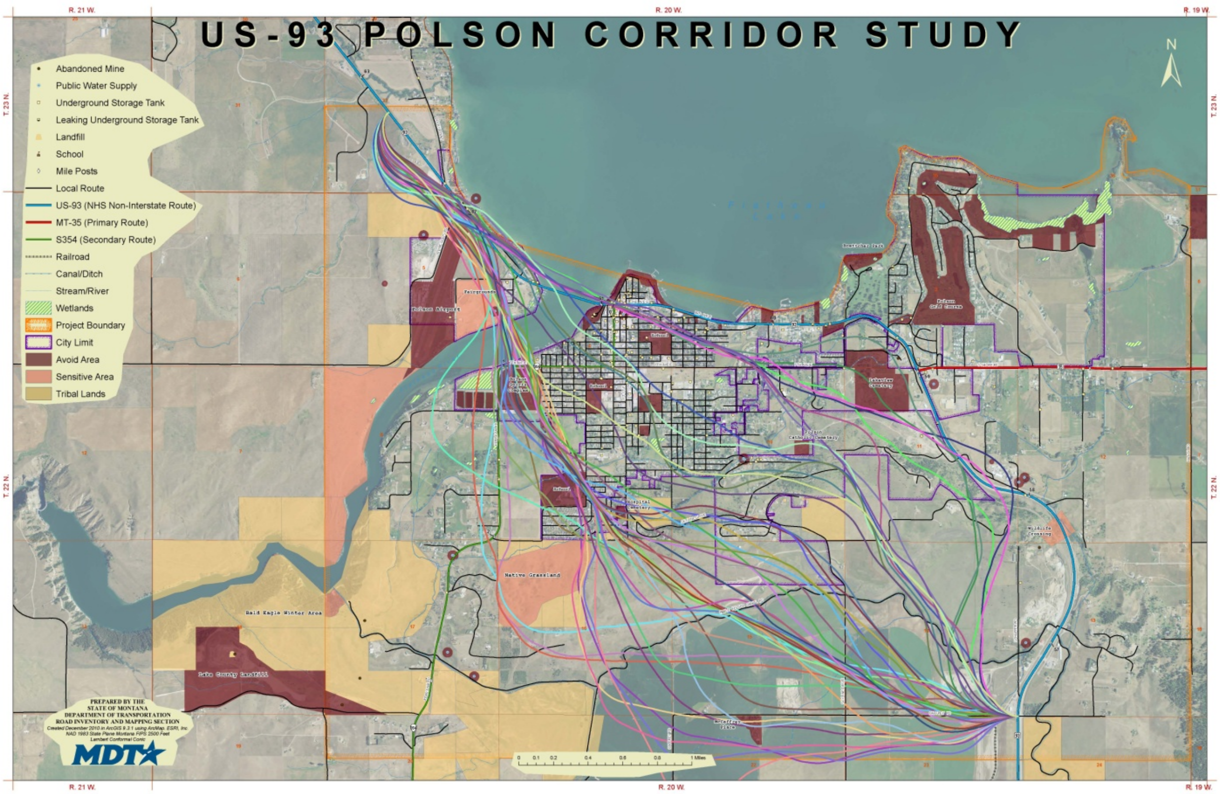
5.3 Quantm Background

The Trimble Quantm Alignment Planning System (i.e., Quantm) is a planning tool that uses route optimization software to generate multiple cost-based alignments that balance social, environmental, and terrain constraints and scenarios. This unique software generated hundreds of potential alignments for review by local stakeholders. As the study progressed, different scenarios were created, and revised alignments were produced for further consideration and refinement. This approach to alignment identification allowed for multiple iterations to fulfill local stakeholders' needs (Trimble 2009).

To begin the Quantm process, all data including linear features, special zones, geometric standards, structure sizes, and Digital Terrain Model was synthesized into a GIS format. Once start and end points were determined, the Quantm system generated multiple potential alignments as presented in the discussion herein.

Figure 5-1 is reflective of a totally "unconstrained" model run in that Quantm alignments generated primarily cut through the existing city proper, without sensitivity to established routes and/or land uses. The purpose of this first model run was to identify what Quantm would generate in an unconstrained condition. The type of information shown in Figure 5-1 is commonly referred to as a "spaghetti" map, in that it portrays a series of fine lines representing potential alignments within the study area.

Figure 5-1 First Run of Potential Alignments



5.4 *Quantm Alignment Trends*

A starting point was determined to be the intersection of Caffrey Road and US 93. The end point was determined to be near RP 63, approximately 0.75 miles northwest of the intersection of Irvine Flats Road with US 93. All of the Quantm alignments use the existing two-mile segment of Caffrey Road from the westerly termini of Caffrey Road back to the US 93/Caffrey Road intersection. The estimated range of costs for the Caffrey Road segment is $4.3 to $5.1 million dollars. These costs are generated by the Quantm route optimization tool and are reflective of construction costs (i.e., do not include detailed right-of-way cost, project development costs, utility relocation costs, inflation, etc.) This planning level cost does not include preliminary engineering, construction engineering, and/or indirect costs (IDCs). Note that this is the case for all planning level costs presented in this chapter.

The five alignment trends produced by Quantm are described below, and are shown graphically on Figure 5-3.

Northern Bridge – 1

This alignment is shown in purple on Figure 5-3. North Bridge – 1 follows Caffrey Road to the westerly termini as described previously, traverses in a northwest direction, clips the tribal native grassland sensitive area, follows Kerr Dam Road to the north, and cuts through the Fairgrounds property. It then intersects US 93 between the airport and the west end of the Flathead River Bridge. The bridge length crossing the Flathead River as computed by Quantm is 1,350 feet. The total length of this alignment, including the Caffrey Road segment, is 5.14 miles. The estimated range of costs for this alignment, which includes the Caffrey Road segment, is $31.0 to $37.0 million dollars.

Northern Bridge – 2

This alignment is sown in orange on Figure 5-3 and follows Caffrey Road, similar to Northern Bridge – 1 described above, and then traverses in a northwest direction. The alignment skirts around the southwest corner of the tribal native grassland sensitive area. As with Northern Bridge – 1, this alignment follows Kerr Dam Road, bisecting the Fairgrounds property prior to intersecting with US 93 between the airport and the west end of the Flathead River Bridge. The bridge length crossing the Flathead River as computed by Quantm is 1,450 feet. The total length of this alignment, including the Caffrey Road segment, is 5.43 miles. The estimated range of costs for this alignment, which includes the Caffrey Road segment, is $33.0 to $39.1 million dollars.

Central Bridge

This alignment is shown in pink on Figure 5-3. The Central Bridge alignment follows Caffrey Road, skirts around the tribal native grassland sensitive area, travels north/northwest and crosses the Flathead River at the southern edge of the airport property. Then, the alignment skirts the western edge of a tribal land parcel (southwest of the existing US 93) and connects with US 93 north of the airport and south of Stone Horse Drive.

The bridge length crossing the Flathead River as computed by Quantm is 1,100 feet. The total length of this alignment, including the Caffrey Road segment, is 6.06 miles. The estimated range of costs for this alignment, which includes the Caffrey Road segment, is $36.0 to $43.5 million dollars.

Southern Bridge – 1

The South Bridge – 1 alignment is shown in green on Figure 5-3 and follows Caffrey Road, clips the tribal native grassland sensitive area, and travels just north of the Bald Eagle winter area where it crosses the Flathead River. This alignment connects with US 93 near RP 63.

The bridge length crossing the Flathead River as computed by Quantm is 1,150 feet. This bridge crossing is almost 100 feet above the river surface (at its highest point). The total length of this alignment, including the Caffrey Road segment, is 7.16 miles. This results in the longest alignment of the five generated by Quantm. The estimated range of costs for this alignment, which includes the Caffrey Road segment, is $34.0 to $44.0 million dollars.

South Bridge – 2

This alignment is shown in yellow on Figure 5-3. The South Bridge – 2 alignment follows Caffrey Road, cuts through the tribal native grassland sensitive area, clips the Bald Eagle winter area, travels along the western side of the study area boundary, and connects to US 93 near RP 63.

The bridge length crossing the Flathead River as computed by Quantm is 1,800 feet. This bridge crossing is the longest bridge crossing length of the five Quantm alignments, and is due to the alignment skew and crossing at a wide spot of the river. Additionally, the elevation of the bridge is the highest and is almost 160 feet above the river surface (at its highest point). The total length of this alignment, including the Caffrey Road segment, is 6.65 miles. The estimated range of costs for this alignment, which includes the Caffrey Road segment, is $37.0 to $47.2 million dollars.

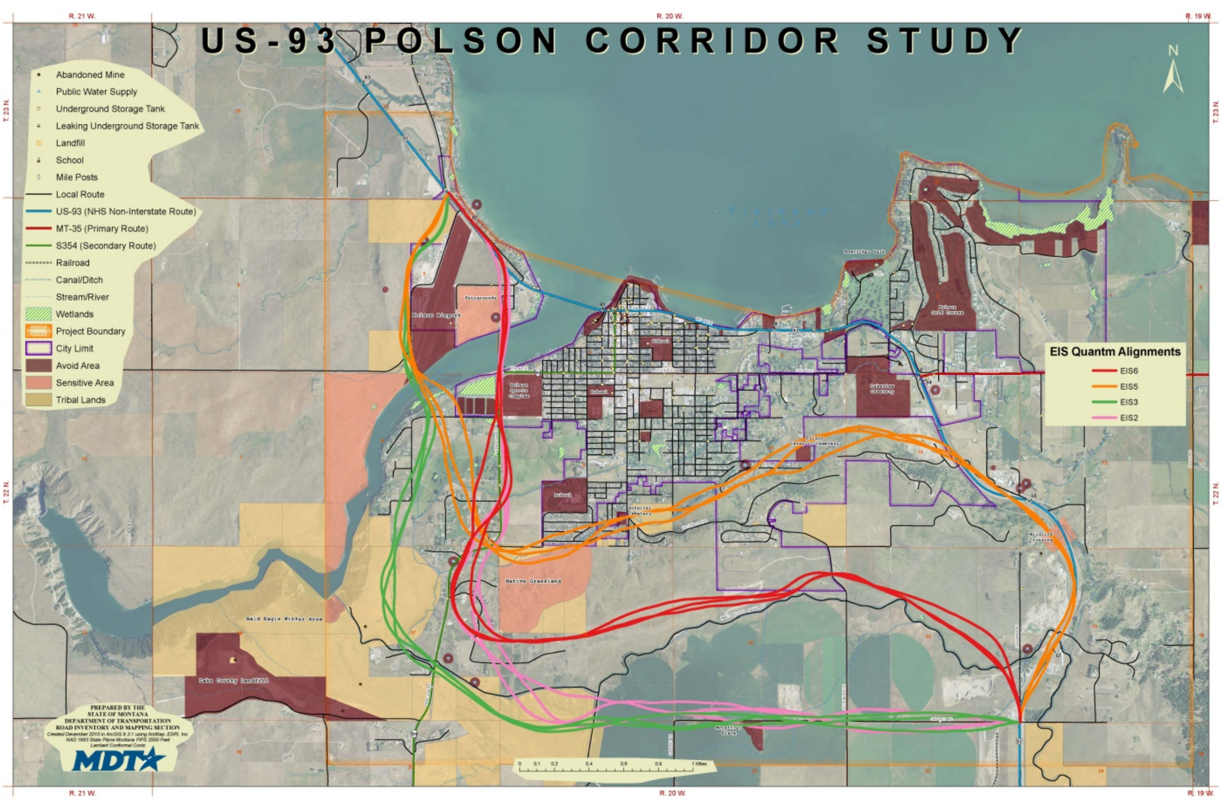
5.5 EIS Alignments

The TOC reviewed and analyzed the eight alternate alignments developed during the preparation of the US 93-Evaro to Polson FEIS (see Figure 5-3). Quantm was used to analyze four of the EIS alignments (EIS Alignment 2, 3, 5, and 6) which were manually entered into the software (see Figure 5-2). Because the remaining four alignments (EIS Alignment 1, 4, 7, and 8) traverse through the City of Polson proper and are more "urban", it was decided that Quantm would not be the appropriate tool for analysis of these alignments. Each of the alignments is defined below and shown on Figure 5-3. Costs generated for each alignment are reflective of construction costs (i.e., do not include detailed right-of-way cost, project development costs, utility relocation costs, inflation, etc.). Planning level costs do not include preliminary engineering, construction engineering, and/or IDCs. Note that this is the case for all planning level costs presented in this chapter.

5.5.1 EIS Alignments Modeled in Quantm

Figure 5-2 shows the EIS alignments that were modeled in Quantm. Each alignment is described in the text that follows.

Figure 5-2 EIS Alignments Modeled in Quantm



EIS Alignment 2

The Quantm alignments generated for EIS Alignment 2 are shown as pink lines in Figure 5-2. This alignment follows Caffrey Road, then curves northwest with no impacts to the tribal native grasslands, before proceeding north along Kerr Dam Road and crossing the river just east of the Fairgrounds property. A new bridge across the Flathead River would be constructed to continue the general Kerr Dam Road alignment straight north over the river.

The bridge length crossing the Flathead River as computed by Quantm is 1,520 feet. The total length of this alignment is 5.74 miles. The estimated range of costs for this alignment is $34.7 to $41.6 million dollars.

EIS Alignment 3

The Quantm alignments generated for EIS Alignment 3 are shown as green lines in Figure 5-2. This alignment follows Caffrey Road and extends approximately one mile west of the end of the road (at the 90-degree bend) before curving to the northwest. The alignment travels north through tribal lands, and then crosses the river just south of the airport. The alignment continues northbound, west of the airport, and ties into US 93 at Rocky Point Road. A new bridge across the Flathead River would be constructed.

The bridge length crossing the Flathead River as computed by Quantm is 1,100 feet. The total length of this alignment is 6.48 miles. The estimated range of costs for this alignment is $30.4 to $36.4 million dollars.

EIS Alignment 5

The Quantm alignments generated for EIS Alignment 5 are shown as orange lines in Figure 5-2. This alignment begins near Saw Mill Road, heads west, then southwest, where it bisects the tribal land located east of the Hospital Cemetery and the tribal native grasslands before heading north toward the southwest corner of the airport. EIS Alignment 5 then continues northbound, west of the airport property, until it connects to US 93.

The bridge length crossing the Flathead River as computed by Quantm is 1,200 feet. The total length of this alignment is 5.17 miles. The estimated range of costs for this alignment is $41.0 to $44.1 million dollars.

EIS Alignment 6

The Quantm alignments generated for EIS Alignment 6 are shown as red lines in Figure 5-2. EIS Alignment 6 starts just north of the intersection of US 93 and Caffrey Road and crosses the Pablo Feeder Canal. This alignment continues to travel west in the general vicinity of the Pablo Feeder Canal, then curves northward (with no impacts to the tribal native grasslands and tribal lands). This alignment proceeds along Kerr Dam Road and crosses the river just east of the Fairgrounds property. A new bridge across the Flathead River would be constructed to continue the general Kerr Dam Road alignment straight north over the river.

The bridge length crossing the Flathead River as computed by Quantm is 1,650 feet. The total length of this alignment is 6.64 miles. The estimated range of costs for this alignment is $45.0 to $48.8 million dollars.

5.5.2 EIS Alignments Not Modeled in Quantm

As discussed previously, due to the urban nature of the remaining four alignments from the US 93-Evaro to Polson FEIS (EIS 1, 4, 7, and 8), it was decided that Quantm would not be the appropriate tool for analysis of these alignments. These four alignments are shown in Figure 5-3 and described below.

EIS Alignment 1

This alignment follows the current US 93 alignment and consisted of reconstructing the roadway in its existing corridor with adjustments to allow for future widening to a consistent 3-lane geometry, 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 would be replaced. The bridge length crossing the Flathead River is 1,560 feet. The total length of this alignment is 5.65 miles; however, the segment from the intersection of Caffrey Road to MT 35 has already been improved. Accordingly, the true length of the alignment that would be in need of reconstruction is 3.11 miles. The estimated range of costs for this alignment is $23.7 to $28.4 million dollars.

EIS Alignment 4

Alignment 4 starts near Saw Mill Road and travels west/northwest until it intersects 7th Street East. At this point EIS Alignment 4 continues due west until it reaches 1st Street East, there it turns south and follows 1st Street East until it reaches 10th Avenue East. At this intersection it travels due west until it reaches the Sports Complex. EIS Alignment 4 then traverses north, crossing the Flathead River and joining US 93 just west of the current bridge. A new bridge crossing the Flathead River would be constructed. The bridge length crossing the Flathead River is 1,400 feet. The total length of this alignment is 3.25 miles. The estimated range of costs for this alignment is $27.8 to $33.4 million dollars.

EIS Alignment 7

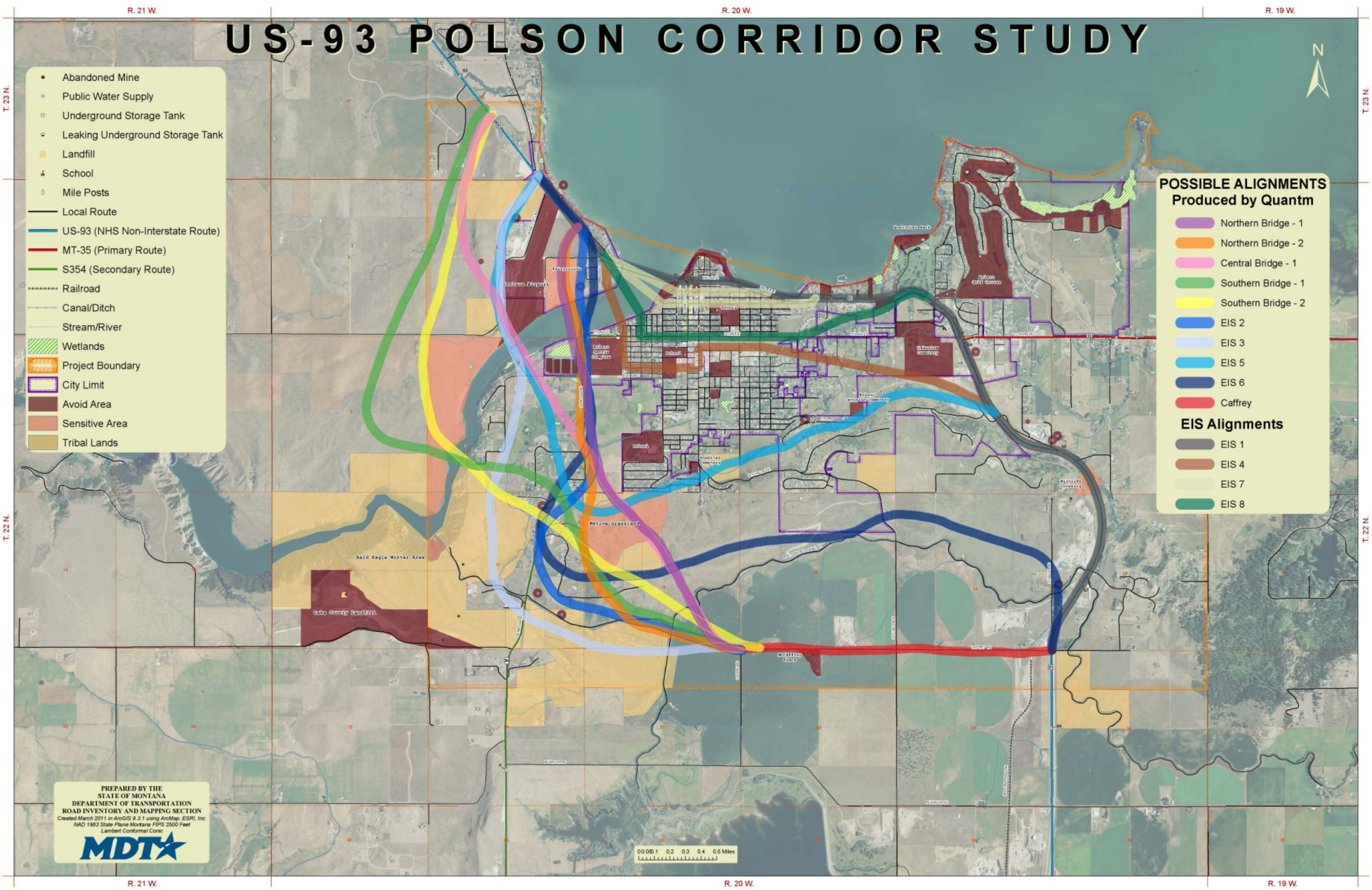
This alignment consists of a couplet utilizing the existing US 93 for the westbound direction, and 3rd Avenue and 4th Avenue, in their entirety, for the eastbound direction (i.e., this alignment start where 3rd Avenue and 4th Avenue connect to US 93 and follow each street until the street ends). As a couplet, this alignment would require a total of three bridge crossings. Two of these bridge crossings would be new (e.g., for the eastbound direction). The couplet alignments would tie into US 93 east of Regatta Road. The total length of this alignment is 2.60 miles. The estimated range of costs for this alignment is $22.1 to $26.5 million dollars.

EIS Alignment 8

This alignment starts at the intersection of 7th Avenue East / Hillcrest Road and US 93. This alignment follows 7th Avenue for approximately the first ¼ mile, then veers off 7th Avenue to form a relatively tangent alignment to the intersection of 11th Street East. This alignment then follows 7th Avenue until the intersection of 4th Street West, at which point it follows 4th Street West northward, crosses the river and unites US 93 just west of the current bridge. A new bridge crossing the Flathead River would be constructed. The bridge length crossing the Flathead River is 1,750 feet. The total length of this alignment is 2.49 miles. The estimated range of costs for this alignment is $26.9 to $32.3 million dollars.

Figure 5-3 shows the alignments produced by Quantm as well as the EIS alignments previously identified in the 1996 FEIS.

Figure 5-3 Potential EIS Alignments and Alignments Produced by Quantm



5.6 *Overall Trends*

The Quantm analysis identified five trend areas resulting in three distinct bridge crossing locations over the Flathead River. These three bridge crossing locations are shown on Figure 5-4 and are as follows:

- Northern Bridge Crossing - Two northern bridge trends (near the Fairgrounds) were found within the Quantm analysis. A detailed review of these two trends led to the creation of a single alignment "swath" to carry forward into the screening process. The Northern Bridge Crossing alignment resulted in a total length of 5.43 miles, and a planning level cost range of $33.0 to $39.1 million dollars.

- Central Bridge Crossing - One central bridge trend (just southwest of the airport runway) was observed in the Quantm analysis. The Central Bridge Crossing alignment resulted in a total length of 6.06 miles, and a planning level cost of $36.0 to $43.5 million dollars. Note that there are two possible variations to the "Central Bridge Crossing" alignment – one traversing west of the ridge near the Polson airport, and one going east of the ridge near the Polson airport.

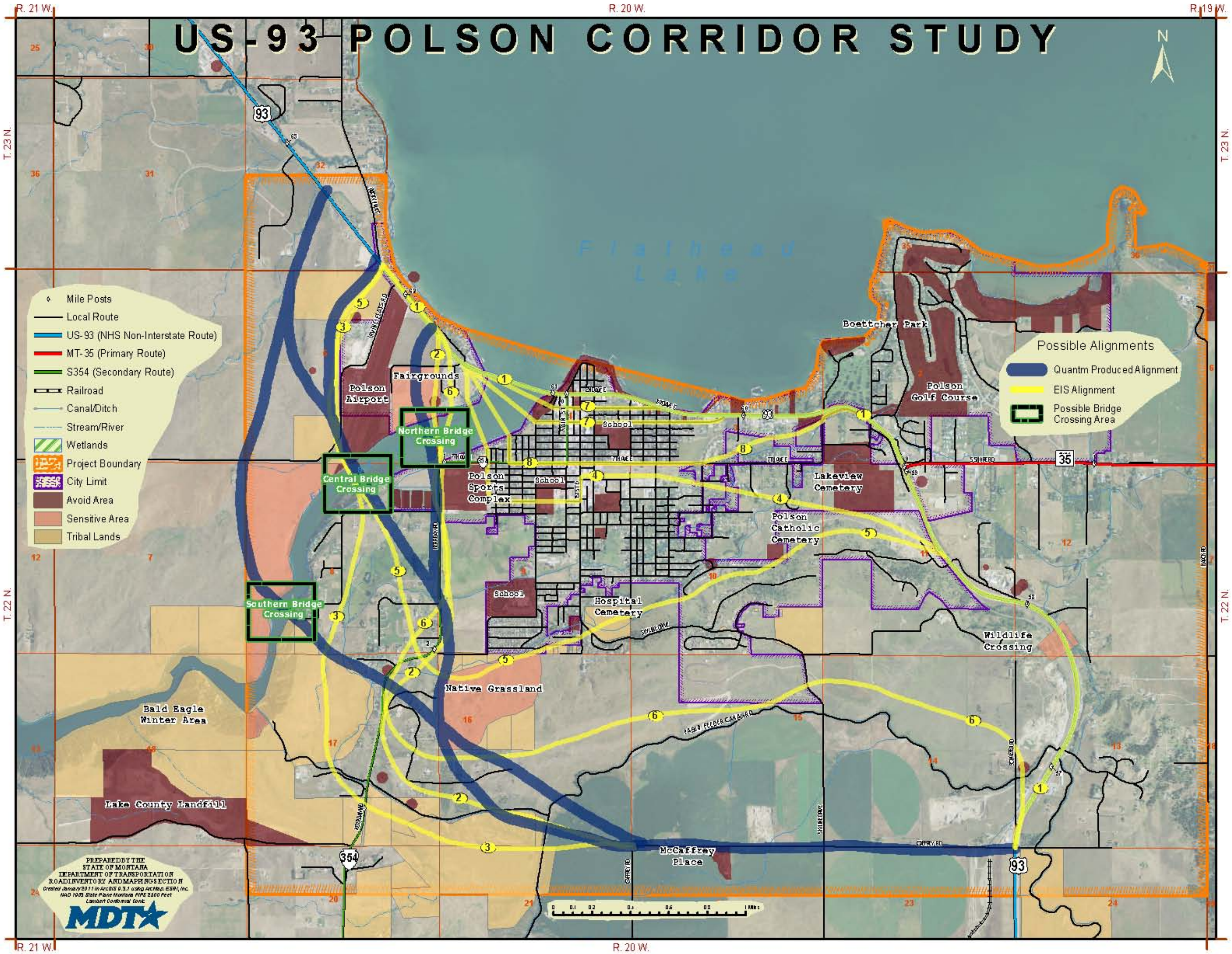
- Southern Bridge Crossing - Two southern bridge trends were observed in Quantm. The two observed trends were combined into a single Southern Bridge Crossing alignment "swath" with a total length of 6.65 miles and a planning level cost range of $37.0 to $47.2 million dollars.

The Quantm generated alignment "swaths" described above are shown in blue on Figure 5-4. These three general alignments were carried forward into the screening process. In addition, the EIS alignments described herein, and shown in yellow on Figure 5-4, were carried forward into screening. This resulted in 11 alignments being screened in the screening process. Table 5.2 shows the alignments and their respective total length, bridge length and planning level cost range.

Table 5.2 Alignment Length and Planning Cost Comparison

Criteria	Northern Bridge	Central Bridge	Southern Bridge	EIS 1	EIS 2	EIS 3	EIS 4	EIS 5	EIS 6	EIS 7	EIS 8
Total Length	5.43 miles	6.06 miles	6.65 miles	5.65 miles (3.11)	5.74 miles	6.48 miles	3.25 miles	5.17 miles	6.64 miles	2.60 miles	2.49 miles
Bridge Length	1,450 feet	1,100 feet	1,800 feet	1,560 feet	1,520 feet	1,100 feet	1,400 feet	1,200 feet	1,650 feet	1,650 feet	1,750 feet
Planning Level Range of Costs	$33.0 – 39.1M	$36.0 – 43.5M	$37.0 - 47.2M	$23.7 – 28.4M	$34.7 – 41.6M	$30.4 – 36.4M	$27.8 – 33.4M	$41.0 – 44.1M	$45.0 – 48.8M	$22.1 – 26.5M	$26.9 – 32.3M

Figure 5-4 Overall Trends



Chapter 6 Alignment Selection

6.1 Issues and Deficiencies

Based on the evaluation of the existing conditions of US 93 within the study area, roadway issues and deficiencies were identified if they did not meet current MDT design standards. Design standards that were not met included alignment geometry, roadway surface width, and higher crash trends compared to similar routes statewide. Additionally, the number of access points along US 93 is less than desirable. The identified roadway issues are presented below.

6.1.1 Vertical Alignment

The vertical alignment of US 93 does not meet current design standards at five locations. These include:

1. From RP 57.2 to 57.8, the northbound grade goes from 5.9% to 5.7%, respectively. The nearly 6% grade exceeds the maximum allowable grade of 4% for a 60 mph rural design speed in rolling terrain. **A design exception was approved for this grade in April 2004.**

2. From RP 57.2 to 57.7, the southbound grade is 5.5% which exceeds the maximum grade of 4% recommended for a 60 mph rural design speed in rolling terrain. **A design exception was approved for this grade in April 2004.**

3. At RP 57.7, the vertical sag curve k-value of 130.15 does not meet the minimum k-value of 136. **A design exception was approved for this grade in December 2010.**

4. At RP 62.5, the grade of 4.8% exceeds the maximum grade of 4% recommended for a 60 mph rural design speed in rolling terrain. This section of roadway along US 93 was constructed to design standards in 1955. However, these design standards have changed since 1955; therefore, the vertical alignment does not meet current design criteria.

5. At RP 62.5, the vertical sag curve k-value of 128.81 does not meet the minimum k-value of 136.

The length and steepness of grades directly affects the operational characteristics of the roadway.

6.1.2 Roadway Surface Width

The existing roadway surface width throughout the study area varies from 28 feet to 71 feet. The varying width does not meet the suggested surface width for US 93. According to the MDT NHS Route Segment Map reference, the suggested roadway surface width for US 93 is 40 feet or greater. However, the Route Segment Plan no longer defines a standard roadway width. The MDT Roadway Width Committee would determine the appropriate width during future project development. Due to certain constraints, the Route Segment Plan does not extend into urban areas. Therefore, the section from RP 60.851 to 63.0 does not meet the current suggested surface width of 40 or greater.

6.1.3 Crash Trends

Safety concerns were documented along the existing US 93 route through an evaluation of crash rates for the rural and urban-like portions of the roadway, and compared to statewide averages for roadways of similar type (see section 2.11). For the "rural" segments of US 93, the crash rate for all vehicles is higher than the average comparable rural routes throughout the state of Montana for the same analysis period. These "rural" segments include the southern portion of US 93, between Caffrey Road and MT-35 (all vehicle crash rate of 1.58), and the northern portion of US 93 between Irvine Flats Road and RP 65 (all vehicle crash rate of 1.32). The average comparable all vehicle crash rate for rural routes statewide is 1.07. The section of US 93 between MT-35 and Irvine Flats Road exhibits "urban" characteristics, and therefore the all vehicle crash rate was compared to the average comparable all vehicle crash rate for urban routes throughout the state of Montana for the same analysis period. The "urban" segment of US 93 all vehicle crash rate of 2.33 was much less that the average comparable statewide urban route all vehicle crash rate of 5.06.

6.2 Alignment Selection Development

Potential alternate alignments for US 93 were evaluated by reviewing all existing engineering and environmental resource information and soliciting input from the community, stakeholders, and resource agencies. As previously described in Chapter 5, eleven potential alignments were established to address the needs and objectives for the US 93 corridor. These alignments are recognized as various alternate routes that have the potential to be developed to satisfy the long-term needs of US 93. The development and locations of the potential alignments are best considered in terms of general corridor “swaths”. Exact centerline locations are not known at this time, so “swaths” represent approximate locations of potential alignment options.

Screening criteria were developed to assist in the evaluation of the potential alignments of US 93 between RP 56.5 and RP 63.0. Screening criteria provide a means of reducing the range of potential alignments for consideration by comparing them both quantitatively and qualitatively with a set of specific measures. The screening process was a high level evaluation that was utilized to identify alignment options that satisfied the needs and objectives laid forth previously, and subsequently could be carried forward for further consideration if a project moves forward.

The screening process described in the following section illustrates each alignment’s ability to meet the screening criteria and each alignment’s respective scoring.

6.3 Screening Process

In this screening process, rating factors were developed. Low, medium and high rating factors were assigned to each screening criterion for each alignment. The factors represented the likelihood of a screening criterion to meet the needs and objectives established for the corridor. Table 6.1 describes the impact rating factors.

Table 6.1 Initial Screening Criteria Rating Factors

○	◐	●
Low Impact Best Able to Meet Need & Objectives	Medium Impact Moderately Able to Meet Need & Objectives	High Impact Least Able to Meet Need & Objectives

The needs and objectives previously defined for the US 93 corridor through Polson informed the development of 18 screening criteria. The screening criteria were developed based on input by the TOC and general community. The screening evaluates 11 alignment options against the 6 needs and their respective objectives.

The primary concerns for the US 93 corridor are as follows:

- system linkage and function,
- transportation demand and operation,
- roadway geometrics,
- safety,
- livability and connectivity, and
- truck traffic.
- The sections that follow describe a qualitative and quantitative comparison of each alignment against the needs of the US 93 corridor described above. A matrix summary of the results of the screening process is shown in Table 6.21.

System Linkage and Function

System linkage and function of an alignment relates to the ability to implement access control, and to maintain principal arterial speed. Two screening criteria were developed based on this need.

Access Control

Access control is the condition in which the right of owners or occupants of land abutting a highway is fully or partially controlled by public authority. Access control limits the conflicts with through traffic by limiting the location and number of private and public approaches. (Pizzini 2007) Access control is more difficult to implement in a developed corridor because of the multiple existing private and public approaches that exist. From an access control perspective, the rating factors take into consideration the general distance which an alignment travels through types of land as follows:

Range of Access Control	Rating Factor
Less Developed Land	○
Some Developed Land	◐
Mostly Developed Land	●

Table 6.2 Access Control Rating Factor

	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Rating Factor	●	○	○	●	◐	○	●	●	○	○	○

Principal Arterial Speeds

The second criterion under System Linkage and Function is the principal arterial speed of the alignments. The concept of traffic channelization provides for a hierarchy of highway systems that allows for functional specialization in meeting both access and mobility requirements. Principal arterials are designed to provide a high level of mobility for through movement. Alignments that cross developed areas, such as the city, are considered urban and would therefore be subject to speed reduction. Conversely, alignments that stay within rural land would be able to maintain the higher speeds assigned to rural principal arterials. From a principal arterial speed perspective, the rating factors are measured against the distance which an alignment travels within city limits as follows:

Range for Principal Arterial Speeds	Rating Factor
Does not enter City Limits	○
Some Distance within City Limits	◐
Mostly within City Limits	●

Table 6.3 Rating for Principal Arterial Speed

	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Rating Factor	●	◐	○	●	◐	◐	●	●	○	○	◐

Transportation Demand and Operation

To accommodate existing and future transportation demand on US 93 through the planning horizon of the year 2030 and fulfill the needs and objectives, an alignment must maintain roadway traffic flow at a LOS B or better for rural principal arterials and LOS C or better for urban principal arterials. Additionally, an alignment would need to have right-of-way available to provide for non-motorized users. There are three screening criteria under this need.

Rural Arterials

Arterials provide the highest level of mobility, at the highest speed, for long uninterrupted travel. The roadway operational performance standard for a rural principal arterial is a LOS B or better. To quantify the operational performance of those segments of the various alignments that are likely to perform as a rural principal arterial, the TransCad travel demand model was utilized. The TransCad model was used to evaluate each of the 11 alignments, and the volume-to-capacity (v/c) ratios were examined along both the existing US 93 corridor and the proposed alignment. For the screening, v/c ratios that were less than 0.59 were identified for all of the alignments under existing year conditions (2010) as well as future year conditions (year 2030). V/c ratios less than 0.59 correspond to a LOS B or better. Accordingly, all proposed alignments were found to operate at a LOS B or better under 2010 and 2030 traffic conditions, and are therefore not explicitly included in Table 6.4. However, the ability of each alignment to pull traffic off US 93 caused a variance in the v/c ratios on the existing US 93. Table 6.4 describes the percentage of the existing US 93, outside of city limits, that operates at a LOS C or worse once traffic is diverted to the respective proposed alignments. The range developed for the rating factors were initially based on third points between 0 and 100 percent, however in reviewing the actual data it was determined to use a range of less than 20 percent, and greater than 60 percent, to realize rating factors that correlated better to the data observed.

Range for Rural LOS B	Rating Factor
Less than 20 percent	○
20 to 60 percent	◐
Greater than 60 percent	●

Table 6.4 Future (2030) Rural Arterials' Rating

Existing US 93 Rating Factor	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Percent of US 93 (Rural) >0.59	100%	23%	23%	11%	23%	23%	11%	11%	23%	11-16%	23%
2030 Rating Factor	●	◐	◐	○	◐	◐	○	○	◐	◐	◐

Urban Arterials

The urban principal arterial system serves major metropolitan centers, corridors with the highest traffic volumes, and those with the longest trip lengths. It carries most trips entering and leaving urban areas, and it provides continuity for all rural arterials that intercept urban boundaries. (State of Montana Department of Transportation 2008)

The roadway operational performance standard for an urban principal arterial is a LOS C or better. To quantify the operational performance of those segments of the various alignments that are likely to perform as an urban principal arterial, the TransCad travel demand model was utilized. The TransCad model was used to evaluate each of the 11 alignments, and the v/c ratios were examined along the existing US 93 corridor and the proposed alignment. For the screening, v/c ratios that were less than 0.79 were identified for all of the alignments under existing year conditions (2010), as well as future year conditions (year 2030). Accordingly, all proposed alignments were found to operate at a LOS C or better under 2010 and 2030 traffic conditions, and are therefore not explicitly included in Table 6.5. However, Table 6.5 does include ratings for the existing US 93 performance under future conditions (year 2030), as noted. The range developed for the rating factors were based on third points between 0 and 100 percent.

Range for Urban LOS C	Rating Factor
Less than 33 percent	○
33 to 67 percent	◐
Greater than 67 percent	●

Table 6.5 Future (2030) Urban Arterials' Rating

Existing US 93 Rating Factor	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Percent of US 93 (Urban) >0.79	28%	29%	41%	29%	29%	27%	25%	29%	42%	29-41%	29%
2030 Rating Factor	○	○	◐	○	○	○	○	○	◐	◐	○

Right-of-Way for Non-motorized Users

The availability of right-of-way needed to provide for non-motorized users depends on the current land use of the area through which an alignment crosses. In an urban/developed area, there are multiple buildings and other constraints that could impede the acquisition of land needed for a smaller facility such as a sidewalk or shared bicycle/pedestrian path to accommodate non-motorized users. In areas where there are numerous existing buildings and/or other constraints, the area was considered to be "highly constrained". If the area an alignment crosses is primarily vacant pasture or agricultural land with few existing buildings and/or other constraints, the area was considered to be "minimally constrained". Rating factors were assigned based on field observations regarding the built-up nature along the alignment "swaths", as well as a review of aerial photographs. Rating factors for this screening criterion are as follows:

Range for Right-of-Way Available	Rating Factor
Minimally Constrained Area	○
Moderately Constrained Area	◐
Highly Constrained Area	●

Table 6.6 Right-of-Way Available for Non-motorized Users Rating

	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Rating Factor	●	○	○	●	◐	○	●	●	○	○	○

Roadway Geometrics

To provide a facility that accommodates the diversity of vehicle types and fulfills the objectives for the US 93 corridor, potential screening criteria were developed that would meet the roadway geometric needs and objectives. In order to meet these objectives and needs, an alignment would need to meet design standards for horizontal curve, and road and bridge width. There are two screening criteria under this need.

Horizontal Curves

Each alignment was reviewed to see if it would meet horizontal curve design standards for the design speed of 65 mph for rural roadways and 45 mph for urban roadways. As described previously, EIS Alignment 1 currently passes horizontal curve design standards for both rural and urban sections as seen in Figure 2-5. Additionally, all new alignments would be designed to meet the MDT's geometric design standards. Conversely, EIS alignments 4, 7, and 8 are not designed to meet urban design standards of 45 mph at intersections where curves are incorporated.

Range for Horizontal Curves Design Criteria	Rating Factor
Meet Design Criteria at 65 mph rural/ 45 mph urban	○
Not Able to Meet Design Criteria at 65 mph rural/ 45 mph urban	●

Table 6.7 Horizontal Curve Design Criteria Rating

	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Rating Factor	○	○	○	●	○	○	●	●	○	○	○

Bridge and Road Width

The existing Flathead River Bridge does not meet width requirements. The existing bridge could not be expanded to incorporate additional lanes with the current substructure in place. Since all alignments would require the construction of a new bridge structure, all new bridge structures would be designed to meet bridge width standards, and therefore pass the bridge width screening criterion. In terms of roadway width, any new roadway would be designed to meet the MDT's road width standards. Conversely, existing roadways would be more difficult to facilitate such a request. Rating factors for design width criteria are as follows:

Range for Width Design Criteria	Rating Factor
Meet Road and Bridge Design Width	○
Not Able to Meet Road and Bridge Design Width	●

Table 6.8 Road and Bridge Design Criteria Rating

	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Rating Factor	●	○	○	●	○	○	●	●	○	○	○

Safety

As stated previously, there is a need to select an alignment that can maintain travel speeds for a principal arterial. In order to maintain the safest roadway environment possible with the desired travel speeds, the selected alignment must manage public access points and private approaches. One way to measure the ability to meet this need is by investigating access density per mile. This is the only screening criterion under this need.

Access Density

In this analysis the total number of access points along each alignment was counted. Access points included each business entrance, private driveway, and street connection. To make this comparison relative to a common unit, the final number of accesses was divided by the total alignment length, in miles, to obtain a density of accesses per mile. Table 6.9 shows the results of this analysis, along with the assigned rating factor.

Range for Access Densities per Mile	Rating Factor
Less than or equal to 5	○
6 less than or equal to 14	◐
Greater than or equal to 15	●

Table 6.9 Access Density per Mile Rating

	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Access Density per Mile	20	4	4	15	3	3	20	18	4	4	5
Rating Factor	●	○	○	●	○	○	●	●	○	○	○

<u>Livability and Connectivity</u>

To minimize impacts to neighborhoods and to environmental, sensitive, and recreational resources, each alignment was compared with regard to the number of potential 4(f) / 6(f) resources, residential parcels, sensitive areas, and identified wetlands impacted, as well as the connectivity to community parks and recreation. There are five screening criteria under this need.

4(f) / 6(f) Resources

The number of potential 4(f) / 6(f) resources possibly impacted by an alignment ranges from 0 to 4. Potential 4(f) / 6(f) resources impacts, along with their respective rating factors for each alignment, are described in Table 6.10. A possible impact to a potential 4(f) / 6(f) resource was noted if any portion of an alignment "swath", as shown on Figure 6-1, appeared to touch or cross a defined resource. This was assessed in the manner of a "worst case" scenario. The accounting of potential 4(f) / 6(f) resource impacts does not include potential impacts to eligible historic homes and/or other structures, as the level of design detail related to specific alignments is unknown at this time.

<u>Range for 4(f) / 6(f) Resources</u>	<u>Rating Factor</u>
No resource impacted	○
1 or 2 resources impacted	◐
3 or 4 resources impacted	●

Table 6.10 ***4(f) / 6(f) Resources Rating***

Alignment ID		4(f) / 6(f) Resource(s) Potentially Impacted *	Number of 4(f) / 6(f) Resources**	Rating Factor
EIS Alignments	1	Ducharme Park, Waterfront Facilities, Riverside Park, Polson 5-6	4	●
	2	Sports Complex	1	◐
	3	--	0	○
	4	Cherry Valley School, Sports Complex	2	◐
	5	--	0	○
	6	Sports Complex	1	◐
	7	Linderman Elementary School, Riverside Park	2	◐
	8	Polson 5-6	1	◐
QUANTM Alignments	Southern Bridge	--	0	○
	Central Bridge	--	0	○
	North Bridge	Sports Complex	1	◐

* Note: This analysis does not include potential impacts to eligible historic homes and/or other structures.
**Note: A public comment received suggested an additional 4(f) resource commonly known as Travis Dolphin Dog Park could be potentially impacted by the alignments. This park was not identified as a 4(f) property during the Environmental Scan Report. Any alignments forwarded from the corridor study into project development will need to be evaluated to determine if the project has the potential to impacts 4(f) or 6(f) resources.

Wetlands

Wetlands were identified using National Wetland Inventory maps throughout the study area and are documented in the Environmental Scan Report. The number of wetlands potentially impacted by an alignment ranges from zero to four. Comparative results of this analysis are shown in Table 6.11.

Range for Wetlands	Rating Factor
No wetlands impacted	○
1 or 2 wetlands impacted	◐
3 or 4 impacted wetlands	●

Table 6.11 Wetlands Rating

	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Wetlands Impacted	1	0	1	1	1	2	1	2	0	2	4
Rating Factor	◐	○	◐	◐	◐	◐	◐	◐	○	◐	●

Residential Parcels

The number of residential parcels impacted by an alignment ranges from 4 to 132. To determine the rating factor for this category, the range of residential parcels potentially impacted was divided evenly into three groups: low, medium and high impact. Table 6.12 shows the number of potentially impacted parcels, and rating factor, for each of the alignments.

Range for Residential Parcels	Rating Factor
low impact: 0 to 46 parcels impacted	○
medium impact: 47 to 89 parcels impacted	◐
high impact: > 90 parcels impacted	●

Table 6.12 Residential Parcels Impacted

	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Impacted Parcels	71	29	19	68	61	68	<46*	132	26-27	17	4-18
Rating Factor	◐	○	○	◐	◐	◐	○	●	○	○	○

**Note: This assumes the existing roadway for EIS Alignment 7 (one-way couplet) would be reconfigured within the existing right-of-way prism which would therefore only result in impacts where right-of-way for construction would be needed.*

Sensitive Areas

Many sensitive areas were identified throughout the study area as documented in the Environmental Scan Report. The number of sensitive areas potentially impacted by an alignment ranges from 0 to 2. Comparative results of this analysis are shown in Table 6.13.

Range for Sensitive Areas	Rating Factor
No sensitive area impacted	○
1 sensitive area impacted	◐
2 sensitive areas impacted	●

*Table 6.13 **Sensitive Areas Rating***

	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Areas Impacted	1	1	0	0	1	0	0	0	2	1	2
Rating Factor	◐	◐	○	○	◐	○	○	○	●	◐	●

Connectivity to Community Parks and Recreation

Based on local input, an element of the screening process needed to be responsive to land use plans such as connectivity to community parks and recreation wherever practicable. Rating factors were assigned based on the relative distance through which the alignments traversed the grid system within the city limits. Alignments that were far away from the grid system, or only entered the system for a few blocks, would not provide this desired connectivity. Conversely, alignments that were within the grid of the city had more potential to connect community parks and recreational areas, and were therefore given a more desirable rating. This analysis is shown below.

Range for Connectivity	Rating Factor
Mostly Within City Grid System	○
Within Grid and Remote Locations	◐
Mostly Remote Location	●

*Table 6.14 **Parks and Recreation Connectivity Rating***

	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Rating Factor	○	◐	●	○	◐	◐	○	○	●	●	◐

Truck Traffic

In the corridor study area, US 93 realizes a diverse mix of traffic, including trucks, recreational vehicles, and tourism related traffic and passenger vehicles. To minimize the impacts of truck traffic to the existing US 93, and fulfill the needs and objectives previously discussed, the TOC found it important to screen alignments based on the length of grades greater than 4 percent. This is the only screening criterion under this need.

Length of Grades

Vertical grades greater than four percent require a design exception. Not only do these steeper grades require a design exception, but they are undesirable for truck drivers. Alignments with steep grades may not draw the desired truck traffic away from the existing US 93 facility, especially in the downtown area. Therefore, the longer lengths of grade, greater than the current MDT design standard of four percent, receive a less desirable rating. To determine the rating factor for this category, the range of lengths was divided into three groups as listed below. Table 6.15 shows the rating factor for each of the alignments.

Range for Length of Grades	Rating Factor
Less than 5000 feet	○
5000 to 7500 feet	◐
Greater than 7500 feet	●

Table 6.15 Rating by Length of Grade Greater than Four Percent

	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Length (ft)	8600	6790	6740	>7500	7770	7040	>7500	>7500	4050	6300-8840	8540
Rating Factor	●	◐	◐	●	●	◐	●	●	○	●	●

Other

The TOC identified four other criteria in which to screen the alignments. These include the overall planning level cost, the ability of utilities to be incorporated into bridge location and design, community preference, and maintenance cost. Each of these final screening criteria is described herein.

Planning Level Cost

High level planning cost estimates were prepared for each of the eleven potential alignments that were considered. The planning level cost estimates were primarily for construction costs (i.e., did not include detailed right-of-way costs, project development costs, utility relocation costs, inflation, etc.). To develop the planning level cost estimates, line item costs for cut, fill, borrow, demolition, paving, mass haul, retaining walls, culverts, bridges, footprint areas, and road costs were generated for the alignments. The results of the planning level cost estimates are shown in Table 6.16. The rating factors were measured against the highest range of costs for each alignment, with ranges calculated for the three possible ratings:

Range of Planning Level Costs	Rating Factor
Less than $30,000,000	○
Between $30,000,000 and $40,000,000	◐
Greater than $40,000,000	●

*Table 6.16 **Planning Level Cost Rating***

	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Planning Level Cost	$23.7 to 28.4M	$34.7 to 41.6M	$30.4 to 36.4M	$27.8 to 33.4M	$41.0 to 44.1M	$45.0 to 48.8M	$22.1 to 26.5M	$26.9 to 32.3M	$37.0 to 47.2M	$36.0 to 43.5M	$33.0 to 39.1M
Rating Factor	○	●	◐	◐	●	●	○	◐	●	●	◐

Incorporation of Utilities into Bridge Location and Design

Based on TOC input, it was agreed that any alignment should attempt to be responsive to local sewer and water planning documents. To uphold the goals set forth in these planning documents, rating factors were assigned based on the ability of utility lines (i.e., water and sewer) to be incorporated into the alignment, coupled with the alignment's ability to perpetuate long-term utility needs in accordance with overall infrastructure requirements. As such, alignments closest to the current bridge were rated higher than alignments with bridge locations that would be constructed further away.

Range of Utilities	Rating Factor
North Bridge Location	○
Central Bridge Location	◐
South Bridge Location	●

*Table 6.17 **Utilities Incorporation Rating***

	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Rating Factor	○	○	◐	○	◐	○	○	○	●	◐	○

Community Preference

An additional criterion considered in the screening process was whether the alignment had the support of the community. Community preference is an important screening criterion because if the community does not support an alignment early in the planning process there is likelihood that the alignment will not be supported as a project moves forward. Community preference was solicited on general corridor areas via written and verbal feedback at the informational meetings, solicitation of comments via the study website, and personal conversations with members of the community. Input from the TOC was offered throughout the process to help refine the community's preferences. EIS Alignments 3, 4, 5, 6 and the Central Bridge Crossing received low support due to various factors, including potential impacts to residential housing areas. EIS Alignments 1, 2, and 7 received a relatively equal amount of support and opposition. EIS Alignment 8 and the South and North Bridge Crossing alignments received the highest support from the community. Table 6.18 shows the results of the community preference assessment.

Range of Community Preference	Rating Factor
High Community Preference	○
Medium Community Preference	◐
Low Community Preference	●

Table 6.18 Rating for Community Preference

	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Rating Factor	◐	◐	●	●	●	●	◐	○	○	●	○

Maintenance Cost

A query of the statewide average maintenance cost resulted in an average maintenance cost of $4,300 per lane mile. All new alignments include the maintenance cost of not only the new alignment but also of the current US 93 alignment. Since all alignments are two-lane facilities, this factor is primarily dependent upon the length of the alignment.

Range of Maintenance Costs	Rating Factor
Less than $100,000	○
Between $100,000 and $125,000	◐
Greater than $125,000	●

Table 6.19 Maintenance Cost Rating

	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Length (mi)	6.5	5.74	6.48	3.25	5.17	6.64	2.6	2.49	6.65	6.06	5.53
Maintenance. Cost ($1000)	95	127*	133*	105*	122*	135*	100*	99*	135*	130*	125*
Rating Factor	○	●	●	◐	◐	●	◐	○	●	●	◐

**Note: The cost of maintenance to this alignment includes both the current US 93 facility (approximately $77,000) and the new alignment.*

Weighted Average Scoring

Part of the screening process included querying the TOC to identify which criteria were of most importance and least importance to the constituents they represent. Accordingly, each TOC member was asked to rate the screening. For a complete detail of the weighting process, refer to Appendix C of this report. The weighting results from the TOC were divided into four categories of importance. Weighting for the highest importance was given a "1", high importance a "5", medium importance an "8" and lowest importance a "10". Each empty circle was given zero points, each half circle was given half of the category points, and circles that were filled in received the full number of possible points for that screening criterion. Scoring of the objectives is described in Table 6.20.

Table 6.20 Weight Point System Assigned to Screening Criteria

Level of Importance	Highest Possible Points given to Objectives	Corresponding Points for each of the Rating Factors		
		○	◐	●
Highest Importance	1.0	0.0	0.5	1.0
High Importance	5.0	0.0	2.5	5.0
Moderate Importance	8.0	0.0	4.0	8.0
Low Importance	10.0	0.0	5.0	10.0

Screening Results

This scoring system helped identify which alignments could be dropped from further consideration and which alignments should be carried forward if a project moves forward. Options with the lowest overall numerical value were kept for further consideration and are detailed in Table 6.21. The remaining alignments, which were dropped from further consideration, are also presented in Table 6.21 for completeness.

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*Table 6.21 **Summary of Corridor Need & Objectives Screening Criteria***

Corridor Need & Objectives Screening Criteria (highest possible rating value)	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
System linkage and function											
Ability to implement access control (5)	● 5.0	○ 0.0	○ 0.0	● 5.0	◐ 2.5	○ 0.0	● 5.0	● 5.0	○ 0.0	○ 0.0	○ 0.0
Ability to maintain principal arterial speeds (10)	● 10.0	◐ 5.0	○ 0.0	● 10.0	◐ 5.0	◐ 5.0	● 10.0	● 10.0	○ 0.0	○ 0.0	◐ 5.0
Transportation demand and operation											
Maintain 2030 roadway traffic flow at LOS B or better (rural principal arterial) (8)	● 8.0	◐ 4.0	◐ 4.0	○ 0.0	◐ 4.0	◐ 4.0	○ 0.0	○ 0.0	◐ 4.0	◐ 4.0	◐ 4.0
Maintain 2030 roadway traffic flow at LOS C or better (urban principal arterial) (5)	○ 0.0	○ 0.0	◐ 2.5	○ 0.0	○ 0.0	○ 0.0	○ 0.0	○ 0.0	◐ 2.5	◐ 2.5	○ 0.0
Right-of-way available to provide for non-motorized users (5)	● 5.0	○ 0.0	○ 0.0	● 5.0	◐ 2.5	○ 0.0	● 5.0	● 5.0	○ 0.0	○ 0.0	○ 0.0
Roadway geometrics											
Meet horizontal curve design criteria (10)	○ 0.0	○ 0.0	○ 0.0	● 10.0	○ 0.0	○ 0.0	● 10.0	● 10.0	○ 0.0	○ 0.0	○ 0.0
Meet road and bridge width design criteria (8)	● 8.0	○ 0.0	○ 0.0	● 8.0	○ 0.0	○ 0.0	● 8.0	● 8.0	○ 0.0	○ 0.0	○ 0.0
Safety											
Access density per mile (8)	● 8.0	○ 0.0	○ 0.0	● 8.0	○ 0.0	○ 0.0	● 8.0	● 8.0	○ 0.0	○ 0.0	○ 0.0
Livability and connectivity											
Number of 4(f) / 6(f) resources potentially impacted (1)	● 1.0	◐ 0.5	○ 0.0	◐ 0.5	○ 0.0	◐ 0.5	◐ 0.5	◐ 0.5	○ 0.0	○ 0.0	◐ 0.5
Number of wetlands potentially impacted (5)	◐ 2.5	○ 0.0	◐ 2.5	◐ 2.5	◐ 2.5	◐ 2.5	◐ 2.5	◐ 2.5	○ 0.0	◐ 2.5	● 5.0
Number of residential parcels potentially impacted (1)	◐ 0.5	○ 0.0	○ 0.0	◐ 0.5	◐ 0.5	◐ 0.5	○ 0.0	● 1.0	○ 0.0	○ 0.0	○ 0.0
Number of sensitive areas potentially impacted (1)	◐ 0.5	◐ 0.5	○ 0.0	○ 0.0	◐ 0.5	○ 0.0	○ 0.0	○ 0.0	● 1.0	◐ 0.5	● 1.0

Corridor Need & Objectives Screening Criteria (highest possible rating value)	EIS Alignments								QUANTM Alignments		
	1	2	3	4	5	6	7	8	South Bridge	Central Bridge	North Bridge
Connectivity to community parks and recreation (8)	○ 0.0	◐ 4.0	● 8.0	○ 0.0	◐ 4.0	◐ 4.0	○ 0.0	○ 0.0	● 8.0	● 8.0	◐ 4.0
Truck traffic											
Length of grades greater than 4 percent (8)	● 8.0	◐ 4.0	◐ 4.0	● 8.0	● 8.0	◐ 4.0	● 8.0	● 8.0	○ 0.0	● 8.0	● 8.0
Other											
Overall planning level cost (10)	○ 0.0	● 10.0	◐ 5.0	◐ 5.0	● 10.0	● 10.0	○ 0.0	◐ 5.0	● 10.0	● 10.0	◐ 5.0
Ability of utilities to be incorporated into bridge location and design (10)	○ 0.0	○ 0.0	◐ 5.0	○ 0.0	◐ 5.0	○ 0.0	○ 0.0	○ 0.0	● 10.0	◐ 5.0	○ 0.0
Community preference (1)	◐ 0.5	◐ 0.5	● 1.0	● 1.0	● 1.0	● 1.0	◐ 0.5	○ 0.0	○ 0.0	● 1.0	○ 0.0
Maintenance cost (10)	○ 0.0	● 10.0	● 10.0	◐ 5.0	◐ 5.0	● 10.0	◐ 5.0	○ 0.0	● 10.0	● 10.0	◐ 5.0
Screen Result	**57**	**38.5**	**42**	**68.5**	**50.5**	**41.5**	**62.5**	**63**	**45.5**	**51.5**	**37.5**

Based on results of the screening, five (5) alignment options score lowest out of the eleven total alignments considered. These 5 alignments were selected based on their point ratings as measured against all 11 alignments. The point ratings for each alignment that were within a range of ten points or less were identified and selected for consideration. These include the following:

- North bridge crossing (score of 37.5)
- EIS Alignment 2 (score 38.5)
- EIS Alignment 6 (score 41.5)
- EIS Alignment 3 (score 42)
- South bridge crossing (score 45.5)

The remaining six (6) alignments that scored outside the point margin were dropped from further consideration. Reasons for exclusion of each of the alignments are detailed below.

<u>EIS Alignment 1</u>

Alignment 1 was unable to accommodate eight of the 18 screening criteria and was moderately able to accommodate 4 other screening criteria. Because this alignment traverses the heart of Polson's business district, there is a high access density. It would be difficult to implement access control throughout the urban sections of this alignment. It would also be difficult to receive the community's and businesses' support for widening the roadway footprint to accompany non-motorized users, or to bring the roadway up to current MDT design standards.

This alignment has the potential to impact a moderate number of residential parcels and sensitive areas, and has the potential to impact the highest number of 4(f) and 6(f) resources. This alignment received minimal support from members of the community or the TOC.

Although this alignment failed to meet many of the screening criteria and was dropped during the selection process, improvements will be required along the existing US 93 during the twenty-year planning horizon. Potential improvements to the existing US 93 will be identified in the Polson Area Transportation Plan.

<u>EIS Alignment 4</u>

Alignment 4 was unable to meet eight of the 18 screening criteria and was moderately able to meet five other screening criteria. Because this alignment travels through the existing roadway network and residential part of the City of Polson, this alignment has a very high access density throughout its urban section. This alignment would be unable to implement access control.

With the constrained environment surrounding the urban portion of this alignment, this alignment would be unable to provide additional right-of-way needed for non-motorized users or to upgrade the existing transportation facility to the current MDT roadway design standards. Due to the sharp horizontal curves throughout this alignment, the desired standard for a 45 mph urban principal arterial would not be met. This alignment also had steep grades, which would deter trucks from using this route.

This alignment has the potential to impact a moderate number of 4(f) and 6(f) resources and residential parcels, and was not an alignment desired by the community. All of the factors described above caused this alignment to be dropped from further consideration.

<u>EIS Alignment 5</u>

Alignment 5 was unable to meet three screening criteria. It was only moderately able to meet 10 additional screening criteria. Because a large portion of the length of this alignment travels through the city limits of Polson, the posted speed limit would be reduced to that of an urban principal arterial. The slower urban principal arterial speed, coupled with the number of long grades over four percent, could deter trucks from using this route.

This alignment travels through a large amount of remote, virgin terrain which has minimal connections to Polson's transportation grid system. With only minimal connections to the existing transportation system, this alignment is moderately able to provide connectivity to community parks and recreation facilities. A high overall construction cost and moderate maintenance cost also played a factor in this alignment's elimination.

This alignment had the potential to impact a moderate number of residential parcels and sensitive areas. Additionally, this alignment did not receive support from the community and was therefore not a preferred alignment. All of the factors described above caused this alignment to be dropped from further consideration.

<u>EIS Alignment 7</u>

Alignment 7 was unable to meet seven screening criteria and was moderately able to meet four additional screening criteria. Because this alignment travels through the roadway network and residential/commercial part of the City of Polson, this alignment has a very high access density throughout its urban section. This alignment would be unable to accommodate access control.

Due to the horizontal curves near the two bridges for this alignment, the desired criteria for a 45 mph urban principal arterial would not be met. This alignment also had steep grades and a slower speed associated with an urban arterial, which would deter trucks from using this route.

This alignment has the potential to impact a moderate number of 4(f) and 6(f) resources and received mixed feedback regarding its preference from the community. Additionally, this alignment would require two new bridges, and potentially impact the downtown core, especially in light of recent streetscape improvements to Main Street. All of the factors described above caused this alignment to be dropped from further consideration.

EIS Alignment 8

Alignment 8 was unable to meet eight screening criteria and was moderately able to meet three additional screening criteria. Because this alignment travels through the roadway network and residential/commercial part of the City of Polson, this alignment has a very high access density throughout its urban section. Similarly, this alignment would be unable to implement access control.

With the constrained environment surrounding the urban portion of this alignment, this alignment would be unable to provide additional right-of-way needed for non-motorized users or to upgrade the existing transportation facility to the current MDT roadway design standards. Due to the right angle horizontal curve near the bridge for this alignment, the desired criteria for a 45 mph urban principal arterial would not be met. This alignment also had steep grades, which may deter trucks from using this route.

This alignment has the potential to impact a moderate number of 4(f) and 6(f) resources and a large number of residential parcels. All of the factors described above caused this alignment to be dropped from further consideration.

Central Bridge Crossing

The Central Bridge Crossing alignment was unable to meet five screening criteria and was moderately able to meet five additional criteria. A high overall construction cost and maintenance cost played a factor in the Central Bridge Crossing's elimination. All of the factors described above caused this alignment to be dropped from further consideration.

Hybrid/Modified Alignments

Community input, coupled with direction from the TOC, led to slight modifications of the five selected alignments to minimize residential impacts near Ponderrilla Hills. Since the original EIS alignments 2 and 3 are relatively close to the Quantm generated alignments of the southern bridge crossing and the northern bridge crossing, a hybrid was developed between the southern bridge crossing alignment and EIS Alignment 3. A second hybrid was developed between the northern bridge crossing alignment and EIS Alignment 2. These two hybrid alignments, referred to as the "southern bridge crossing hybrid alignment" and the "northern bridge crossing hybrid alignment" respectively, are shown on Figure 6-1. The third alignment under consideration, EIS Alignment 6, was modified slightly from that presented in the 1996 FEIS to avoid the existing residential area known as Ponderilla Hills and is referred to as the "modified EIS alignment 6". The modification is primarily noted south of Ponderilla Hills where it routes closer to the existing irrigation ditch, similar to the other two hybrid alignments.

The three hybrid/modified alignments described above, and shown in Figure 6-1, were initially recommended to be carried forward for further consideration if a project moves forward from this study. These alignments are reflective of the results of the screening process and capture the analysis results accordingly. It is noted that the three alignments are planning level "swaths" that may be subject to additional modifications during the environmental review process if a project is forwarded from this study.

The three alignments were scanned against the 18 screening criteria to gauge whether they would continue to rank similar in the final overall results. Due to the lack of substantial differences between each hybrid alignment and its original state, a brief comparative description of these 18 criteria is provided in the following paragraphs.

Since each hybrid/modified alignment continued to traverse a comparative amount of developed land as its original alignment, similar rankings for the following screening criteria were determined: access control; principal arterial speeds; right-of-way available for non-motorized users; horizontal, road, and bridge design criteria; access density; connectivity to parks and recreation; and incorporation of utilities into bridge location and design. Because the distance and grade of each of the hybrid alignments is similar to their respective original alignments, the ranking for length of grades greater than four percent, LOS for urban and rural roadways, and maintenance costs were determined to be similar to the original rankings. Finally, the hybrid/modified alignments were not shifted near any 4(f)/6(f) sites and therefore each hybrid/modified alignment ranked similar to its original alignment with regard to 4(f)/6(f) properties.

Slight modifications of the alignments from their respective original alignments have the potential to change the results of five screening criteria that follow: potential wetlands impacted, residential impacts, sensitive areas, project costs, and community preference. However, many of these details are dependent on final design which would only be available if a project moves forward from this study. How the community of Polson develops over the next few years will also determine which alternate route is the best option for the community.

Additional information was reviewed pertinent to the modified EIS alignment 6. Local community representatives on the TOC, elected officials, the general public, and the consultant team evaluated the community acceptability of modified EIS alignment 6, and based on all available information it was recommended to eliminate this alignment. Reasons for this conclusion are the greater potential to disturb undeveloped land (as compared to the other two) and the high degree of public opposition to the route. After a review and analysis of this information, it was decided that two of the hybrid/modified alignments, the northern and southern bridge crossing, be carried forward for further consideration if a project moves forward from this study. These two alignments are shown on Figure 6-2.

Figure 6-1 ***Initial Hybrid Alignments Under Consideration***

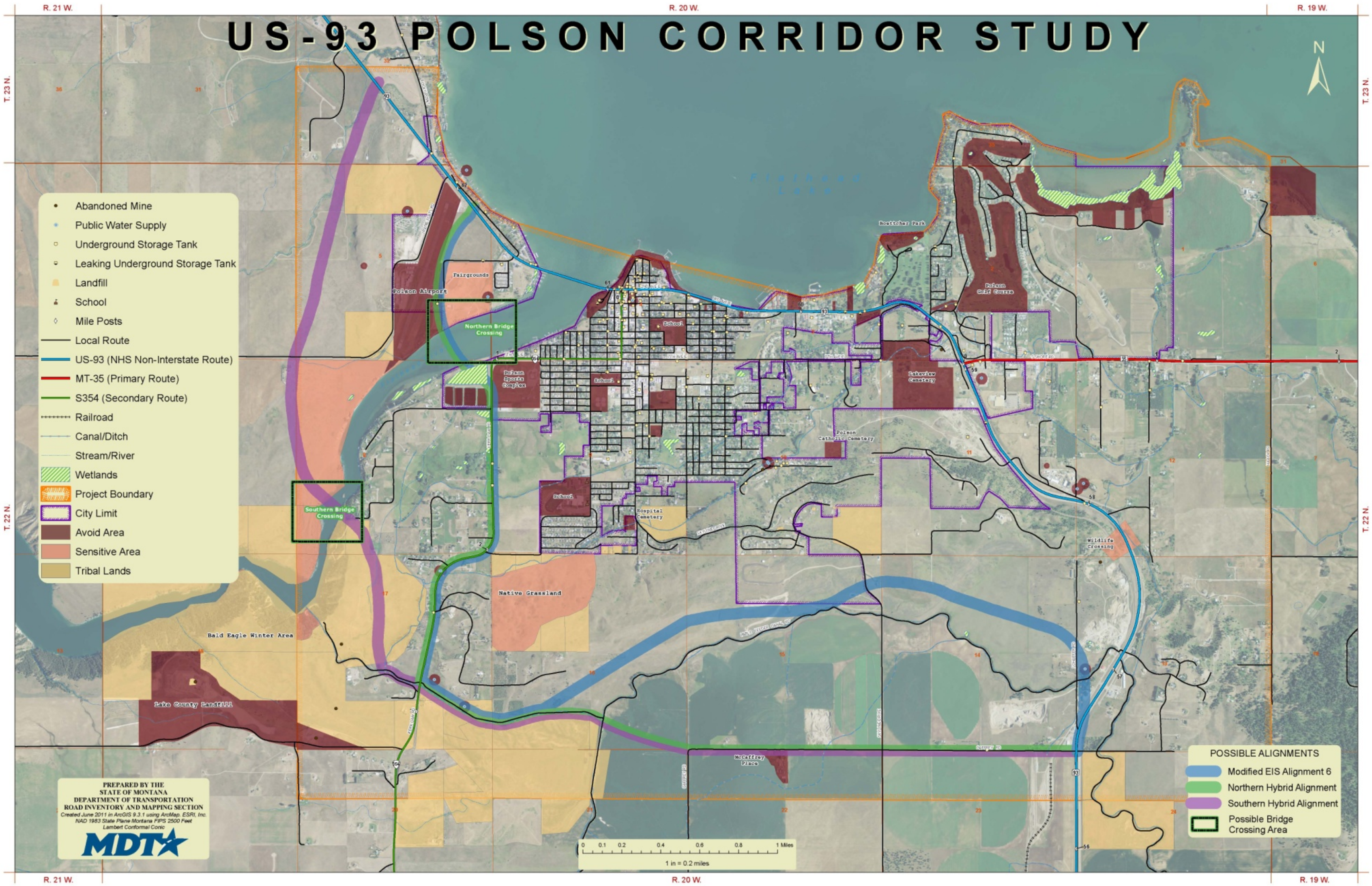
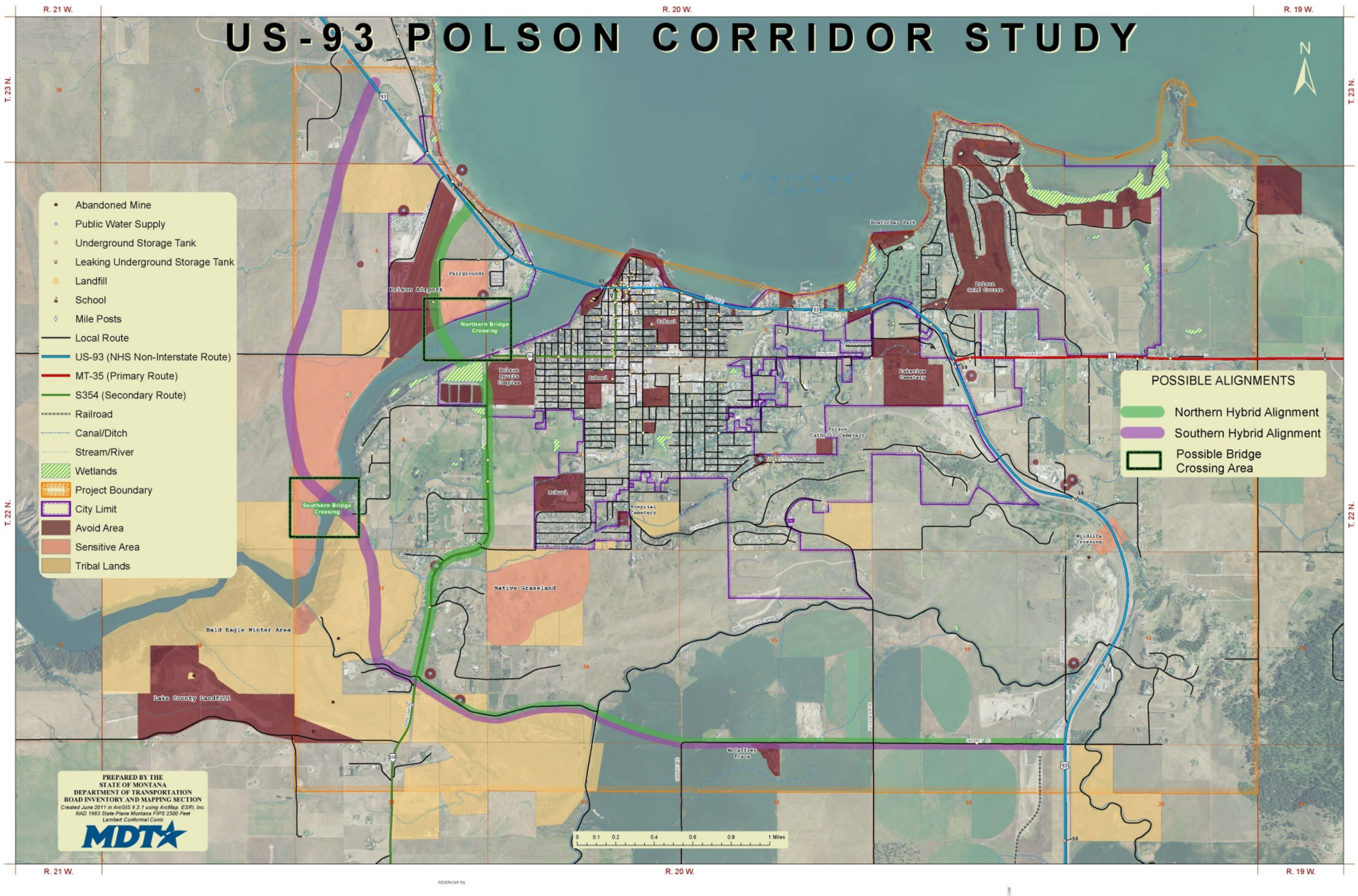


*Figure 6-2 **Recommended Hybrid Alignments***



6.4 *Operational Analysis*

The conclusion of the screening process was to recommend two alignments if a project moves forward. The two alignments are shown on Figure 6-2 and are referred to as the southern bridge crossing hybrid alignment and the northern bridge crossing hybrid alignment. An operational analysis was conducted to provide further information regarding the two alignments, along with the eliminated modified EIS alignment 6, if a project moves forward.

The operational analysis relies on evaluating the three alignments using four analyses. The four analyses are as follows:

> Analysis No. 1 – Shift in Thru-Truck Traffic: This analysis is intended to evaluate the potential quantity of thru-truck traffic that may be removed from the existing US 93, given the presence of an alternate route.
>
> Analysis No. 2 – Intersection Level of Service: This analysis is intended to quantify several intersections according to its future level of service. This includes identifying those intersections that will operate at an intersection LOS B or better (for rural intersections) or an intersection LOS C or better (for urban intersections) based on the performance of each alignment during the planning year 2030.
>
> Analysis No. 3 – Travel Time: This analysis is intended to predict the travel time that may occur on each alignment. The travel time prediction is extracted from the TransCad travel demand model that was utilized for the three potential alignments
>
> Analysis No. 4 – Cost Comparison: This analysis is used to document the order of magnitude planning level costs for each alignment. These costs are generated by the Quantm route optimization tool and are reflective of construction costs (i.e., do not include detailed right-of-way costs, project development costs, utility relocation costs, inflation, etc.). Although not a true component of the operational analysis, it is included herein for informational purposes based on the desire expressed by the community for current planning-level cost estimates.

For each analysis, the three alignments were given a numerical rating value of one to three, with one being the best and three being the worst. The operational analysis is described in the following sections.

6.4.1 Shift in Thru-Truck Traffic

The "shift in thru-truck traffic" analysis was utilized to evaluate the potential quantity of thru-truck traffic that may be removed from the existing US 93 given the presence of an alternate route. The process used to arrive at the potential shift in thru-truck traffic relies on the use of the TransCAD travel demand model, and the 2009 Truck Origin and Destination (O&D) study completed by the MDT.

Each alignment was modeled in the TransCAD travel demand model to extract the potential change in model traffic volumes, for both the existing US 93 and the proposed alignments, after implementing each of the respective proposed alignments. The TransCad model includes predicted land use changes out to the planning year 2030. From the percent changes, actual known volumes from the count locations along the existing US 93 were adjusted to determine the potential average daily traffic volumes that may be realized on the three alignments for the year 2030.

The 2009 Truck O&D study was intended to analyze the travel patterns of truck and vehicle traffic on both sides of Flathead Lake. The study stated that from 2007 to 2009 the average percentage of truck traffic on US 93 in Polson, when compared to all vehicle traffic, was 8.4 percent. Furthermore, according to MDT's O&D Study, 44 percent of all truck traffic was thru-truck traffic. Based on these percentages, the amount of thru-truck traffic for each alignment was calculated and is shown in Table 6.22.

Table 6.22 Projected (2030) Amount of Thru-Truck Traffic in Polson

Alignment ID	Truck Traffic without alternate route	Truck Traffic with alternate route	Diff.	Thru-Truck Traffic without alternate route	Thru-Truck Traffic with alternate route	Diff.	Rating*
Southern Bridge Crossing Hybrid	1,045	794	251	460	349	111	1
Northern Bridge Crossing Hybrid	1,045	800	245	460	352	108	1
EIS Alignment 6	1,045	796	249	460	350	110	1

**Note: This analysis was based on a rating of one to three with one being the most desirable rating*

All three alignments have the potential to remove similar amounts of truck traffic, including thru-truck traffic, from the existing US 93. Accordingly, all three alignments were assigned a rating value of one for this analysis.

6.4.2 Intersection Level of Service

This analysis is intended to determine which alignment would best accommodate traffic and offer the least amount of intersection difficulties in the projected future year (2030). LOS for an intersection is a qualitative measure developed by the transportation profession to quantify driver perception for such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles. It provides a scale that is intended to match the perception by motorists of the operation of the intersection. LOS provides a means for identifying intersections that are experiencing operational difficulties, as well as providing a scale to compare intersections with each other. The LOS scale represents the full range of operating conditions. The scale is based on the ability of an intersection to accommodate the amount of traffic using it. The scale ranges from "A" which indicates little, if any, vehicle delay, to "F" which indicates substantial vehicle delay and traffic congestion. The LOS analysis was conducted according to the procedures outlined in the Transportation Research Board's Highway Capacity Manual – Special Report 209 using the Highway Capacity Software, version 4.1f.

Existing Level of Service

In order to calculate the existing LOS, 16 intersections were counted during the summer and fall of 2010. These intersections included 5 signalized intersections and 11 unsignalized intersections in the Polson area. Each intersection was counted between 7:00 a.m. to 9:00 a.m. and 4:00 p.m. and 6:00 p.m., to ensure that the intersection's peak volumes were represented. Based upon this data, the operational characteristics of each intersection were obtained. Intersection turning movement counts were completed along the existing US 93 during the month of August, 2010 to capture the peak tourism traffic phenomena. According to data collected through MDT's Automatic Traffic Recorder (ATR) Station A-074 (located on US 93 just south of MT 28) during the year 2010, the months of July and August exhibit the highest peak traffic flows of 150.16% and 139.49 %, respectively, of yearly annual average daily traffic (AADT) flow.

Signalized Intersections

For signalized intersections, recent research has determined that average control delay per vehicle is the best available measure of LOS. The following table identifies the relationship between LOS and average control delay per vehicle. The procedures used to evaluate signalized intersections use detailed information on geometry, lane use, signal timing, peak hour volumes, arrival types and other parameters. This information is then used to calculate delays and determine the capacity of each intersection. Generally, a signalized intersection within city limits (urban) is determined to be functioning adequately if operating at LOS C or better, at all times. Table 6.23 shows the LOS by control delay for signalized intersections.

Table 6.23 Level of Service Criteria (Signalized Intersections)

LOS	Control Delay per Vehicle (sec)
A	< 10
B	10 to 20
C	20 to 35
D	35 to 50
E	50 to 80
F	> 80

Source: The Transportation Research Board's Highway Capacity Manual

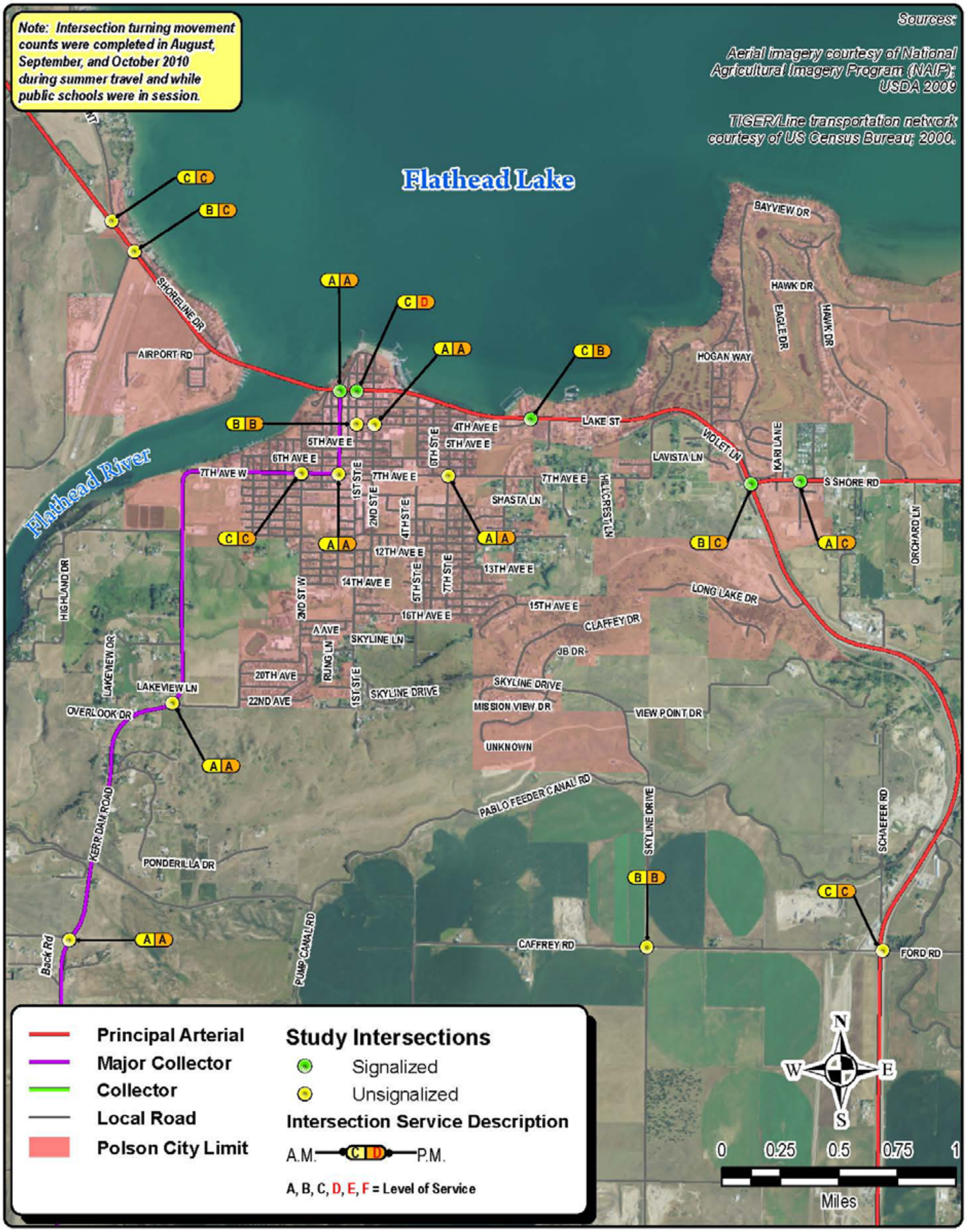
Using the data collected in the summer and fall of 2010, the LOS for the signalized intersections was calculated. Table 3.24 shows the AM and PM peak hour LOS for each individual leg of the intersections, as well as the intersections as a whole. The intersection LOS is shown graphically on Figure 6-2.

Table 6.24 Existing (2010) Level of Service for Signalized Intersections

Intersection	AM Peak Hour					PM Peak Hour				
	EB	WB	NB	SB	INT	EB	WB	NB	SB	INT
US 93 & South Shore Road (MT 35)	-	C	A	B	B	-	C	B	C	C
US 93 (3rd Avenue East) & 4th Avenue East	A	A	F	D	C	A	A	F	D	B
US 93 (2nd Avenue East) & 1st Street East	C	C	C	B	C	C	C	D	C	D
US 93 (2nd Avenue East) & Main Street*	A	A	N/A	E	A	A	A	N/A	E	A
South Shore Road (MT 35) & Heritage Lane	A	A	E	-	A	A	A	F	-	C

(Abbreviations used are as follows: EB = eastbound; WB = westbound; NB = northbound; SB = southbound; INT = intersections as a whole; N/A = not applicable). * Main Street NB approach under construction during time of data collection.

Figure 6-3 Existing (2010) Intersection Level of Service



Unsignalized Intersections

Level of service for unsignalized intersections is based on the delay experienced by each movement within the intersection, rather than on the overall stopped delay per vehicle at the intersection. This difference from the method used for signalized intersections is necessary since the operating characteristics of a stop-controlled intersection are substantially different. Driver expectations and perceptions are entirely different. For two-way stop controlled intersections, the through traffic on the major (uncontrolled) roadway experiences no delay at the intersection. Conversely, vehicles turning left from the minor roadway experience more delay than other movements and at times can experience substantial delay. Vehicles on the minor roadway, which are turning right or going across the major roadway, experience less delay than those turning left from the same approach. Due to this situation, the LOS assigned to a two-way stop controlled intersection is based on the average delay for vehicles on the minor roadway approach.

LOS for all-way stop controlled intersections is also based on delay experienced by the vehicles at the intersection. Since there is no uncontrolled roadway, the highest delay could be experienced by any of the approaching roadways. Therefore, the LOS is based on the approach with the highest delay as shown in Table 6.25. This table shows the LOS criteria for both the all-way and two-way stop controlled intersections.

Table 6.25 Level of Service Criteria (Unsignalized Intersections)

Level of Service	Delay (seconds/vehicle)
A	< 10
B	10 to 15
C	15 to 25
D	25 to 35
E	35 to 50
F	> 50

Source: The Transportation Research Board's Highway Capacity Manual

Using the above guidelines, the data collected in the summer and fall of 2010 and calculation techniques for two-way stop controls and all-way stop controls, the LOS was calculated for 11 intersections. Table 6.26 shows the detailed results of the performance level of service by turning movement for each unsignalized intersection.

Table 6.26 Existing (2010) Level of Service for Unsignalized Intersections

Unsignalized Intersection	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
US 93 & Rocky Point Road				
Eastbound Left/Thru	7.6	A	8.3	A
Southbound Left/Right	16.3	C	15.6	C
US 93 & Irvine Flats Road				
Eastbound Left/Thru/Right	7.7	A	8.2	A
Westbound Left/Thru/Right	8.6	A	8.0	A
Northbound Left/Thru/Right	11.8	B	13.4	B
Southbound Left/Thru/Right	13.9	B	18.8	C
US 93 & Caffrey Road				
Eastbound Left/Thru/Right	12.1	B	12.6	B
Westbound Left/Thru/Right	23.6	C	18.5	C
Northbound Left	8.3	A	8.6	A
Southbound Left	8.2	A	8.8	A
4th Avenue East & 1st Street East *				
Eastbound Left/Thru/Right	8.59	A	8.82	A
Westbound Left/Thru/Right	9.62	A	9.92	A
Northbound Left/Thru/Right	10.84	B	11.30	B
Southbound Left/Thru/Right	10.11	B	10.95	B
4th Avenue East & 2nd Street East *				
Eastbound Left/Thru/Right	8.31	A	8.04	A
Westbound Left/Thru/Right	8.25	A	7.87	A
Northbound Left/Thru/Right	7.87	A	8.05	A
Southbound Left/Thru/Right	8.38	A	7.90	A
7th Avenue & Main Street *				
Eastbound Left/Thru/Right	8.45	A	8.85	A
Westbound Left/Thru/Right	8.73	A	9.37	A
Northbound Left/Thru/Right	8.00	A	8.51	A
*Southbound Left/Thru/Right ** *	*N/A*	*N/A*	*N/A*	*N/A*
7th Avenue West & 2nd Street West				

Unsignalized Intersection	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
Eastbound Left/Thru/Right	7.4	A	7.6	A
Westbound Left/Thru/Right	8.3	A	7.8	A
Northbound Left/Thru/Right	13.0	B	13.3	B
Southbound Left/Thru/Right	24.8	C	18.4	C
7th Avenue East & 7th Street East *				
Eastbound Left/Thru/Right	8.22	A	9.04	A
Westbound Left/Thru/Right	8.10	A	8.60	A
Northbound Left/Thru/Right	8.18	A	8.60	A
Southbound Left/Thru/Right	7.84	A	8.67	A
Skyline Drive & Caffrey Road				
Eastbound Left/Thru/Right	11.3	B	10.3	B
Westbound Left/Thru/Right	9.2	A	9.2	A
Northbound Left/Thru/Right	7.3	A	7.3	A
Southbound Left/Thru/Right	7.4	A	7.3	A
Kerr Dam Road (S 354) & Grenier Lane				
Westbound Left/Thru/Right	9.4	A	9.5	A
Southbound Left/Thru/Right	7.6	A	7.4	A
Northbound Left/Thru/Right	7.3	A	7.4	A
Kerr Dam Road (S 354) & Back Road				
Eastbound Left/Thru/Right	9.5	A	9.4	A
Southbound Left/Thru/Right	7.4	A	7.3	A
Northbound Left/Thru/Right	7.3	A	7.4	A

*(Abbreviations used are as follows: N/A = not applicable). * HCM methodology does not compute v/c ratios for four–way stop controlled intersections. ** Main Street SB approach under construction during time of data collection.*

Projected Intersection Level of Service

It is important to determine what the Level of Service for each intersection would be like in 20 years if no improvements occur on the transportation system. By calculating the "projected level of service" out to the planning year (2030), a baseline is created to compare improvements to either the existing US 93, or the sensitivity to an alternate alignment. To calculate level of service for intersections during the planning year (2030), the TransCAD modeling software was used to identify the percent change in volumes for individual intersection legs between the year 2010 and 2030. The resulting percent changes were then manually applied to the known intersection counts to arrive at theoretical year 2030 intersection turning movement counts. These "year 2030" intersection counts were then entered into the highway capacity software to determine intersection level of service. Note that the intersection turning movement counts completed along the existing US 93 were generally made during the month of August, 2010 to capture the peak hour tourism phenomena. Tables 6.27 and 6.28 show the year 2030 level of service, for both the urban and rural intersections, without the inclusion of an alternate route or any improvements to the existing US 93.

Table 6.27 Projected (2030) Urban Intersection LOS without Improvements or Alignment

Intersection	AM Peak Hour					PM Peak Hour				
	EB	WB	NB	SB	INT	EB	WB	NB	SB	INT
US 93 & South Shore Road (MT 35)*	-	D	A	C	**B**	-	C	B	C	**C**
US 93 (3rd Avenue East) & 4th Avenue East*	A	A	F	D	**C**	A	A	F	D	**F**
US 93 (2nd Avenue East) & 1st Street East*	C	C	C	B	**C**	D	D	D	C	**D**
US 93 (2nd Avenue East) & Main Street*	A	A	D	D	**A**	A	A	F	F	**F**
South Shore Road (MT 35) & Heritage Lane*	A	A	E	-	**A**	A	A	F	-	**D**
US 93 & Rocky Point Road	A	-	-	B	**B**	A	-	-	B	**B**
US 93 & Irvine Flats Road	A	A	B	-	**B**	A	A	B	-	**B**
4th Avenue East & 1st Street East	A	A	B	A	**B**	A	A	B	B	**B**
4th Avenue East & 2nd Street East	A	A	A	A	**A**	A	A	A	A	**A**
7th Avenue & Main Street	B	A	A	-	**A**	B	A	A	-	**A**
7th Avenue West & 2nd Street West	A	A	B	E	**C**	A	A	C	D	**C**
7th Avenue East & 7th Street East	A	A	A	A	**A**	A	A	A	A	**A**

** Note: These intersections are signalized intersections*
(Abbreviations used are as follows: EB = eastbound; WB = westbound; NB = northbound; SB = southbound; INT = intersections as a whole; N/A = not applicable).

Table 6.28 Projected (2030) Rural Intersection LOS without Improvements or Alignment

Intersection	AM Peak Hour					PM Peak Hour				
	EB	WB	NB	SB	INT	EB	WB	NB	SB	INT
US 93 & Caffrey Road	B	D	A	A	**C**	C	D	A	A	**C**
Skyline Drive & Caffrey Road	-	A	A	A	**A**	-	A	A	A	**A**
Kerr Dam Road (S 354) & Grenier Lane	-	A	A	A	**A**	-	B	A	A	**B**
Kerr Dam Road (S 354) & Back Road	A	-	A	A	**A**	A	-	A	A	**A**

(Abbreviations used are as follows: EB = eastbound; WB = westbound; NB = northbound; SB = southbound; INT = intersections as a whole; N/A = not applicable).

Tables 6.27 and 6.28 show that if no improvements to the existing US 93 are made, or if no alternate route to US 93 was constructed, multiple intersections would not meet a desirable LOS of B or better (for rural areas) or C or better (for urban areas). For urban intersections, four intersections would not meet the LOS C or better criteria. These intersections are as follows: US 93 / 4th Avenue East, US 93 / 1st Street East, US 93 / Main Street, and MT 35 / Heritage Lane. The only rural intersection that would not meet LOS B or better would be US 93 / Caffrey.

Once this baseline was created, the effects on intersection LOS resulting from inclusion of each of the three alignments was calculated and compared. Only those intersections around the periphery of the proposed alignments were included for this analysis. Accordingly, six of the sixteen intersections were not included. These six intersections include 7th Avenue East & 7th Street East, 4th Avenue East & 2nd Street East, 4th Avenue East & 1st Street East, 7th Avenue & Main Street, 7th Avenue West & 2nd Street West, and South Shore Road (MT 35) & Heritage Lane. Additionally, a seventh intersection was removed for this comparison due to the uncertainty of intersection turning movement volumes. This intersection is the intersection of Skyline Drive and Caffrey Road.

Table 6.29 Projected (2030) Intersection LOS on Existing US 93

Intersection	Overall LOS	
	AM Peak Hour	PM Peak Hour
US 93 & South Shore Road (MT 35)*	B	C
US 93 (3rd Avenue East) & 4th Avenue East*	C	F
US 93 (2nd Avenue East) & 1st Street East*	C	D
US 93 (2nd Avenue East) & Main Street*	A	F
US 93 & Rocky Point Road	B	B
US 93 & Irvine Flats Road	B	B
US 93 & Caffrey Road**	C	C
Kerr Dam Road (S 354) & Grenier Lane**	A	B
Kerr Dam Road (S 354) & Back Road**	A	A

NOTES:
** These intersections are signalized intersections.*
*** These intersections are considered to be in the "rural" area (i.e., outside of current Polson city limits).*
****Two-way, stop controlled (TWSC) intersection methodology does not compute an overall LOS. Values presented are for worst minor, side street approach.*

Table 6.30 Projected (2030) Intersection LOS with Inclusion of Southern Bridge Crossing Hybrid

Intersection	Overall LOS	
	AM Peak Hour	PM Peak Hour
US 93 & South Shore Road (MT 35)*	B	C
US 93 (3rd Avenue East) & 4th Avenue East*	B	**D**
US 93 (2nd Avenue East) & 1st Street East*	C	C
US 93 (2nd Avenue East) & Main Street*	A	**F**
US 93 & Rocky Point Road	C	C
US 93 & Irvine Flats Road	B	B
US 93 & Caffrey Road**	**F**	**F**
Kerr Dam Road (S 354) & Grenier Lane**	A	A
Kerr Dam Road (S 354) & Back Road**	B	B

NOTES:
** These intersections are signalized intersections.*
*** These intersections are considered to be in the "rural" area (i.e., outside of current Polson city limits).*
****Two-way, stop controlled (TWSC) intersection methodology does not compute an overall LOS. Values presented are for worst minor, side street approach.*

Table 6.31 Projected (2030) Intersection LOS with Inclusion of Northern Bridge Crossing Hybrid

Intersection	Overall LOS	
	AM Peak Hour	PM Peak Hour
US 93 & South Shore Road (MT 35)*	B	C
US 93 (3rd Avenue East) & 4th Avenue East*	B	**D**
US 93 (2nd Avenue East) & 1st Street East*	C	C
US 93 (2nd Avenue East) & Main Street*	A	**F**
US 93 & Rocky Point Road	C	C
US 93 & Irvine Flats Road	B	C
US 93 & Caffrey Road**	**F**	**F**
Kerr Dam Road (S 354) & Grenier Lane**	B	B
Kerr Dam Road (S 354) & Back Road**	B	B

NOTES:
** These intersections are signalized intersections.*
*** These intersections are considered to be in the "rural" area (i.e., outside of current Polson city limits).*
****Two-way, stop controlled (TWSC) intersection methodology does not compute an overall LOS. Values presented are for worst minor, side street approach.*

Table 6.32 Projected (2030) Intersection LOS with Inclusion of EIS Alignment 6

Intersection	Overall LOS	
	AM Peak Hour	PM Peak Hour
US 93 & South Shore Road (MT 35)*	B	C
US 93 (3rd Avenue East) & 4th Avenue East*	B	**D**
US 93 (2nd Avenue East) & 1st Street East*	C	C
US 93 (2nd Avenue East) & Main Street*	A	**F**
US 93 & Rocky Point Road	C	C
US 93 & Irvine Flats Road	B	B
US 93 & Caffrey Road**	**D**	**D**
Kerr Dam Road (S 354) & Grenier Lane**	B	B
Kerr Dam Road (S 354) & Back Road**	B	B

NOTES:
** These intersections are signalized intersections.*
*** These intersections are considered to be in the "rural" area (i.e., outside of current Polson city limits).*
****Two-way, stop controlled (TWSC) intersection methodology does not compute an overall LOS. Values presented are for worst minor, side street approach.*

Tables 6.29 through 6.32 show that implementation of any alignment option would result in the same intersections failing the LOS thresholds uniformly. In all three alignment options, three intersections failed to meet the desired urban and rural LOS criteria. The three intersections are common to all three alignment options and are as follows: US 93 / 4th Avenue East, US 93 / Main Street, and US 93 / Caffrey. In addition to the three failing intersections, if no alternate route was implemented, the intersection of US 93 / 1st Street East would fail on existing US 93. Table 6.33 shows that all three alignments were given a rating of 1.

Table 6.33 Future (2030) Intersection LOS Results

Alignment ID	Rating*
Southern Bridge Crossing Hybrid	1
Northern Bridge Crossing Hybrid	1
EIS Alignment 6	1

**Note: This analysis was based on a rating of one to three with one being the most desirable rating*

6.4.3 Travel Time

This analysis is intended to compare the theoretical travel time for vehicles travelling along each alignment. Based on several factors contained in the TransCad model (i.e., speeds, capacity, intersection delays, etc.), a theoretical travel time under "congested" conditions is obtained. Travel time is important to the vehicle driver, as the shorter the time to travel a route between two known similar points is generally more desirable when compared to a longer travel time between the same points.

Table 6.34 depicts the theoretical travel time for each of the three alignments as derived from the TransCad travel demand model. The shortest travel time was noted for the southern bridge crossing hybrid, and was therefore given a rating of 1. There was not enough difference between EIS Alignment 6 and the north bridge crossing hybrid travel times to warrant a point differential; therefore, both were given a rating of 2.

Table 6.34 Travel Time Comparison

Alignment ID	Travel Time (minutes)	Rating*
Southern Bridge Crossing Hybrid	6.39	1
Northern Bridge Crossing Hybrid	6.93	2
EIS Alignment 6	7.28	2

**Note: This analysis was based on a rating of one to three with one being the most desirable rating*

In addition to the travel time along the alternate route, the model also determined the travel time along the existing US 93, with the new alignment(s) in place. The travel time along the existing US 93 varied from 8.79 minutes to 9.90 minutes depending on which alternate alignment was implemented.

6.4.4 Cost Comparison

The hybrid alignments were modeled in the Quantm software to document the planning level costs for each alignment. Although not a true component of the operational analysis, it is included herein for informational purposes based on the desire expressed by the community for current planning-level cost estimates. The costs generated by Quantm are reflective of construction costs (i.e., do not include detailed right-of-way costs, project development costs, utility relocation costs, inflation, etc.). The three alignments were rated from one to three based on their overall costs. The low end costs presented in Table 6.37 reflect the average cost projection from the Quantm software (in 2011 dollars). Each cost projection was inflated by a 20 percent contingency factor to account for preliminary engineering costs, construction engineering costs, and IDC accounting procedures costs.

Table 6.35 Cost Comparison

Alignment ID	Cost	Rating*
Southern Bridge Crossing Hybrid	$50.1 – $60.1M	2
Northern Bridge Crossing Hybrid	$43.8 – $52.6M	1
EIS Alignment 6	$48.5 - $58.2M	2

**Note: This analysis was based on a rating of one to three with one being the most desirable rating*

6.4.5 Recommendation for Feasible Alignments

The conclusion of the operational analysis is that the northern bridge crossing hybrid alignment, the southern bridge crossing hybrid alignment, and the modified EIS alignment 6 all could be carried forward for future consideration. The close rating values of 5, 5, and 6 for the southern bridge crossing hybrid, northern bridge crossing hybrid, and EIS alignment 6, respectively, confirmed that all three alignments essentially perform similarly. As previously documented, it was recommended to eliminate the modified EIS alignment 6 from further consideration. Accordingly, it was decided that two of the hybrid/modified alignments, the northern and southern bridge crossing, be recommended for further consideration if a project moves forward from this study.

The results of the operational analysis are shown in Table 6.36.

Table 6.36 Operational Analysis Results

	Southern Bridge Crossing Hybrid	Northern Bridge Crossing Hybrid	EIS Alignment 6
Shift in Thru-Truck Traffic	1	1	1
Intersection LOS Point System Results	1	1	1
Travel Time	1	2	2
Cost Comparison	2	1	2
Total	**5**	**5**	**6**

Both the southern bridge crossing hybrid and the northern bridge crossing hybrid routes would satisfy the needs and objectives for the US 93 corridor and are candidates for development of an alternate route if carried forward for further development. The proximity of the northern bridge crossing hybrid alignment to the downtown area may allow for a revitalized 7th Avenue connection to the route sometime in the future. The northern bridge crossing hybrid alignment utilizes a portion of existing roadways and existing right-of-ways, such as Caffrey Road and Kerr Dam Road, resulting in the minimizing of new impacts to currently virgin land. Near the crossing of the Flathead River, the northern bridge crossing hybrid alignment can be modified to traverse the western edge or the eastern edge of the Fairgrounds property. This is a detail yet-to-be-determined; however, routing the alignment to the westerly property edge would avoid the newly constructed fire station near the eastern edge of this property but would traverse the grand stands.

The southern bridge crossing hybrid alignment, the longer of the two, would be the most costly, would traverse a larger percentage of undeveloped land that has high aesthetic and wildlife value to the community, and would result in an elevated bridge crossing of the Flathead River when compared to the northern bridge crossing hybrid alignment. However, the travel time would be the least due to the higher free flow travel speed along the route and the fact that it traverses through more, undeveloped lands than the northern route.

6.5 Alternate Route versus Existing US 93

This study follows up on the 1996 FEIS where numerous alternate routes were identified. Current conditions within the study area and a preliminary screening analysis reduced the number of possible alignments (including those listed in the FEIS) to two. These two alignments should be considered as part of the environmental documentation should a future project be developed. The previous section identified the potential operational considerations associated with the three alternate alignments (included the eliminated modified EIS 6 alignment). The intent of this section is to explore the major issues that have been expressed by the community and the TOC over the 12-month study development process. An important consideration is - what are the trade-offs for an alternate route versus the existing US 93 and whether an alternate route is even warranted? To address these concerns, key issues have been categorized into six topic areas. They are:

- Truck Traffic
- Congestion
- Livability
- Safety
- Economics
- Wildlife/Natural Habitat

6.5.1 Truck Traffic

A fundamental objective expressed by the TOC at the beginning of the corridor study process was to identify the ability of an alternate route to remove “thru-truck” traffic off of the existing US 93. Based on the traffic analysis (see data in Table 6.22), the alternate route(s) under consideration may be able to capture approximately 110 thru-trucks per day. This calculation was based on the usage of Annual Average Daily Traffic (AADT) volumes on the existing US 93, modeled to the year 2030. An important concept to understand is that Polson realizes elevated traffic volumes during the summer months. The month of July can realize traffic volumes elevated to approximately 150 percent of AADT, and the month of August can realize traffic volumes elevated to approximately 139% of AADT. In theory, the number of “thru-trucks” could elevate accordingly, in which case the ability to pull thru-trucks onto an alternate route may reach 165 thru-trucks.

The documentation of potential thru-truck shift is applicable just to "thru-trucks". Local truck traffic will continue to utilize whichever roadways are necessary for their purposes. The ability to potentially pull 165 thru-trucks off of the existing US 93 is considered to be desirable. This could equate to approximately 16 to 17 thru-trucks per hour during the peak summer months.

6.5.2 Congestion

The concern over congestion was expressed frequently throughout development of the corridor study by the community and the TOC. At the various informational meetings, statements made by the community suggested that US 93 traffic was not an issue except during the summer months where long waits and substantial delays occur frequently. Congestion can be thought of as consisting of three components: roadway segment congestion, intersection congestion (LOS) and travel time.

Roadway Segments

In a planning study it is advantageous to examine existing and future daily traffic volumes to compare those volumes against planning level corridor thresholds. In the existing US 93 corridor, weighted average AADT volumes ranged from a low of 9,884 vehicles per day (vpd) to a high of 12,610 vpd. These volumes (noted in Table 2.1) are capable of being accommodated within the current roadway configuration. However, during the peak summer months, these volumes do push the capacity thresholds of the roadway. The month of July may realize an elevated volume of 150 percent of the AADT. The peak summer traffic volume would therefore range between 14,826 and 18,285 vpd. The high-end volume is very close to exceeding the capacity of the existing roadway and would likely require a larger facility to convey current traffic if designing to the peak travel summer period.

When adjusting out to the year 2030, these volumes are expected to grow even further. With an estimated 24 percent growth in overall traffic volumes along US 93 over the next 20 years, projected weighted average traffic volumes may range between 12,256 and 15,636 vpd. The volumes on US 93 during the year 2030 are projected to range between 18,384 and 23,454 vpd during the peak summer months.

If only considering AADT, then the projected year 2030 volumes of 12,256 to 15,636 vpd may indeed be able to be accommodated within the existing roadway prism. However, if peak summer volumes are considered, it is highly likely that capacity will be exceeded on the current US 93 system through Polson.

Travel demand modeling demonstrates that the presence of an alternate route could divert approximately 6,000 vpd (9,000 vpd during peak summer months) from US 93 thereby alleviating potential capacity constraints. The shifting of these traffic volumes would allow the existing US 93 to function well into the future under the existing geometrics (i.e., no expansion needed for traffic conveyance).

A summary of roadway congestion issues are as follows:

- ✓ The existing roadway can carry year 2010 traffic volumes and may likely carry year 2030 traffic volumes,

- ✓ The existing roadway is currently nearing capacity for peak summer traffic volumes for year 2010 and most likely will not carry year 2030 peak summer traffic volumes, and
- ✓ Providing an alternate route may likely pull 6,000 weighted average AADT (9,000 AADT during peak summer traffic) off the existing US 93 during the year 2030.

<u>Intersection Congestion</u>

An analysis of intersections LOS was presented in section 6.4.2. Intersection LOS analysis is the best mechanism to evaluate how individual intersections may perform given changes in traffic volumes, and for the operational analysis a comparison of nine subject intersections were made.

The conclusions of the LOS analysis of the nine comparison intersections is that without an alternate route, four of the nine intersections will fall below acceptable LOS standards without some type of improvement along the existing US 93 roadway. With an alternate route, three intersections operate below an acceptable LOS.

This is an important realization because based on intersection performance, the creation of an alternate route does not "solve" all of the intersection operational issues along the existing US 93. Even though there is an ability to pull 6,000 vpd (AADT) to 9,000 vpd (peak summer month) off of the existing route, there are still likely to be some performance issues with several of the intersections. These could likely be resolved with optimization of traffic signal hardware, timing and phasing, etc. - however in an "apples-to-apples" comparison, the implementation of an alternate route will not solve all of the intersection concerns along the existing US 93.

A summary of intersection congestion issues are as follows:

- ✓ With no alternate route, four of the nine study intersections are expected to fall below the relevant LOS operational standard(s) by the year 2030, and
- ✓ With an alternate route, three of the nine study intersections are expected to fall below the relevant LOS operational standard(s) by the year 2030.

<u>Travel Time</u>

Congestion can also be correlated to travel time. The time it takes to get from point A to point B is dependent on the delay, and therefore congestion, the driver might experience. Section 6.4.3 presented the results of the travel time analysis for the alternate routes. These were compared against each other, as well as against the existing US 93 route. Travel time is faster for all the alternate routes with a range of 6.39 to 7.28 minutes, and is longer for the existing US 93 with an average of 9.35 minutes. These values came from the TransCad travel demand model for average travel conditions. These times would be expected to be longer during the peak summer travel period.

A summary of travel time is as follows:

- ✓ Travel time on an alternate route could be up to 2 to 3 minutes faster than the existing US 93 route (during average travel conditions), and

- ✓ Travel time will be longest during the peak summer travel period on both an alternate route and the existing US 93.

6.5.3 Livability

Livability is an important component to the community. At several of the informational meetings, the community expressed a desire for increased connectivity between the residential areas and the lakefront. Additionally, the desire for on-street bicycle lanes and off-street sidewalks was routinely expressed. Strengthening crosswalk opportunities was also expressed as an important consideration.

Providing an alternate route would draw traffic away from the existing route, thereby reducing the opportunity for potential conflicts between vehicles and pedestrians/bicyclists. Regardless of an alternate route, implementing on-street bicycle lanes would require an expansion of the roadway prism due to the constraints on both sides of the existing US 93. An alternate route may provide opportunities for future connections between the more rural lands and Polson proper.

Noise impacts and aesthetics would be improved along the existing US 93 facility, while a new alternate route would introduce impacts to the areas surrounding Polson not previously occurring.

A summary of livability concerns is as follows:

- ✓ The community expressed a strong desire for non-motorized improvements to the existing US 93 in the form of sidewalks, improved connectivity between the residential neighborhoods and the lakefront, and on-street bicycle lanes,
- ✓ To realize bicycle lanes on the existing US 93, expansion to the roadway prism would be required – both with or without an alternate route,
- ✓ An alternate route may provide previously unavailable non-motorized connections between the city of Polson and the rural lands surrounding it, and
- ✓ With an alternate route, noise impacts may be reduced on the existing US 93 and increased around the alternate route.

6.5.4 Safety

Safety concerns were documented along the existing US 93 route through an evaluation of crash rates for the rural and urban-like portions of the roadway, and compared to statewide averages for roadways of similar type. Based on this data analysis presented in section 2.11, the average vehicle crash rate(s) in the rural areas of the corridor were slightly higher than the average statewide crash rate for rural sections of similar type. The developed and downtown areas of the existing US 93 (i.e., from MT-35 to Irvine Flats Road) exhibited an average vehicle crash rate much less than the average statewide crash rate for incorporated cities of Montana.

The prevalence of access points also points to safety concerns in that during the peak summer travel period, vehicles are routinely observed backing out into the US 93 roadway prism as they wait to enter private drive approaches. Several popular business approaches lead directly to small parking lots with little storage capacity. The numerous access points have an effect on the safety performance within the developed area of the corridor. Safety could likely be improved with an alternate route in place, due to the removal of traffic volumes from the existing route.

A summary of safety concerns is as follows:

- ✓ The average vehicle crash rate(s) in the rural areas of the corridor are slightly higher than the average statewide crash rate for rural sections,
- ✓ The developed downtown areas of the existing US 93 (i.e. from MT-35 to Irvine Flats Road) exhibited an average vehicle crash rate much less than the average statewide crash rate for similar incorporated cities of Montana, and
- ✓ The numerous access points have an effect on the safety performance of the developed area of the corridor and could likely be improved with an alternate route in place.

6.5.5 Economics

There have been concerns expressed about the impact an alternate route may have on the businesses along the existing US 93 corridor. Many of the businesses state that they rely on capturing the peak summer traffic flow for a substantial portion of their business revenues. Additionally, the downtown business core has expressed concern about any removal of traffic from the existing route. Detailed economic impacts of a potential alternate route cannot be documented in this high level pre-NEPA/MEPA corridor study. Further analysis would be addressed in a formal project-level environmental document, should an alternate route be considered.

A summary of economic concerns is as follows:

- ✓ There have been concerns expressed about the impact an alternate route may have on the businesses along the existing US 93 corridor. The downtown business core has expressed concern about any removal of traffic from the existing route, and
- ✓ The specific study of economic impacts would be addressed in a formal project-level environmental document, should an alternate route be considered.

6.5.6 Wildlife/Natural Habitat

The location of an alternate route has generated considerable comments about preserving the natural habitat currently undisturbed for the benefit of wildlife, waterfowl and agricultural usage. The recommended alignments that have been considered traverse portions undisturbed lands that are currently used by a variety of wildlife species. The concerns expressed by some members of the community have that an alternate route may cut off connectivity of habitat types, and further push wildlife away from their historical habitat.

A summary of wildlife/natural habitat concerns is as follows:

- ✓ Some community members have expressed concern over an alternate route cutting off connectivity of habitat types, and further pushing wildlife away from their historical habitat, and
- ✓ Keeping US 93 along the current alignment will have the least amount of wildlife/natural habitat impact.

6.6 Recommended Improvements to Existing US 93

Without an alternate route, improvements to the existing US 93 will be necessary to accomplish the needs and objectives set forth by the community relative to multi-modal travel, connectivity, perpetuation of traffic flow, and aesthetics. Improvements to the existing US 93 will be documented in the Polson Area Transportation Plan.

Chapter 7 Funding Mechanisms

7.1 Introduction

MDT administers a number of programs that are funded from state and federal sources. Because US 93 is on a designated federal-aid highway system, there are potential funding programs that may be used to fund all or portions of any future new alignment of US 93.

Each year, in accordance with 60-2-127, Montana Code Annotated (MCA) the Montana Transportation Commission allocates a portion of available federal-aid highway funds for construction purposes and for projects located on the various systems in the state as described herein.

7.2 Federal Funding Sources

The following summary of major Federal transportation funding categories received by the State through Continuing Resolutions of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)-enacted on August 10, 2005, includes state developed implementation/sub-programs that may be potential sources for development of a new alignment for US 93 in the study area. In order to receive project funding under these programs, projects must be included in the State Transportation Improvement Program (STIP).

7.2.1 National Highway System (NHS)

The purpose of the NHS is to provide an interconnected system of principal arterial routes which will serve major population centers, international border crossings, intermodal transportation facilities and other major travel destinations; meet national defense requirements; and serve interstate and interregional travel. The NHS includes all Interstate routes, a large percentage of urban and rural principal arterials, the defense strategic highway network, and strategic highway connectors.

Allocations and Matching Requirements

NHS funds are Federally apportioned to Montana and allocated based on system performance by the Montana Transportation Commission. The Federal share for NHS projects is 86.58 percent and the State is responsible for the remaining 13.42 percent. The State share is funded through the Highway State Special Revenue Account.

Eligibility and Planning Considerations

Activities eligible for the NHS funding include construction, reconstruction, resurfacing, restoration, and rehabilitation of segments of the NHS. Operational improvements as well as highway safety improvements are also eligible. Other miscellaneous activities that may qualify for NHS funding include research, planning, carpool projects, bikeways, and pedestrian walkways. The Transportation Commission establishes priorities for the use of NHS funds and projects are let through a competitive bidding process. US 93 is on the NHS.

The Missoula District, which the US 93 Polson corridor is a part of, is anticipated to receive an average of about $38 million annually of NH funds during the next five years. Current Missoula District priorities already under development total an estimated construction cost of $194.8 million of which approximately $93.6 million is for improvement along segments of the US 93 corridor outside of this study area. Given the estimated range of planning level costs of $43.8 million to $60.1 million to develop a new alignment of US 93, NH funding for this level of improvement is highly unlikely over the short term, but may be available toward the end of the planning horizon depending on other NHS needs within the Missoula District.

7.3 Discretionary Funds

Discretionary funds may be received through either highway program authorization or annual appropriations processes. These funds are generally described as "demonstration" or "earmark" funds. Receiving Discretionary funds has been a viable mechanism for local governments to secure federal funding for projects. If a local sponsored project receives these types of funds, MDT will administer the funds in accordance with the Montanan Transportation commission Policy #5 – "*Policy resolution regarding Congressionally directed funding: including Demonstration Projects, High Priority Projects, and Project Earmarks."*

Chapter 8 Corridor Study Conclusion

The segment of US 93 from RP 56.5 to RP 63.0 was evaluated at a planning level to obtain a better understanding of the corridor needs, objectives, constraints and opportunities, and to determine what alternate alignment(s), if any, could be pursued. Potential alternate alignments for US 93 were evaluated by reviewing all existing engineering and known environmental resource information and soliciting input from the community, stakeholders, and resource agencies. Eleven potential alignments were established to address the needs and objectives for the US 93 corridor. These alignments are recognized as various alternate routes that have the potential to be developed to satisfy the long-term needs of US 93. The development and locations of these potential alignments are best considered in terms of general corridor "swaths".

A screening process was completed to provide qualitative and quantitative analysis of potential alignments. Through this process, the eleven alignments were screened down to five. Community input, coupled with direction from the TOC, led to slight modifications of the five selected alignments to form three hybrid alignments in order to minimize residential impacts. The three hybrid alignments were the southern bridge crossing hybrid alignment, northern bridge crossing hybrid alignment, and modified EIS Alignment 6. For informational purposes, an operational analysis was performed to evaluate the shift in thru-truck traffic, intersection level of service, travel time, and costs. Subsequent to the screening process and the operational analysis, the modified EIS Alignment 6 was dropped from further consideration. Reasons for eliminating the modified EIS Alignment 6 were the greater potential to disturb undeveloped land (as compared to the other two), and the high degree of public opposition to the route.

The conclusion of the corridor study is that either the southern bridge crossing hybrid alignment or the northern bridge crossing hybrid alignment are suitable for development as an alternate alignment to US 93. Both alternate alignments would satisfy the needs and objectives for the US 93 corridor. Design activities and determination of roadway configurations are not part of the pre-NEPA/MEPA Corridor Planning process.

Of particular note, however, is the local partners' support for pursuing improvements to the existing US 93 corridor before contemplating and/or pursuing an alternate route. Based on all the available information, local community representatives sitting on the TOC have expressed their preference for revitalization of the existing US 93 before considering an alternate route any further. Although the conclusion of this study is that two alignments may be recommended as an alternate route, it will ultimately be the responsibility of the local stakeholders to continue the discussion on whether they believe an alternate route is needed.

If improvements are ultimately made on the existing US 93, the local community representatives have indicated their desire for planning for amenities to supplement any needed geometrical improvements. These amenities may include:

- Bicycle facilities,

- Pedestrian facilities,
- Raised medians,
- Appropriate lighting, and
- Heightened wayfinding/signage.

Information contained in this corridor study can be used to document why certain alignments were removed from consideration. As funding becomes available, MDT in cooperation with the study partners may elect to enter into the next phase of project development.

8.1 Next Steps

The ability to develop a US 93 alternate route project is a function of the availability of existing and future federal, state, local, and private funding sources. At the current time, there is no funding identified to begin the process of implementing a new alternate route to existing US 93. Either the northern or southern route may be recommended. However, as part of any alignment discussion through or around Polson, the existing US 93 corridor will need to be considered as an option. To continue the development of these alignments as alternate route(s), the following steps will be needed:

- Identify and secure a funding source or sources, and
- Preserve the corridor surrounding the route(s).

Should this corridor study lead to a project (or projects), compliance with NEPA (if federal funding is utilized) and MEPA (regardless of funding source) will be required. Further, this corridor study will be used as the basis for determining the impacts and subsequent mitigation for the selected alignment in the future NEPA document. Any project (or projects) developed will need to be in compliance with CFR Title 23 Part 771 and ARM 18, sub-chapter 2 which sets forth the requirements for documenting environmental impacts on highway projects.

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Chapter 10 Study Team

The US 93 Polson Corridor Study was prepared by the following individuals:

10.1 Corridor Planning Team

Name	Title	Agency
Joe Hovenkotter	Staff Attorney	Confederated Salish and Kootenai Tribes
Todd Crossett	City Manager	City of Polson
Bill Barron	County Commissioner	Lake County
Zia Kazimi	Statewide and Urban Planning Supervisor	Montana Department of Transportation
Sheila Ludlow	Project Manager	Montana Department of Transportation
Jean Riley	Transportation Planning Engineer	Montana Department of Transportation
Doug Moeller	Missoula District Administrator	Montana Department of Transportation
Shane Stack	Missoula District Engineering Services Supervisor	Montana Department of Transportation
Moriah Thunstrom	Glendive District Project Development Engineer	Montana Department of Transportation
Wade Salyards	Wetland Engineer, Quantm	Montana Department of Transportation
Brian Andersen	Cartographer, GIS Analyst	Montana Department of Transportation
Tom Kahle	Transportation Planning Engineer	Montana Department of Transportation
Lloyd Rue	Program Development Engineer	Federal Highway Administration
Gene Kaufman	Operations Engineer	Federal Highway Administration

10.2 CDM

Name	Title	Role
Jeff Key	Senior Project Manager	Management, Study Document Preparation, Technical Memorandum Preparation, Community Involvement, Consultation and Coordination
Naomi Fossen	Transportation Engineer	Engineering Analysis, Study Document Preparation, Technical Memorandum Preparation, Community Involvement, Consultation and Coordination
Jamie Jespersen	Transportation Planner	Engineering Analysis, Study Document Preparation, Technical Memorandum Preparation, Community Involvement, Consultation and Coordination
Andy Gordon	GIS Specialist	GIS and Graphics Preparation
Darrel Stordahl	QA/QC Reviewer	Quality Assurance and Quality Control Review
Tawnia Smith	Administrative Assistant	Study Document Preparation, Mailings, Administrative Functions
Amanda Glass	Administrative Assistant	Study Document Preparation
Shana DeBoer	Administrative Assistant	Study Document Preparation

10.3 Resource and Regulatory Agencies

Name	Title	Agency
Jeff Ryan	Environmental Science Specialist	Montana Department of Environmental Quality
Todd Tillinger	Montana Program Manager	United States Army Corps of Engineers
Christina Schroeder	Regulatory Project Manager	United States Army Corps of Engineers
Beau Downing	Stream Protection Act Coordinator	Montana Fish, Wildlife & Parks
Janet Camel	Land Use and Development	Confederated Salish and Kootenai Tribes
Michael Durglo, Sr	Compliance Manager	Tribal Preservation Office
Clarinda Burke	Compliance Manager	Tribal Preservation Office
Steve Potts	Environmental Engineer – NEPA Compliance	United States Environmental Protection Agency

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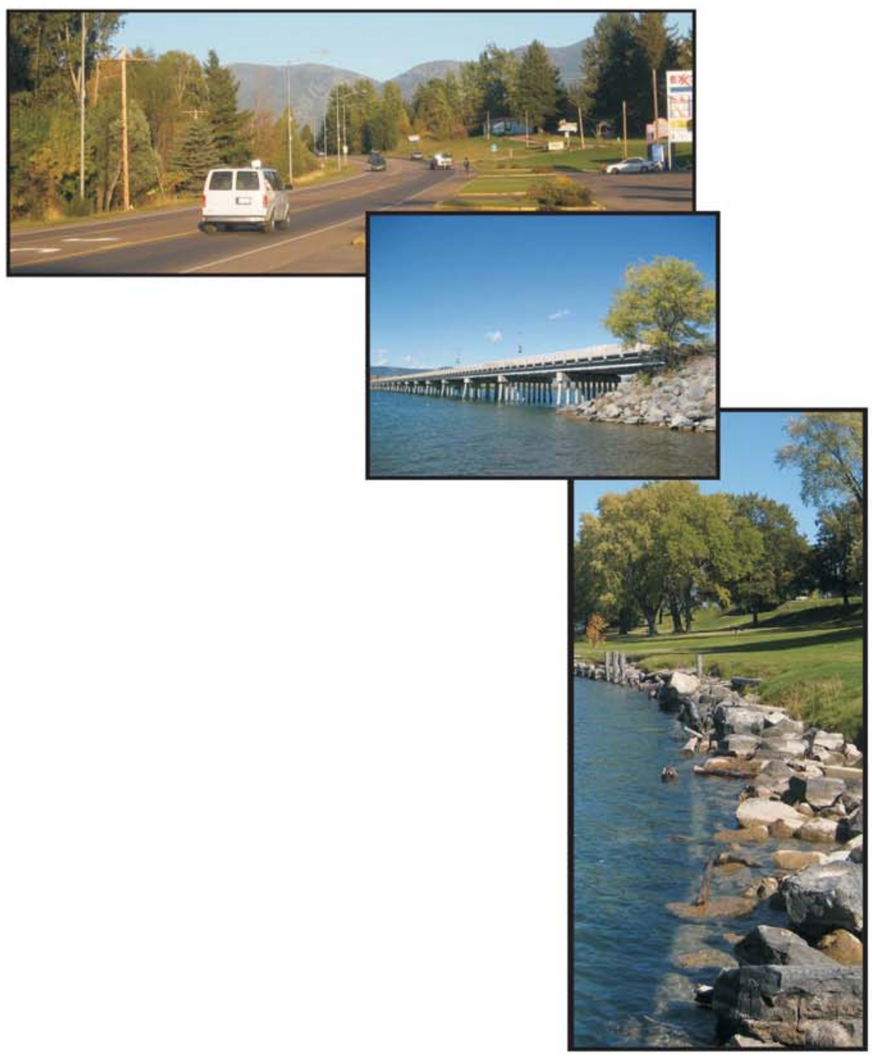
Appendix A

APPENDIX A
CONSULTATION, COORDINATION AND COMMUNITY INVOLVEMENT



US 93 Polson
Corridor Study

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Summary of Comments and Responses Received After Publication of the Draft Corridor Study

The matrix below contains a summary of the comments received during the Draft Corridor Study Document comment period (06/24/2011 to 07/15/2011) and includes a response when clarification is required. Comments are shown in their entirety on the CD.

Comment #	First Name	Last Name	Summary of Comments Received	Response
1	Ralph	Luke	Does not support northern bridge crossing hybrid - impacts to Sports Complex and Travis Dolphin Dog Park; concerned about children in the area; impacts to Fairgrounds property; potential adverse effects to local economics; removal of water activities currently in place; attract commercial growth (negative). Change in alignment to southern route to follow a straight line; reference to Arlee and other areas of US 93; provide "high speed" traffic flow.	Thank you for your comments. They are included in the study record. The northern bridge crossing hybrid alignment shown in the draft report is drawn at a width of 300 feet. It is not known at this time whether a route would impact the sports complex or dog park.
2	Unknown	Unknown	Eliminate northern bridge crossing hybrid – concern over children near Sports Complex; prevalence of school bus stops on Kerr Dam Road; numerous streets intersect Kerr Dam Road. Better alternatives for a bypass than Kerr Dam Road.	Thank you for your comments. They are included in the study record.
3	Greg	Hamilton	Focus on the existing US 93 (thru town) as the priority; least amount of impact on the community as a whole; concerned about economic impact of a bypass to the community; dependent on tourism traffic. Southern bridge crossing hybrid – affects property values; quality of life impacts to those residents.	Thank you for your comments. Improving US 93 thru town is one of the three recommended alignments discussed in this study.
4	Linda	Hamilton	Follow the existing US 93 through Polson; no bypass; concerns over impacts to businesses with a bypass; concern over potential impacts to Ponderilla Hills if a bypass is in place; concern over noise, pollution and decreased property values.	Thank you for your comments. They are included in the study record.
5	Christina	Buffington	Doesn't believe an alternate route is necessary. Southern bridge crossing hybrid concerns – increased noise pollution and decreased property values; questions feasibility of constructing a bridge in this area due to soils and stormwater. Northern bridge crossing hybrid concerns – safety of children waiting for school buses; concerns over safety for bicyclists along Kerr Dam Road; potential conflicts with truck traffic. Concerned over decreased property values due to "lines on a map". Best option is to improve existing US 93.	Thank you for your comments. The conclusion in the study generally suggests that an alternate route is not needed now or out to the 20-year planning horizon, <u>unless</u> the community is focusing on peak summer traffic.
6	John	Heglie	If focus placed on existing US 93 there are still impacts to his property. Wonder why North Reservoir Road hasn't been considered as an alternate to Caffrey Road; concerned about potential impacts to irrigation pivots along Caffrey Road. Question as to why Central bridge crossing hybrid was removed as feasible. Removal of Fairgrounds can be mitigated with replacement facilities. Commercial viability of land important if an alternate route ever proceeds.	Thank you for your comments. They are included in the study record. North Reservoir Road was not part of the study area, which is the same as both the 1996 EIS and the 2001 Re-evaluation of the EIS. After review of this with the local bodies it was decided to keep this study area consistent with the EIS. The central bridge crossing route was eliminated from consideration as 1) it did not score well in the screening process and 2) it did not have the support of the local bodies as a viable route.
7	Jules	Clavadetscher	Approved Master Plan titled "Consider the Possibilities for Polson" points to an improved Salish Point. Supports re-routing truck traffic around Polson. Master Plan was subject to public scrutiny. Follow mandate of Urban Renewal Master Plan and pursue an alternate truck route.	Thank you for your comments. They are included in the study record. Recommendations from this study include alternate routes around Polson. Once funding becomes available these recommendations will be forwarded into a project-level environmental documentation process at which time an improvement option will be determined.
8	David	Unknown	Supports improving the existing US 93; high costs of a bypass not warranted given the potential seasonal benefit. Study is flawed by not enlarging the study area boundary to include areas south of Caffrey Road and also Back Road. A more geographically remote bypass would affect Polson residents less. Paving of Back Road has already created a de-facto bypass; study area should have looked at this.	Thank you for your comments. They are included in the study record. The study area is the same as both the 1996 EIS and the 2001 Re-evaluation of the EIS. After review with the local bodies, it was decided to keep this study area consistent with the EIS.
9	Darlis	Smith	Relocate US 93 away from the shores of Flathead Lake; reclaim shore front and revitalize Polson for citizens and visitors.	Thank you for your comments. They are included in the study record. The Technical Oversight Committee (TOC), which is comprised of local representatives, has stated their preference that priority be given to making improvements to the existing US 93 as the first priority.
10	Darlis	Smith	Rerouting of US 93 impacts Polson's future and the vitality of the community. Most community action items are inter-related. Envision Polson is applying for the Orton Family Foundation "Heart and Soul Community Planning Grant".	Thank you for your comments. They are included in the study record. Nothing in the Corridor Study Report precludes or hinders additional community participation and/or focus on a potential alternate route.
11	Darlis	Smith	Clarify who the "local partners" are on the TOC. Steering committee for Envision Polson unpleasantly surprised with purported "overwhelming support" for improving existing US 93. Questions effectiveness of community outreach efforts on the corridor study.	Thank you for your comments. They are included in the study record. The local partners include the City of Polson, Lake County and the CSKT, basically the local governments that have jurisdiction of the area. Appendix A in the draft report summarizes the community outreach effort and attendance numbers for the various events.

Comment #	First Name	Last Name	Summary of Comments Received	Response
12	Debora	Miller	Agrees that focus should be on existing US 93. Does not believe the southern bridge crossing hybrid alignment is feasible. Concerns over impacts to natural habitat and local Polson economics. Constructability issues regarding soils, water (runoff) and freeze/thaw cycle impacts.	Thank you for your comments. They are included in the study record. During the environmental documentation process more detail regarding location and configuration of an alignment would be required.
13	Jan	Boyle	Why are routes near or through "Avoid" areas – especially near the soccer fields and holding ponds? Travis Dolphin Dog Park identified as "wetland", however it is a city park.	Thank you for your comments. They are included in the study record. The northern bridge crossing hybrid alignment shown in the draft report is drawn at a width of 300 feet. It is not known at this time whether a route would impact the sports complex or dog park, however it may be possible to thread a new route between these two "avoid" areas. Follow up coordination with the City of Polson has confirmed that the Travis Dolphin Dog Park is indeed a city recognized park.
14	Tamara	Fisher	Supports that focus should be on the existing US 93. Concerns over northern bridge crossing alternate route(i.e. Kerr Dam Road) – cost; economics/business; safety; impacts to wildlife & parks; Fairgrounds property; width of roadway; quality of life; and property value impact.	Thank you for your comments. They are included in the study record.
15	Stephen	Potts	No major environmental analysis deficiencies and/or large environmental concerns noted. Screening process clearly presented and thorough. EPA fully supports efforts to accommodate pedestrian and bicycle travel along and within the corridor.	Thank you for your comments. They are included in the study record.