Part III: Affected Environment

A. Introduction

The effects of implementing any of the alternatives can be accurately assessed only after the existing social, economic, and environmental settings of the highway corridor have been identified. The setting for the proposed action will be discussed for broad categories including: the physical environment, the biological environment, and the human environment. Information about existing environmental conditions was compiled for important features within each category and for other items that must be evaluated to comply **with the provisions of both NEPA and MEPA.** Current literature, documented studies, and information received from the public helped identify existing conditions in the area affected by the proposed action.

B. Physical Environment

1. CLIMATE

The climate of the project area is influenced by both moist air masses from the Pacific Coast and the drier continental air masses of the Great Plains. Consequently, the area often receives more precipitation and milder temperatures than other regions of Montana. Hungry Horse, at the east end of the project corridor, receives about 31 inches of annual precipitation. The mean annual snowfall is nearly 109 inches for this reporting station. Most precipitation occurs during May and June.

Mean January temperatures for reporting stations near the project area are approximately 20° F. Temperatures during the winter may drop to more than -20° F. July days typically have high temperatures in the 70s and 80s and scattered afternoon thunderstorms. Peak temperatures in the summer may reach 100° F.

Strong winds out of Badrock Canyon can cause blowing and drifting snow in the Columbia Heights area several times each winter. The shading effects of cliffs and vegetation along the highway in the Badrock Canyon to Hungry Horse segment of the corridor often cause icy road conditions to persist in this area during winter months.

2. GEOLOGY OF THE HIGHWAY CORRIDOR

Physiography - The project corridor extends eastward from the Flathead Valley, a broad intermountain basin, into a narrow canyon formed by the main stem of the Flathead River. The elevation of the corridor ranges from 3,000 to 3,100 feet above sea level between Columbia Falls and Hungry Horse. The elevations of Teakettle Mountain and Columbia Mountain approach 6,000 and 7,300 feet, respectively. The South and Middle Forks of the Flathead join near Hungry Horse and flow westward into the Flathead Valley.

Geology of the Highway Corridor - The types of geologic materials likely to be encountered during construction in the US 2 corridor include (1):

> **Recent Alluvium** - This material is found along streams and bordering the Flathead River system and typically consists of silt, sand, and gravel eroded from bedrock or glacial outwash deposits. Alluvium is likely to be encountered in Badrock Canyon where the highway's alignment closely follows the main stem of the Flathead and at the South Fork river crossing.

Glacial Deposits - These deposits consist of lacustrine silt, clay, gravel, glacial drift, and alluvial fan materials. These materials may be found in the level to gently rolling terrain that exists from the project's beginning to Badrock Canyon.

Precambrian Rocks - These rocks are generally found in massive formations and consist of limestone, dolomite, and argillite. The specific units that **may be** encountered include the Siyeh Formation, the Grinnell Formation, and the Lower Piegan Unit. These rocks form the distinctive cliffs of Badrock Canyon. **The westernmost outcrop in Badrock Canyon, where rock excavation is proposed, consists of green-gray, purple, and purple-red siliceous argillite of the Grinnell Formation. The Grinnell Formation is the oldest rock in Badrock Canyon. A detailed geotechnical investigation of this outcrop was completed in October, 1994.**

FIGURE III-1 shows the generalized geology of the US 2 corridor.

Existing Geologic Hazards - **The bedding and joint structure of the rocks in Badrock Canyon provide a potential for rockfalls. Large blocks of rock are known to have fallen from the cliffs within the last ten years and some blocks have even reached the shoulder of the existing road. Highway maintenance personnel indicate that minor rockfalls from the outcrops adjacent to US 2 are not uncommon. Geotechnical studies of the upper cliffs in the west outcrop of Badrock Canyon identified the presence of tension cracks and found evidence that rock plates in the outcrop have moved within the last 25 to 30 years. Large blocks of rock could potentially fall from this upper cliff area onto the existing or reconstructed highway.**

Generalized geologic information also indicates that a fault probably exists at the base of the Swan and Whitefish mountain ranges at the extreme east edge of the Flathead Valley (1).

Important Soils in the Highway Corridor - The U.S. Department of Agriculture, Soil Conservation Service (SCS) was contacted to identify important soils that may be affected by the proposed action (2). The Farmland Policy Protection Act (FPPA) requires special consideration be given to soils that considered as prime farmland, unique farmland, or farmland of statewide or local importance by the SCS.

The SCS District Conservationist in Kalispell identified four soils crossed by US 2 as "locally important farmland." **These soils include Flathead-Mires Loam (0-3% slopes), Mires Gravelly Loam (0-3% slopes), Mires Gravelly Loam (3-7% slopes), and Mires Loam (0-3% slopes).** Locally important farmland is shown on **FIGURE III-1.**

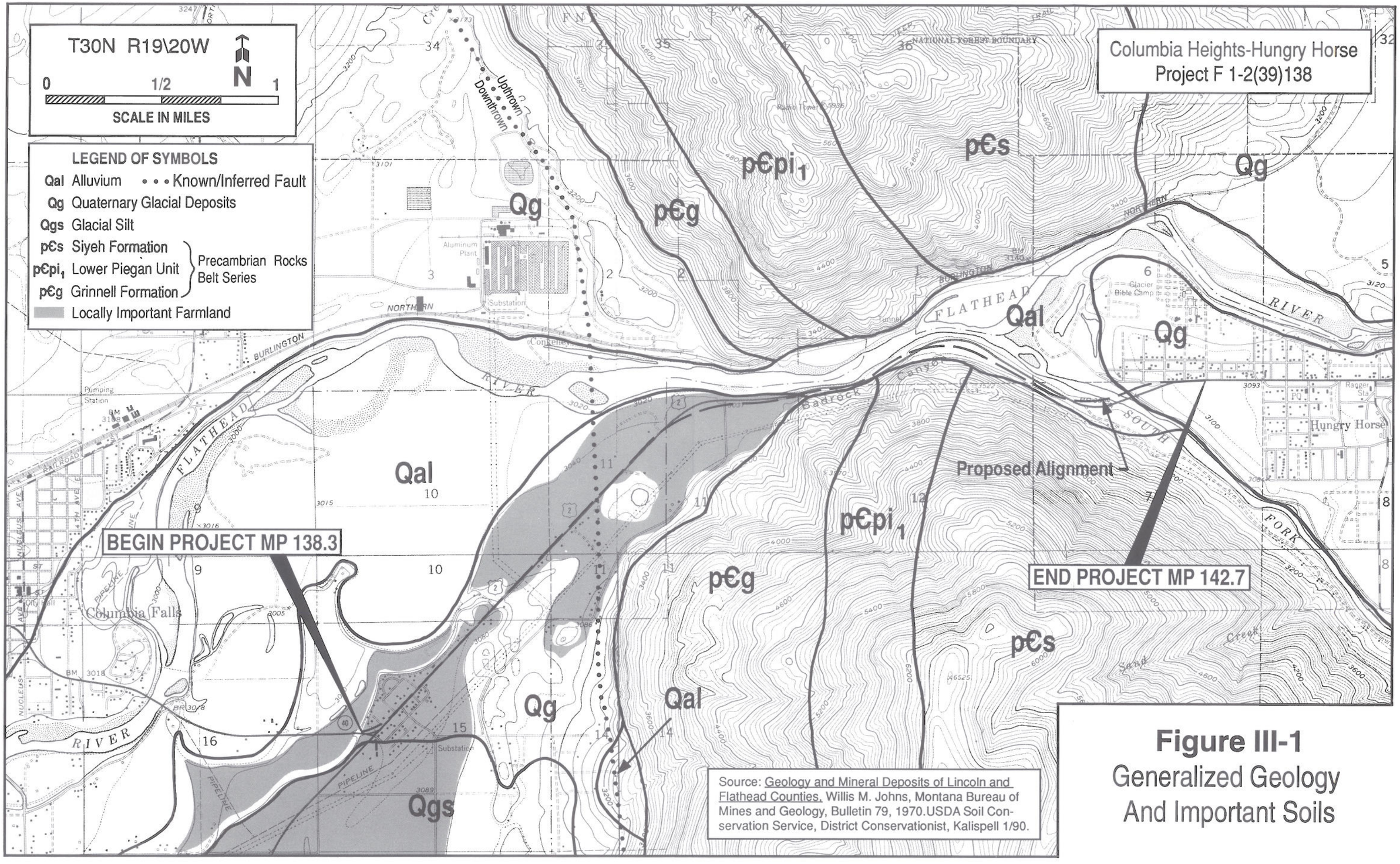
Correspondence from the SCS District Conservationist (January 19, 1990) identifying important soils and farmland in the project area is included in Part VI of the EIS.

3. WATER RESOURCES AND QUALITY

The proposed action has the potential to affect various water resources within the project area including surface waters and floodplains of the Flathead River system, a Wild and Scenic River segment, wetlands, and the springs at Berne Memorial Park. Wetlands and the Flathead Recreational Waterway are discussed in separate sections of this Part. The quality of affected surface and groundwaters in the project area is discussed generally because specific water quality data was not available.

Affected Surface Water Resources - Surface waters in the project corridor that may be affected by the proposed action include the main stem of the Flathead River and the South Fork of the Flathead River. These rivers and other surface waters in the general vicinity of the project are shown in **FIGURE III-2.**

The proposed action will not affect any wildlife sanctuaries or refuges, mud flats, or coral reefs. The



Source: Geology and Mineral Deposits of Lincoln and Flathead Counties, Willis M. Johns, Montana Bureau of Mines and Geology, Bulletin 79, 1970.USDA Soil Conservation Service, District Conservationist, Kalispell 1/90.

Figure III-1
Generalized Geology
And Important Soils

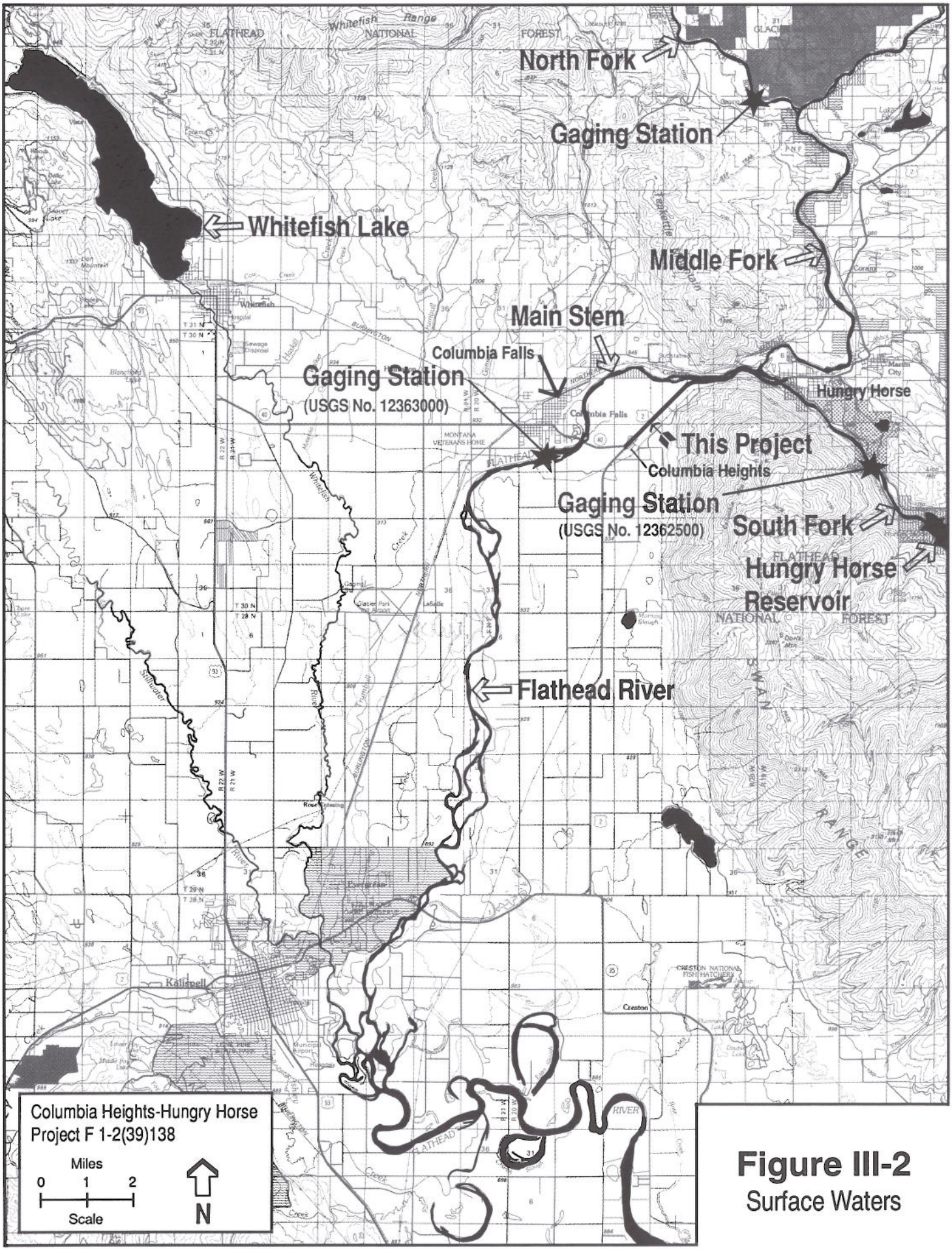


Figure III-2
Surface Waters

proposed construction of a new bridge over the South Fork of the Flathead River would affect riffles and pools. However, the natural sequence of riffles and pools that exist in the South Fork have been obscured by the alternating flow regimes from Hungry Horse Dam.

Streamflow - Streamflow in the main stem of the Flathead is measured at Columbia Falls. The period of record for discharge measurements at this station is 1922 to 1923 and 1928 to June 1985 (3). The average discharge following the construction of Hungry Horse Dam is 10,200 cubic feet per second (cfs).

The highest instantaneous flow on record (176,000 cfs) for the Flathead River near the **Columbia Heights-Hungry Horse** project area occurred during the June, 1964 flood. During this event, an above-normal snowpack was rapidly melted by heavy rains which produced record high river levels and caused property damages exceeding $28 million. Water levels on the main stem of the Flathead at Columbia Falls were 25.6 feet above the gage height of the recording station (4). This flood was considered by the USGS to be equivalent to a 200-year flood occurrence. A scoping comment indicated that US 2 in Badrock Canyon was overtopped during the 1964 flood.

Streamflows on the five miles of the South Fork below Hungry Horse Dam vary dramatically according to power generation needs. Maximum power generation may yield flows of more than 11,000 cfs while periods of no power generation permit flows of about 150 cfs (5). Consequently, water levels in the South Fork may fluctuate by as much as eight feet per day, and levels in the main stem below the mouth of the South Fork can vary by as much as five feet per day.

Floodplains - Floodplains within the US 2 corridor occur where the existing alignment parallels the main stem of the Flathead and crosses the South Fork of the Flathead. The Federal Emergency Management Agency (FEMA) has conducted studies and prepared a Flood Boundary and Floodway Map for parts of the project corridor. These studies, performed for the National Flood Insurance Program, focused primarily on developed areas in and near Columbia Falls and Hungry Horse. FEMA maps identify the approximate 100-year flood boundary.

The floodplain area, depicted in **FIGURE III-3**, is located along the easternmost two miles of the existing highway and consists of a narrow band that closely follows the main channel of the Flathead. A broad floodprone area exists near the confluence of the South Fork at Hungry Horse. **The proposed alignment for the new bridge over the South Fork of the Flathead River crosses a portion of a FEMA-designated floodprone area.**

Both the City of Columbia Falls and Flathead County participate in the National Flood Insurance Program (6). Each jurisdiction has adopted floodplain management ordinances that require permits for development in the floodplain. The community of Hungry Horse is unincorporated and falls under the authority of Flathead County.

Correspondence about floodplains from the Department of Natural Resources and Conservation (DNRC) Information Officer (October 31, 1989) and the Supervisor of the Floodplain Management Section (March 21, 1990) is contained in Part VI of the EIS.

Wild and Scenic Rivers in the Project Area - In 1976, Congress designated 219 miles of the North, Middle, and South Forks of the Flathead River as part of the National Wild and Scenic Rivers System. The purpose of this action was to maintain these waters for recreation, fish and wildlife habitat, and for scientific study. Portions of the river system are classified as Wild, Scenic, or Recreational based on their characteristics and use.

Within the project corridor, only the Middle Fork of the Flathead, upstream from its confluence with the South Fork near Hungry Horse, has been designated as a **Recreational River**. The USFS also designated

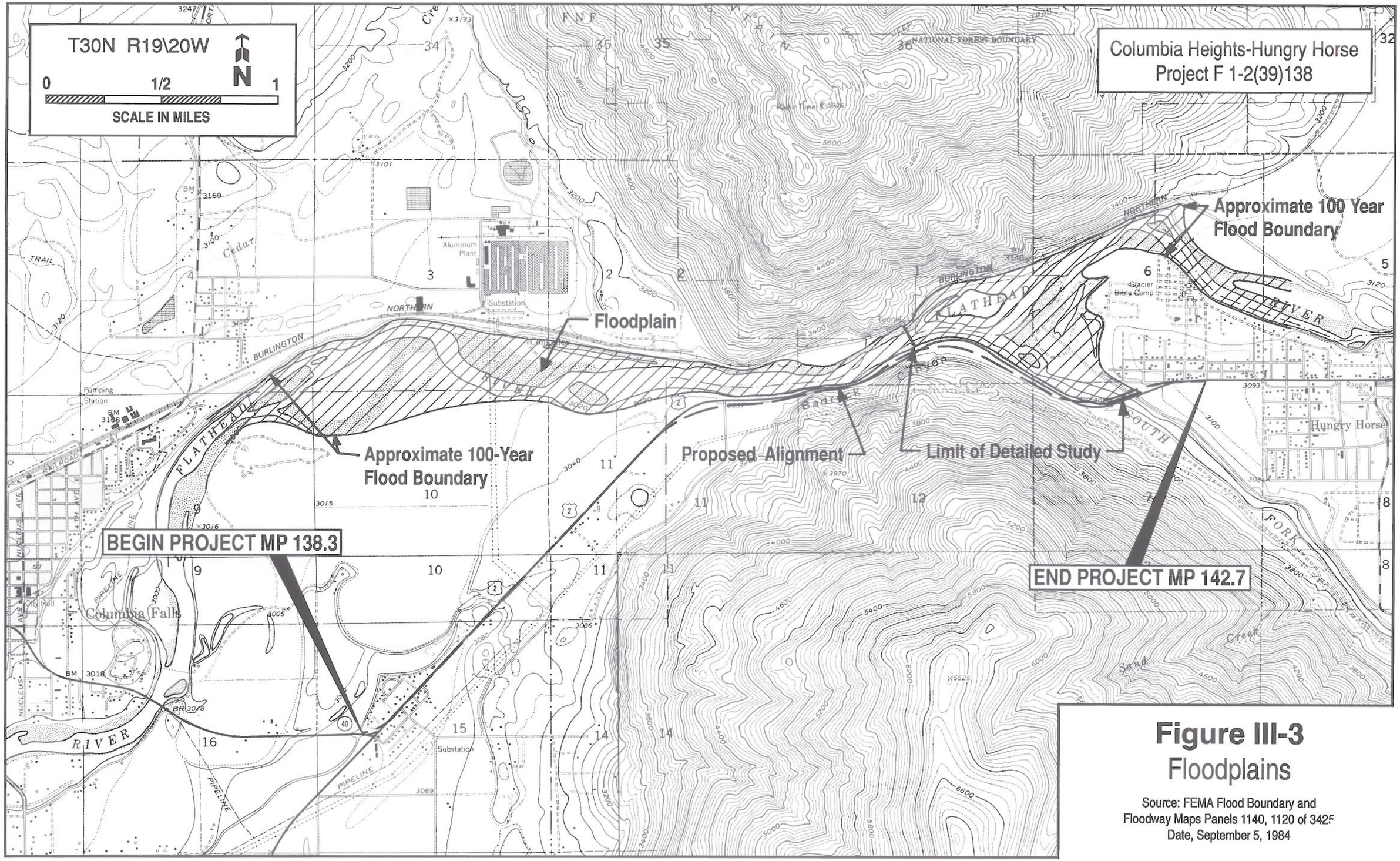


Figure III-3
Floodplains

Source: FEMA Flood Boundary and
Floodway Maps Panels 1140, 1120 of 3425
Date, September 5, 1984

a Management Corridor for the Middle Fork Recreational River segment. The primary reason for the establishment of the corridor was to protect the unique environment and qualities of the Wild and Scenic Rivers System. **FIGURE III-4** shows the location of the **Recreational River and its Management Corridor.**

The proposed action will cross a small portion (**0.84** acres) of the Middle Fork **of the Flathead Wild and Scenic River Corridor** located in the extreme southwest corner of Section 6 in Township 30 N, Range 19 W. **Based on comments on the Draft EIS/Section 4(f) Evaluation from the Supervisor of the Flathead National Forest, some uncertainty exists as to whether or not an easement for US 2 was obtained on the 0.84 acres of land in the Middle Fork of the Flathead Wild and Scenic River Corridor affected by this project. "As-built" plans for a previous improvement project on this section of US 2 completed in the 1960's show the entire parcel of land to be within the existing highway right-of-way. Subsequent investigations by both the USFS and MDT have not produced an easement or deed for this property. Documentation does exist showing that the roadway has been in this same general location since 1916.**

If no easement exists for the highway, an application for an easement must be submitted to the USFS. Before such an easement can be granted, the USFS must prepare a Letter of Consent. This transfer of land must be completed prior to beginning construction on the proposed project. The responsibilities of MDT, FHWA, and the USFS (Northern Region) during the acquisition of right-of-way and future development of the highway over forest lands are outlined in the *Memorandum of Understanding on Procedures Related to State Highways Over National Forest System Lands* approved in January, 1993.

General Water Quality - Surface waters typically have moderate concentrations of dissolved materials and high concentrations of dissolved oxygen. Heavy metals and excessive salts are generally absent from surface waters of the Flathead. Low nutrient concentrations inhibit the growth of aquatic plants and keep the amount of biological matter relatively low. The erosion of stream banks during spring runoff adds large volumes of sediments to the water and produces seasonal increases in turbidity.

An International Joint Commission established the Flathead River International Study Board in 1985 with a primary purpose of investigating water quality. The Board assembled baseline water quality data in order to assess possible impacts to the Flathead River system due to the development of a proposed coal mine in British Columbia. Water quality data on sediment loads, dissolved constituents, metals, and nutrient concentrations were gathered for various locations within the river system (7). APPENDIX 5 presents existing water quality data for the main stem of the Flathead River near the project area collected by the Flathead River International Study Board. **APPENDIX 5 also relates measured water quality values for surface waters in the project area and describes other aspects of the aquatic ecosystem relevant to the Section 404 permitting process.**

Affected Groundwater Resources - The springs at Berne Memorial Park in Badrock Canyon are the only groundwater resources affected by the propose action. The springs flow from aquifers in the mountainous terrain adjacent to US 2 where water has been trapped with the fractured zones of Precambrian rocks. One spring located in the project area serves a public fountain at Berne Memorial Park. Another spring in Badrock Canyon surfaces and seeps over the west rock outcrop at Berne Memorial Park.

The **spring serving the Berne Memorial Park fountain** has been classified as a non-community water system by the Montana Department of Health & Environmental Sciences (MDHES), Water Quality Bureau. **MDT is considered to be the operator of the spring and is required to perform quarterly bacteriological sampling at the spring.** No bacteriological contamination has been identified in water samples taken from the spring. A **water sample was** collected from the spring in May, 1990 and had its quality analyzed according to drinking water standards. The analyses showed the water to be of good

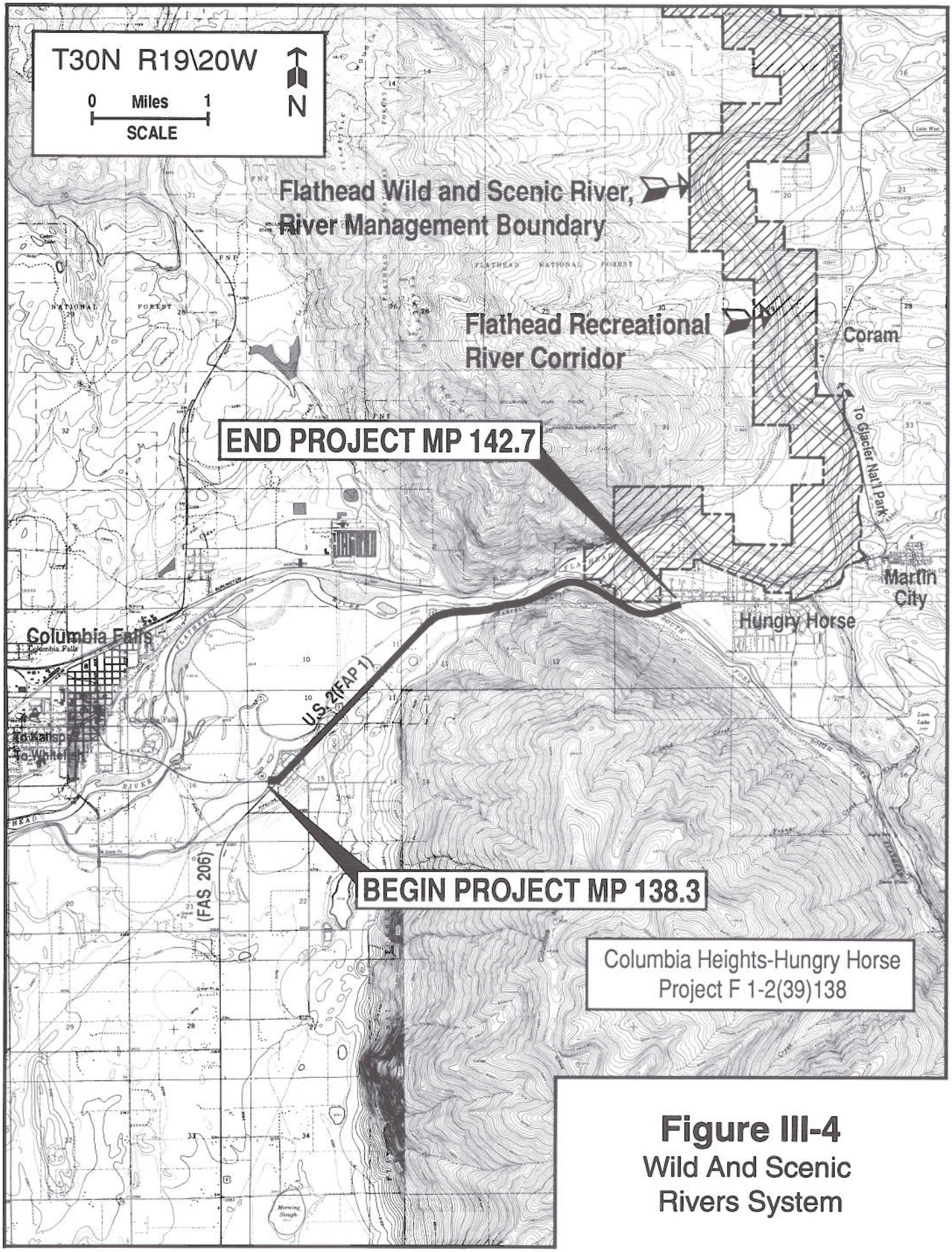


Figure III-4
Wild And Scenic
Rivers System

quality when compared with most parameters of the EPA's Primary and Secondary Drinking Water Standards.

4. AIR QUALITY

The only air emissions within the project corridor are those associated with vehicle use (carbon monoxide, nitrogen oxides, and particulates. Although no monitoring has been done to quantify such emissions for the project corridor, the use of the facility is low enough to indicate that the National Ambient Air Quality Standards (NAAQS) are not exceeded for these pollutants.

Air quality monitoring for specific pollutants (particulates, sulfur dioxides, and fluorides) has been performed in Columbia Falls where an aluminum plant and timber processing operations exist. Based on the results of this air quality monitoring, Columbia Falls was designated as a federal nonattainment area for PM-10 (particulate matter less than 10 microns in diameter) on November 15, 1990 due to violations of the PM-10 ambient air quality standard. As shown on FIGURE III-5, the proposed action is not located within the boundaries of this federally-designated nonattainment area for PM-10.

Prevention of Significant Deterioration (PSD) requirements, enacted by the Clean Air Act, established limits for increases in ambient pollution levels and a review procedure for major new sources of air pollution. Under these requirements, the project corridor has been designated as a Class II area which allows moderate, well planned growth and some degradation of air quality (8).

5. NOISE

Noise Sensitive Receptors - Noise sensitive receptors along the highway corridor include scattered residences, a church, a motel, and the roadside park in Badrock Canyon. Five locations, shown in **FIGURE III-5** were selected as sites for noise level measurements in the corridor. These sites included four residences and Berne Memorial Park in Badrock Canyon.

Ambient Noise Levels - Measurements were taken at the selected locations on November 30, 1989 to determine representative existing noise levels for the corridor. The tests were performed over 15-minute periods throughout the day at various distances from the existing centerline of the highway. Traffic volumes and composition on US 2 were quantified during the test periods. The recorded noise for each test location was scientifically analyzed to determine existing noise levels.

Ambient noise levels for the monitoring locations ranged from 60 to 68 $L_{eq}(h)$ dBA. $L_{eq}(h)$ is defined as the sound pressure level (usually in dBA) energy-averaged over a one hour period (9). The term dBA represents decibels measured with a frequency weighting corresponding to the A-scale on the standard sound level meter.

C. Biological Environment

1. VEGETATION

Vegetative Communities Within the Corridor - The highway corridor crosses two distinct vegetation zones between Columbia Heights and Hungry Horse. From Columbia Heights to Badrock Canyon, the relatively level plain formed from glacial outwash has been altered by human activities. Land has been cleared for pastures and hayland, rural residences and local urban development. Between Badrock Canyon and Hungry Horse timbered slopes typical of the northern forests have been largely left intact.

Twenty landtypes including six wetland types, five riparian communities, five upland communities,

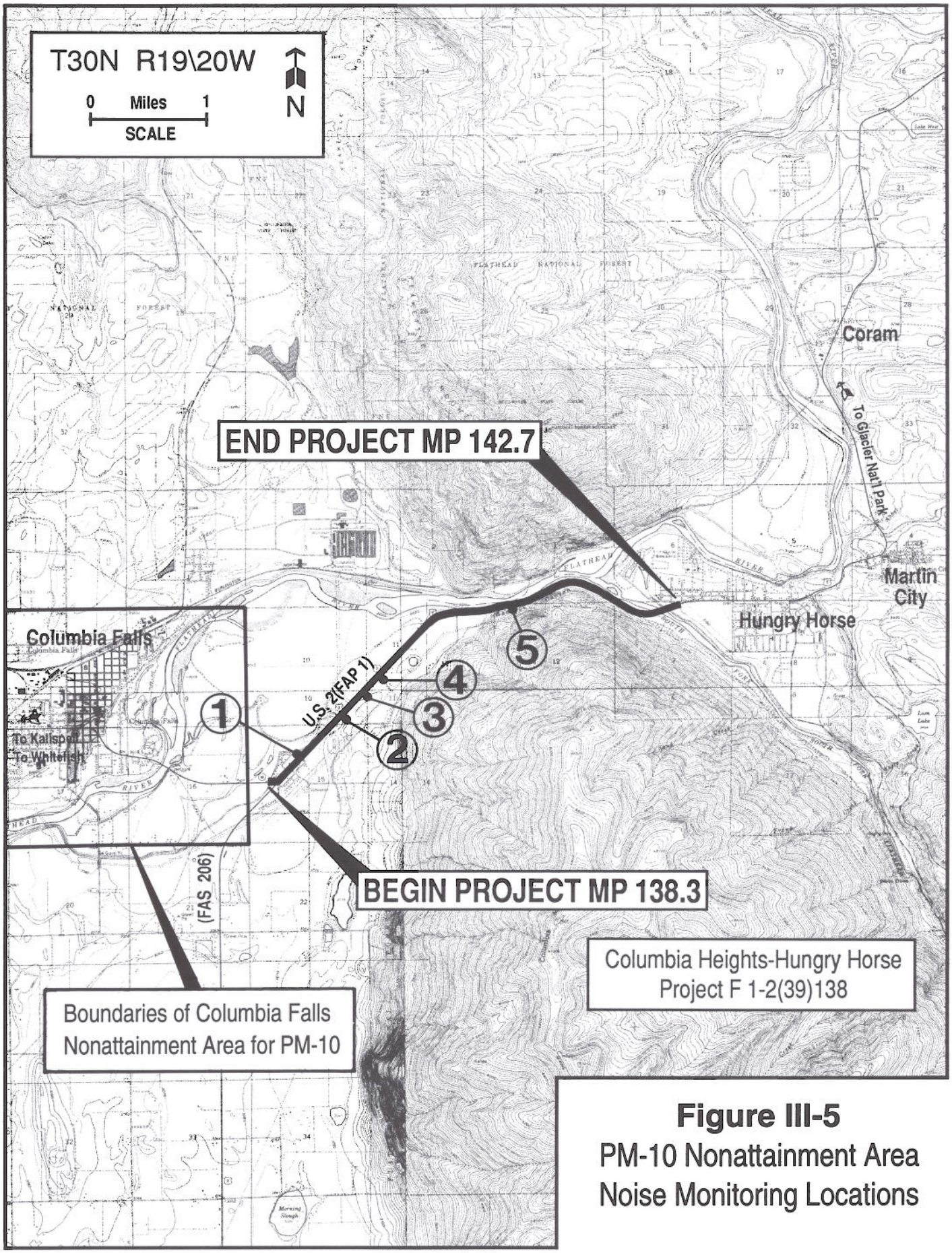


Figure III-5
PM-10 Nonattainment Area
Noise Monitoring Locations

and four other landtypes were identified in the project corridor. These communities are shown in FIGURE III-6 and described in detail in APPENDIX 6.

Spotted knapweed, a noxious weed, is common throughout the study corridor between Columbia Heights and Badrock Canyon. It also can be found along the existing right-of-way to the South Fork of the Flathead River crossing.

Plant Species of Special Concern - The Montana Natural Heritage Program and the USFS have identified rare plants and plant species of special concern. Contacts with these resource agencies indicate that no species of concern have been previously located within the study corridor (10). However, a number of the species may occur in community types similar to those found in the study corridor.

Maidenhair spleenwort (*Asplenium trichomanes*), small yellow lady's slipper (*Cyperidium calceolus* var. *parviflorum*), spalding campion (*Silene spaldingii*), and spurred genetian (*Halenia deflexia*) are all species of concern that were historically (during the 1890's) observed but not recently confirmed in the vicinity of the proposed highway reconstruction project. The latter three species have been located in Flathead County but in areas considerably away from the US 2 corridor. Spleenwort has not been recently observed in Flathead County.

The Flathead National Forest lists giant helleborine (*Epipactis gigantea*), northern bastard toadflax (*Geocaulon lividum*), and blunt-weed pondweed (*Potomageton obtusifolius*) as sensitive plant species that may occur on the Hungry Horse Ranger District in the vicinity of US 2 (10).

Marginal habitat for all of these plant species were encountered within the study corridor. None of the above mentioned species were observed during a field reconnaissance conducted in late June, 1989.

2. WETLANDS

Wetland Evaluation Results - A wetlands evaluation, completed for the proposed action in 1989, served as supporting documentation for the wetland impact analyses contained in the Draft EIS. Although the original evaluation fulfilled federal and state legal and policy requirements for assessing wetland impacts, review comments from the U.S. Army Corps of Engineers (COE) recommended that wetlands within the corridor be redelineated based on the 1987 COE Wetlands Delineation Manual. The agency suggested that jurisdictional wetlands be assessed for functions and values using the Wetlands Evaluation Technique (WET).

Based on these comments, wetlands within the corridor were redelineated and analyzed according to the procedures recommended by the COE.

FIGURE III-6 shows all of the vegetative map units within the project corridor including wetlands and riparian habitats. Six wetland community types were identified and are designated by the capital letter "W" followed by a number (i.e. W-1). Five riparian habitats, designated by the capital letter "R" followed by a number, were identified within the general project corridor. These riparian communities comprise about 80.2 acres within the corridor. A description of each wetland type along with a listing of vegetative community acreages within the general study corridor can be found in APPENDIX 6.

Jurisdictional and Non-jurisdictional Wetlands - Waters of the United States (Waters), which include wetlands and other special aquatic sites, are protected and regulated under the Clean Water Act. Pursuant to Section 404 of the Act, the COE has administrative authority to regulate dredging or the discharge of fill material in these Waters. Jurisdictional wetlands are Waters of the United States

that have specific diagnostic characteristics including:

Hydrophytic vegetation: a prevalence of vegetation that has the ability to thrive and reproduce in saturated soil or flooded conditions;

Hydric soils: soils that have developed primarily in a bio-chemically reducing (anaerobic) environment; and

Wetland hydrology: permanent or periodic inundation at water depths less than or equal to 6.6 feet or saturated soil to the surface at some time during the growing season of the prevalent vegetation.

Wetlands which meet these three characteristics (types W-0, W-1, W-2, W-3, W-4, and W-7) comprise a total of 29.2 acres within the general study area corridor. These jurisdictional wetlands have been highlighted on FIGURE III-6. The interpretation of soils, hydrology, and vegetation based on data collected during detailed field work at nine sampling points was used to determine the jurisdictional status of wetlands located in the project area.

Wetlands that lack one or more of the wetland characteristics identified above are considered to be non-jurisdictional. These areas, often important for wildlife habitat or other values, may be protected under Executive Orders 11990 (Protection of Wetlands) and 11988 (Floodplain Management) which control the actions of federal agencies in and around wetlands and floodplains.

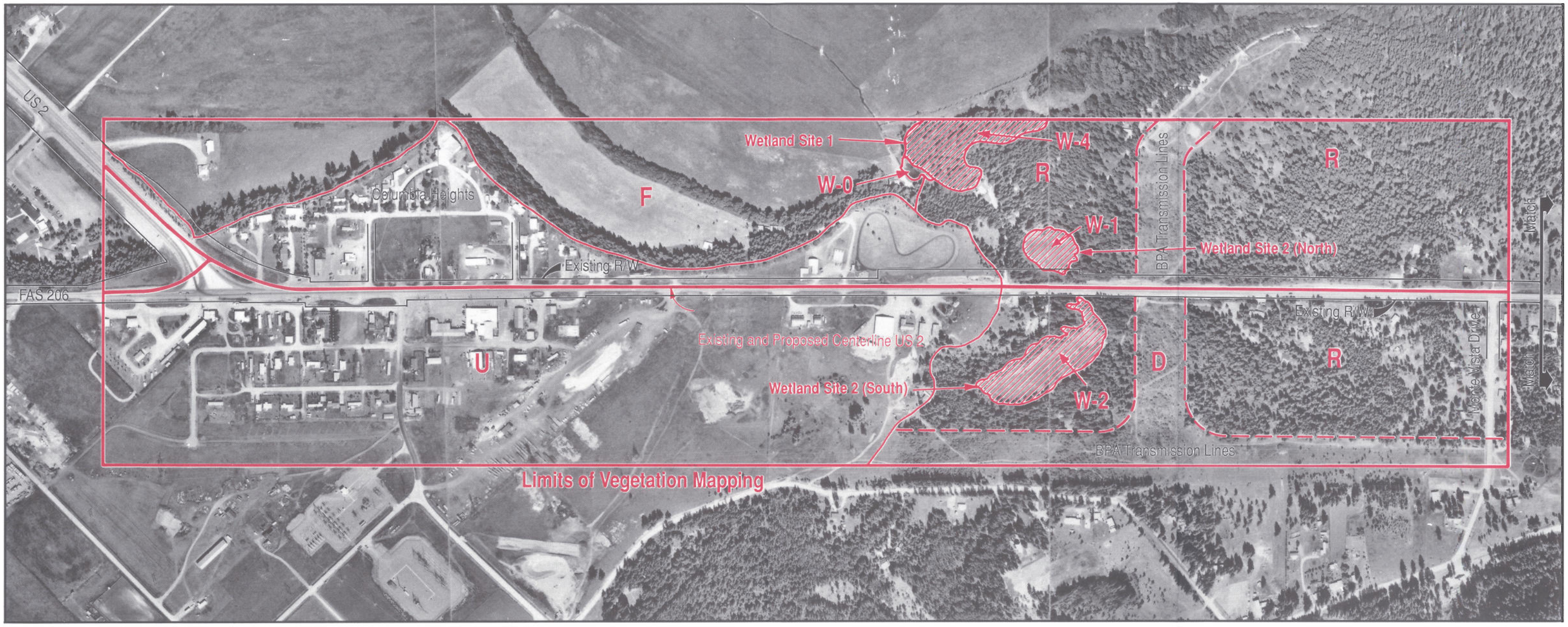
Affected Wetland Sites - Five wetland sites were identified for detailed analysis within the project corridor. These sites are shown on FIGURE III-6 and discussed below:

Site 1: This site is located east of Columbia Heights and north of Grizzly Go-Carts and Batting Cages on private land outside of the existing or proposed rights-of-way for US 2. The sites consists of a comprises about 4.2 acres and consists of a shallow pond and an associated stand of cottonwoods and aspens with a dense understory of shrubs. The proposed action would not affect this wetland site.

Site 2: This 4.9 acre site, located between Columbia Heights and the electrical transmission line corridor that crosses US 2, is bisected by the existing highway. The portion of the site north of the highway is inundated most of the year and is characterized by rooted emergent vegetation (W-1) surrounded by a narrow band of shrubs and trees (W-4, R-7). The area south of the highway is larger and is shallowly ponded through much of the year but is primarily influenced by a permanent high water table. Rooted emergent vegetation, wet site graminoids and forbs predominate this part of the wetland site. A narrow band of wetland/riparian communities (W-4/R-7) rings the southern part of Site 2.

Site 3: This wetland site consists of a small (4.7 acres) pond that is located on private land southeast of the intersection of US 2 and Monte Vista Drive and does not lie within the existing or proposed rights-of-way for this project. The pond is inundated most of the year and includes a deep water (more than 6.6 feet) section and an area of vegetated, shallow water. Open water and wetlands types W-1, W-2, and W-3 can be found at this site. The proposed action would not affect this wetland area.

Site 4: This wetland site is located on an old terrace of the Flathead River west of Badrock Canyon and adjoins the south right-of-way line for the existing highway. The site is comprised of a shallow pond covering about 1.1 acres. The pond is inundated most of the year and is fed by spring that surfaces on Columbia Mountain. Vegetated wetland types



List of Community Designations

Wetland Types

Permanent Shallow Water (Less Than 6' Deep)

W-O	Open Water
W-O/W-3	Shallow Water with Shrub/Herbaceous and Rooted Emergent Vegetation
W-1	Rooted Emergent Vegetation

Seasonal or Permanently High Water Table

W-2	Herbaceous
W-3	Shrub
W-4	Forested Cottonwood/Aspen
W-7	Forested Cottonwood/Conifer

Riparian Community Types

R-7	Forested Cottonwood/Conifer
R-8	Springs and Seeps
R-9	Disturbed Bank
R-10	Unvegetated

Upland Community Types

A	Dry Douglas-Fir Habitat
B	Moist Douglas-Fir Habitat
C	Rock Outcrop
E	Subalpine Fir/Queen Cup Beadlily Habitat
G	Spruce/Twinflower Habitat

Other Landtypes

F	Irrigated Pasture/Hayland
R	Rural Residential Development
U	Urban Development
D	Disturbed

Jurisdictional Wetlands According to the Corps of Engineers 1987 Method

0 500'

Figure III-6

Landtypes, Vegetation and Wetlands

Figure III-6 Continued
Plate 2 of 3

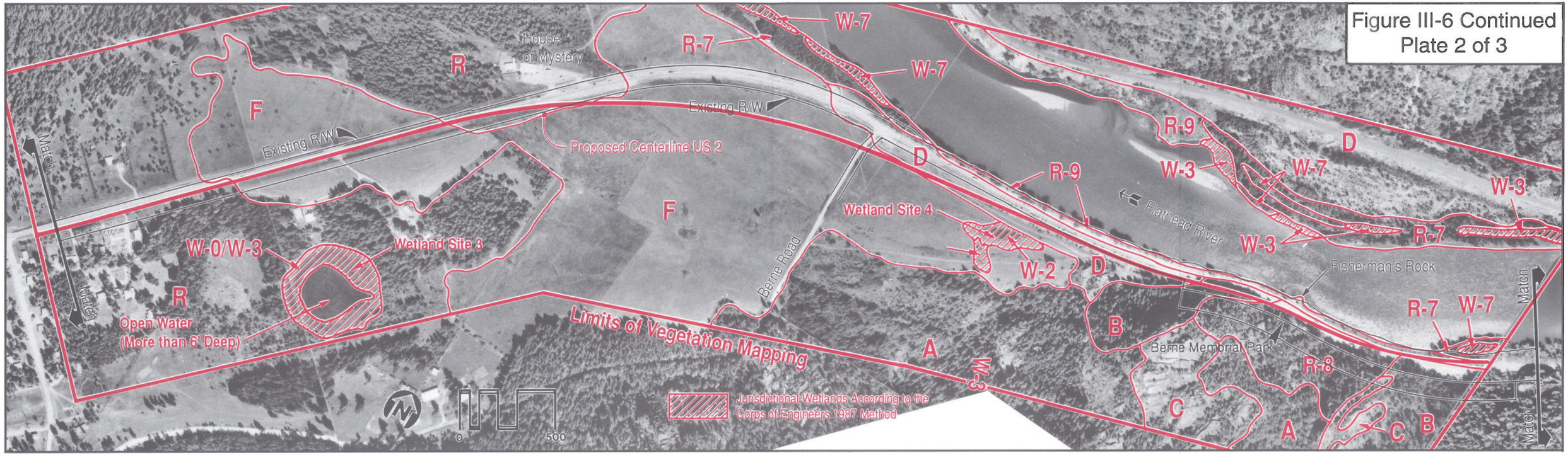
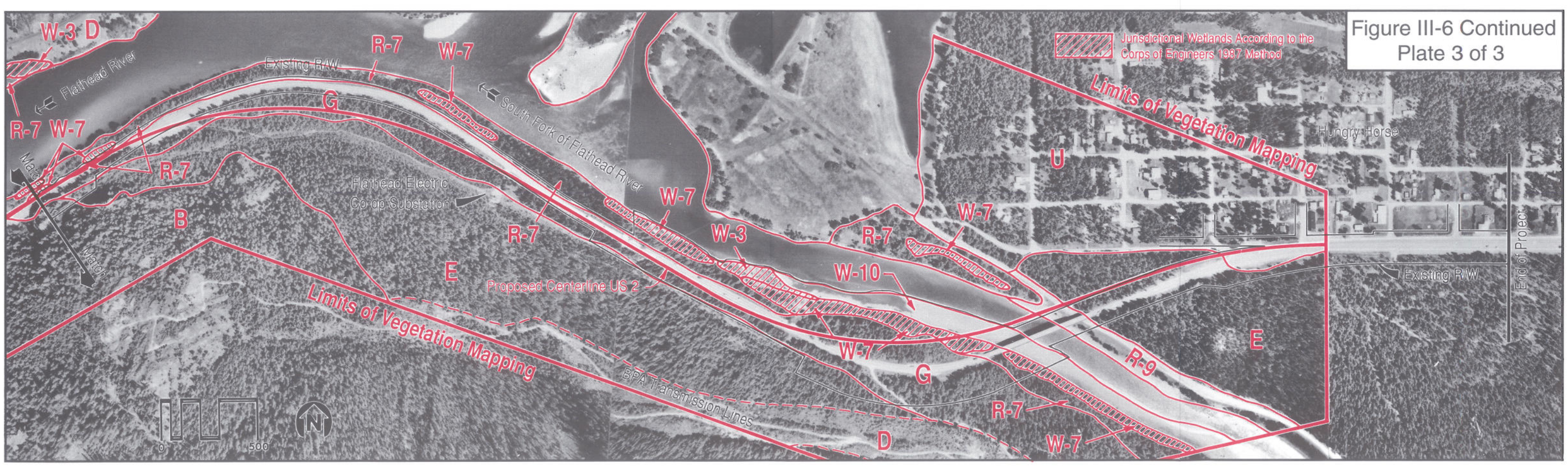


Figure III-6 Continued
Plate 3 of 3



present at this site include primarily shrubs (W-3), and a herbaceous cover of wet site graminoids and forbs (W-2). Very small unmappable areas of cattail (W-1) exist at the south end of the pond where the feeder stream enters.

Site 5: This site includes all of the narrow, non-contiguous wetlands found within larger riparian communities along the Flathead River between the House of Mystery and Hungry Horse. Nineteen individual sites, ranging in size from 0.2 to 2.6 acres, were inventoried. Collectively, these sites comprise about 16.1 acres of the study corridor. These areas are typically located within the 100-year floodplain and are found in depressions formed by past flood events. The wetland communities are characterized by dense shrubs (W-3) and a deciduous overstory with a dense shrub understory (W-7). Standing water does not exist at these sites but the Flathead River is near.

TABLE A6-1 in APPENDIX 6 summarizes jurisdictional wetland acreages within the study corridor by site.

Functions and Values of Affected Wetland Sites - Wetlands are areas of special concern not only because the areas are relatively rare, but because they also serve various localized hydrological functions and are of value to the human and natural environment. The function and values of wetlands in the project area were assessed according to two procedures. The initial wetland evaluation employed procedures recommended by the Montana Interagency Wetlands Group to determine functions and values. However, as recommended by the COE, a subsequent evaluation determined the functions and values of each affected wetland site according to the WET procedure and the accompanying computer program WET 2.0.

WET defines functions as the physical, chemical or biological processes or attributes of a wetland without regard to their importance to society. Values are defined as wetland processes or attributes that are valuable or beneficial to society. WET assesses the following function and values:

Ground Water Recharge
Ground Water Discharge
Floodflow Alteration
Sediment Stabilization
Sediment/Toxicant Retention
Nutrient Removal/Transformation
Production Export
Wildlife Diversity/Abundance
Aquatic Diversity/Abundance
Recreation
Uniqueness/Heritage

WET evaluates functions and values in terms of social significance, effectiveness and opportunity. Social significance assesses the value of a wetland to society due to its special designations, potential economic value, and strategic location. Effectiveness assesses the capability of a wetland to perform a function due to its physical, chemical or biological characteristics. Opportunity assesses the opportunity of a wetland to perform to its level of capability.

The process identifies numerous threshold values for predictive indicators which are then analyzed resulting in an assignment of a qualitative probability rating of high, moderate, or low to the above functions and values. Most wetlands that would be described as being of high value in the literature would also be rated high by WET. However, the converse may not be true; wetland functions and values rated high by WET may not always be determined to actually be of high value. It must be emphasized that the qualitative probability ratings assigned by WET are not direct estimates of the magnitude of a wetland function or value. Rather they are an estimate of the probability that a function or value will exist or occur in the wetland (to an unspecified magnitude).

TABLE III-1 summarizes the functions and values for each potentially affected wetland in the project area based on WET analysis procedures.

In terms of effectiveness and opportunity, the WET analysis predicts that Site 2 would have a high potential for serving Floodflow Alteration, Sediment/Toxicant Retention and Nutrient Removal functions. This is confirmed by the fact that the wetland is in an internally drained basin. On the other hand, the source of surface water is relatively limited since it comes in the form of runoff and in-place snowmelt. The site's potential to fulfill other functions is rated low.

Site 4 has a high potential to provide Sediment/Toxicant Retention functions. Floodflow Alteration and Nutrient Removal functions could be provided at this site but factors such as topographic position and lack of a source for elevated nutrients reduces the likelihood that these functions are key to the value of the wetland. Without further site-specific studies, the extent of this site's contribution to groundwater recharge is uncertain.

TABLE III-1
FUNCTIONS AND VALUES OF POTENTIALLY AFFECTED WETLANDS BASED ON THE WET ANALYSIS

WET Analysis Function/Value	Site 2			Site 4			Site 5		
	SS	Eff.	Opp.	SS	Eff.	Opp.	SS	Eff.	Opp.
Groundwater Recharge	H	L	*	H	U	*	M	L	*
Groundwater Discharge	L	L	*	L	M	*	M	L	*
Floodflow Alteration	L	H	H	L	H	M	L	H	--
Sediment Stabilization	M	L	*	M	M	*	M	L	*
Sediment/Toxicant Retention	M	H	H	M	H	H	M	H	H
Nutrient Removal/ Transformation	M	H	H	M	H	M	M	H	L
Production Export	*	L	*	*	L	*	*	L	*
Wildlife Diversity/Abundance**	M	*	*	M	*	*	M	*	*
Breeding	*	L	*	*	M	*	*	L	*
Migration	*	L	*	*	L	*	*	L	*
Wintering	*	L	*	*	L	*	*	L	*
Aquatic Diversity/Abundance	M	L	*	M	M	*	M	L	*
Uniqueness/Heritage	M	*	*	M	*	*	M	*	*
Recreation	L	*	*	L	*	*	H	*	*

* WET does not evaluate this function or value in these terms.
** Wildlife Diversity/Abundance assesses only wetland-dependent birds

SS= Social Significance; **Eff.**= Effectiveness; **Opp.**= Opportunity; **H**= High; **M**= Moderate; **L**=Low; **U**=Uncertain

Wetland areas associated with Site 5 are very similar in nature. The key function provided by these wetlands is localized Sediment/Toxicant Retention. Sediment from flood events on the Flathead River settle-out in these depressions in the riparian zone. Also, runoff from the highway that may contain waste oil and other contaminants may be captured in these areas, especially at the areas in Badrock Canyon and near the South Fork. The potential of Site 5 to fulfill other functions is rated low.

Copies of the initial wetland evaluation and the subsequent wetland re-evaluation containing the entire WET analysis for sites within the project corridor are on file in Helena.

3. WILDLIFE AND FISH

Wildlife and Fish Habitat - Habitat requirements for wildlife species in the project area are met by combinations of topography and vegetation types. Wildlife habitat types are based on existing vegetation and correspond to the vegetative community types described in APPENDIX 6. The extended project area for wildlife and fish for the proposed action includes: the existing US 2 corridor; the north end of the Swan Range (Columbia Mountain); Teakettle Mountain, north of the Flathead River; the main stem of the Flathead River; and the South Fork of the Flathead River.

Wildlife populations using this large area are abundant and diverse, as are the habitats. However, habitats immediately adjacent to the highway are limited in size and diversity, and are separated from the extended project area by the Flathead River and existing transportation corridors (railroad and US 2). Some habitat adjoining the highway has been compromised by land subdivision and development.

Wildlife Species - A variety of predators and furbearers are found in the extended area around the existing highway corridor. Coyotes, red fox, skunk, bobcat, black and grizzly bears, wolf, muskrat, mink, marten and wolverine are among those animals periodically expected to occur in the vicinity. According to local residents and area biologists there have been occasional, but very infrequent sightings of black and grizzly bears along or crossing US 2. Coyotes and foxes are more frequently observed.

Ungulate species that may occur in or near the proposed action include white-tailed deer, mule deer, and elk. Moose are infrequently seen in this area. White-tails typically use pastures and haylands adjoining the right-of-way near the House of Mystery throughout the year and often cross US 2 to access the river.

All local ungulate species are found in substantial numbers north of the river on Teakettle Mountain and south of the highway on Columbia Mountain. Observations of the area above and south of Berne Memorial Park verify that it is laced with game trails commonly used by deer and elk. Lush vegetation and seeps in this area may cause it to be attractive to these species. There does not, however, seem to be any indication that these animals are frequent roadside visitors in Badrock Canyon.

Fish Species - The main stem of the Flathead River and its tributaries support fish that are both native and introduced to the area. Game fish species expected to occur in the South Fork and main stem of the Flathead include westslope cutthroat, bull trout (a species of concern in Montana), kokanee salmon, rainbow trout, and mountain whitefish.

Less frequently found in the Flathead River are brook trout, Yellowstone cutthroat trout, lake trout and lake whitefish (11). Kokanee salmon, an important game fish in Flathead County, has suffered drastic reductions in numbers in recent years due to a variety of problems (12). The species is known to have spawned in the past in the main stem of the Flathead River in approximately 42 locations. Five of these areas are located in the reach that flows through the project area (11).

The Flathead River does not support commercial fishing activities, but is well known as a sport fishery. A

letter from the Department of Fish, Wildlife & Parks (FWP) Fisheries Division (September 18, 1989) attesting to the fishery value of the Flathead River is contained in Part VI.

Wildlife and Fish of Special Concern - Lists of mammals, reptiles, amphibians, fish, and birds known to occur in Flathead County were consulted to determine if species of special interest or concern may be affected by the proposed action (13). In Flathead County, 10 mammals of concern are known to occur. Twenty-six bird species of concern are listed for Latilong 2 which includes the county. A latilong is defined as the area between adjacent parallels of latitude and meridians of longitude and covers approximately 3,000 square miles. Please note that these species are known to occur within a very large area that includes the project corridor. It is unlikely that many of these species reside in the immediate vicinity of the proposed action.

The westslope cutthroat trout and the bull trout are fish of special concern that occur in the Flathead River system. Recently, the U.S. Fish and Wildlife Service considered whether or not the bull trout should be listed as a threatened or endangered species. In June of 1994, the agency announced that the bull trout would not be added to the list of threatened or endangered species.

Comments received on the Draft EIS, suggested that the Coeur d'Alene salamander (*Plethodon idahoensis*), a sensitive species, may exist in the cliffs near Berne Memorial Park. Contacts were made with the Montana Natural Heritage Program and the Flathead National Forest regarding sensitive species during the preparation of the EIS. These initial contacts did not yield any information that verified the presence of Coeur d'Alene salamanders within the project area. The nearest site where Coeur d'Alene salamanders are known to occur is on the east side of Lake Koocanusa approximately 60 miles west of the proposed project area.

In an effort to determine if Coeur d'Alene salamanders exist in Badrock Canyon, the Montana Natural Heritage Program was retained to survey appropriate habitat for the species. Zoologists visited Badrock Canyon in late October, 1993 and found no salamanders or other amphibians. Since cool weather may have been the reason that no amphibians were found, two follow-up surveys were performed in May, 1994. No amphibians (including Coeur d'Alene salamanders) were found during either of the follow-up surveys.

4. THREATENED OR ENDANGERED SPECIES

The U.S. Fish and Wildlife Service (USFWS) was contacted to determine the listed or proposed threatened or endangered species that may be present in the project area. The USFWS lists the gray wolf, bald eagle and the peregrine falcon as endangered species and the grizzly bear as a threatened species. A copy of the USFWS letter identifying these species (August 22, 1989) is included in Part VI of the EIS.

The USFWS further indicated that the grizzly bear (*Ursus arctos horribilis*) **resides on lands near the project area** and the bald eagle (*Haliaeetus leucocephalus*) breeds in the general vicinity and winters along the main stem and South Fork of the Flathead Rivers. The peregrine falcon (*Falco peregrinus*) was listed as a seasonal migrant to the US 2 corridor. The gray wolf (*Canis lupus*) is listed as a potential resident of lands near the proposed project.

5. ENVIRONMENTALLY SENSITIVE AREAS

The natural environment of the upper Flathead River region is unique and has been recognized as such not only in Montana but nationally. The features which make this region of Montana special include its relatively unspoiled wildlife and plant communities and its outstanding scenery. Several areas within this region have received special designations and are managed to protect these special features.

These environmentally sensitive areas include:

- Glacier National Park,
- the UNESCO designated Biosphere Reserve,
- the Great Bear Wilderness and adjoining Wilderness Areas,
- the Coram Experimental Forest, and
- the Mission Mountains Tribal Wilderness Area.

The locations of these environmentally sensitive areas relative to the proposed action are shown in **FIGURE III-7**. Although US 2 within the project area can be used to access each of these areas, they are well outside the limits of the proposed action. Any effects on the areas previously listed that may result from the proposed action would be indirect and very limited in their extent.

Two environmentally sensitive areas, the Northern Continental Divide Grizzly Bear Ecosystem and Badrock Canyon, would be directly affected by the proposed action. These areas are described below.

Northern Continental Divide Grizzly Bear Ecosystem (NCDE) - The highway corridor passes through the western edge of the NCDE, one of six such areas in the lower 48 states. These ecosystems have historically supported grizzly bears and have suitable habitat to "offer the potential for securing and restoring this species as a viable self-sustaining member of each ecosystem" (14). The NCDE contains about 5.7 million acres of occupied grizzly bear habitat.

Grizzly bear management guidelines have been standardized for all National Forest, National Park and Bureau of Land Management lands. The guidelines classify lands where unique grizzly populations and habitat conditions exist and provide directives for several management situations. The *Forest Plan* for the Flathead National Forest identifies their lands within the highway corridor (Badrock Canyon to Hungry Horse) as "habitat considered unnecessary for the survival and recovery, although the status of such areas is subject to review and change according to demonstrated grizzly population and habitat needs (15)."

The impacts of the proposed action on the NCDE are discussed in Part IV of the EIS.

Badrock Canyon - Badrock Canyon was identified as an environmentally sensitive area in the Final EIS/Section 4(f) Evaluation which examined the reconstruction of US 2 between Hungry Horse - West Glacier (FHWA-MT-EIS-81-02-F). The reasons Badrock Canyon was previously denoted as a sensitive area in this 1982 document include its importance to Native Americans, its use by migrating bald eagles, and the presence of Berne Memorial Park. These considerations and other potential impacts are discussed at length in Parts IV and V of this EIS.

D. Human Environment

1. POPULATION SERVED OR AFFECTED BY THE PROPOSED ACTION

Flathead County experienced dramatic population growth over the past two decades. During this period, the overall county population grew from 39,460 to 59,218, an increase of nearly 20,000 residents. The 1990 Census shows that the county's population grew by nearly 14% since 1980 (16). Recent population growth was not uniformly distributed within the county during this period. Census data for 1990 shows that the population of Columbia Falls decreased by 5.5% during the last decade while the populations of Kalispell and Whitefish grew by 11.5% and 18.0%, respectively,

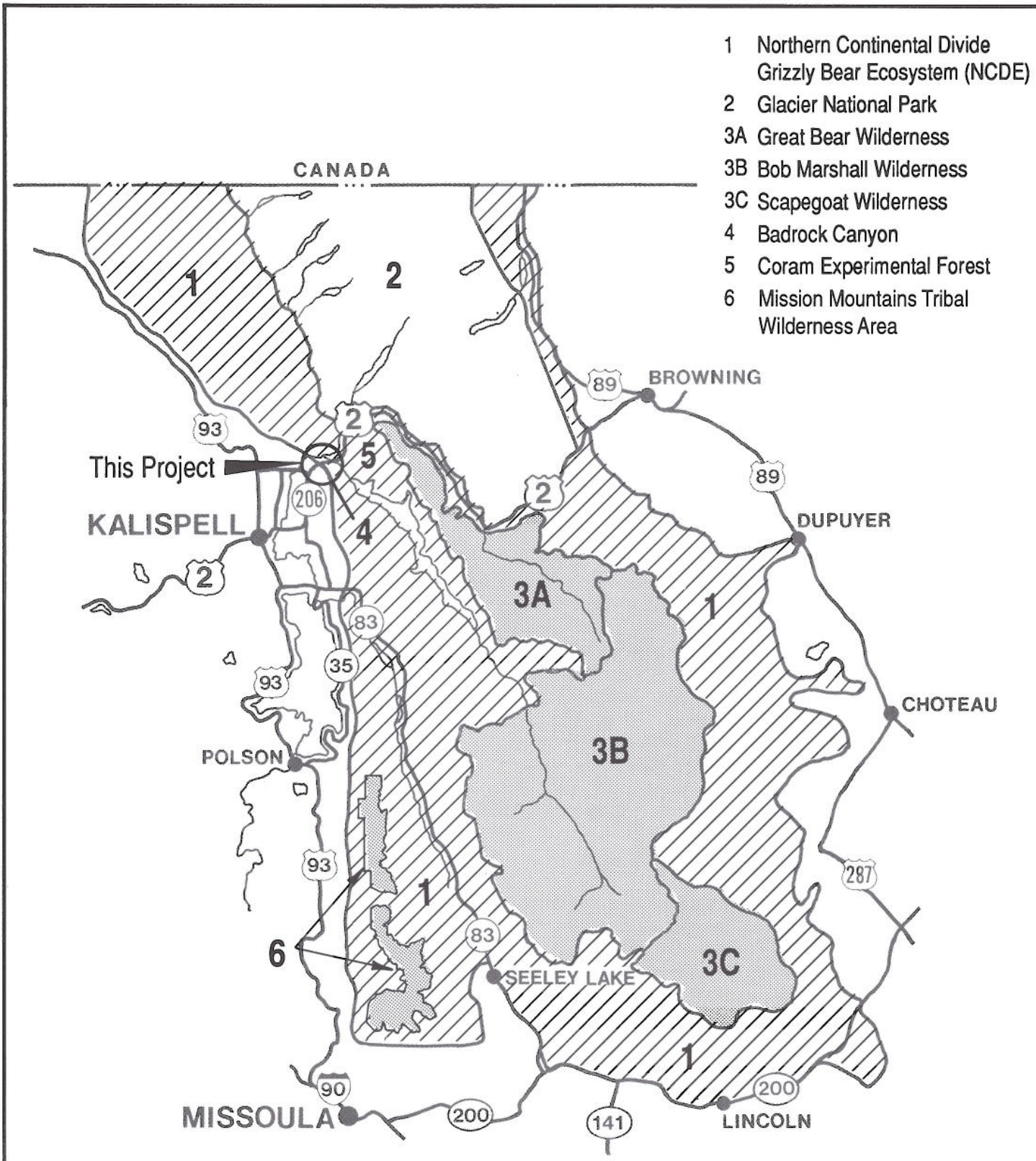


Figure III-7
Environmentally Sensitive Areas

during the same ten-year period.

The project corridor lies within two County Census Divisions established for the purposes of recording the Census. The project area located west of the South Fork of the Flathead River lies within the Badrock-Columbia Heights Census Division. The area east of the South Fork, including the community of Hungry Horse, lies in the South Fork Census Division. The 1990 Census data indicates that the population of the Badrock-Columbia Heights and South Fork Census Divisions was 3,230 and 1,957 residents, respectively. These figures show that the overall population of the Badrock-Columbia Heights Census Division increased by more than 15% while the population of the South Fork Census Division remained virtually the same over the 1980 to 1990 period.

Estimated Corridor Population - There are approximately 30 households directly adjacent to US 2 in the project area. Using an average household size for the Badrock-Columbia Heights and South Fork Census Divisions of 2.78 persons, the 1990 population of the project corridor was estimated to be 84 persons (17).

Population Characteristics - The 1990 data for the County Census Divisions encompassing the US 2 corridor identified the following key characteristics of residents within the general project area:

- The project area's population is homogeneous. The 1990 Census showed that minorities(primarily American Indians) accounted for 2.1% of the population of the Badrock-Columbia Heights and South Fork Divisions. This is similar to comparable statistics on race for the County.
- In 1990, 8% of the residents in the Badrock-Columbia Heights Division and 10% of the residents in the South Fork Division were 65 years of age or older. Approximately 13% of the County residents were 65 or older according to the Census.
- The 1989 median household income in the Badrock-Columbia Heights Division was $25,309 and $16,932 in the South Fork Division as compared to $24,145 for the County.
- In the Badrock-Columbia Heights and South Fork Divisions, 11.3% and 28.4%, respectively, of all families had incomes below the poverty level based on 1989 family income statistics. County-wide, some 11.7% of all families had incomes below the poverty level in 1989.
- Of specified owner-occupied housing units, 23.6% of the units in the Badrock-Columbia Heights Division and 55.7% of the units in the South Fork Division were valued at less than $50,000 in 1990. About 28% of the housing units in the County were valued at less than $50,000.
- In 1990, 41.7% and 71.9% of monthly rents for specific rental housing units in the Badrock-Columbia Heights and South Fork Divisions were under $250. This compares to 41% for the County.
- In 1990, nearly 90% of the housing units in the Badrock-Columbia Heights Division were occupied, however, only 56% of the housing units in the South Fork Division were occupied. About 85% of all housing units in the County were occupied during the Census.
- Of the noninstitutionalized persons between the ages of 16 and 64 in these two Census Divisions, 1.7% had a mobility limitation. For noninstitutionalized persons 65 years and over, 7.4% had a mobility limitation.

2. LAND OWNERSHIP AND LAND USE

Land Ownership - The majority of the land adjacent to US 2 in the Columbia Heights area has been subdivided into small parcels for residential or commercial development. Between Columbia Heights and Badrock Canyon, small residential or commercial lots are interspersed with larger privately held tracts which are used for agricultural purposes. The largest private landholders in the corridor are the Columbia Falls Aluminum Company, the Simpson Family Trust, and the Clark Family Living Trust. The USFS administers much of the land south of US 2 between Berne Road and Hungry Horse. Berne Memorial Park and the weigh station in Columbia Heights are owned by the State of Montana.

Current Land Use - The initial two miles of the corridor (from Columbia Heights to the House of Mystery) is dominated by strip commercial development interspersed with single-family homes, cabins, apartments, and trailer units. Land uses change abruptly to open pastureland between the House of Mystery and Badrock Canyon. The predominant land use eastward from the entrance of the canyon is Berne Memorial Park, which contains a spring and historical markers.

Lands between Berne Memorial Park and Hungry Horse are generally **forested and undeveloped**. An electrical substation, access roads to USFS trails or BPA transmission lines, and the bridge over the South Fork are the only improvements to otherwise open lands.

Future Land Use in the Corridor - Since US 2 is and will continue to be heavily used by visitors to Glacier National Park, it follows that future land uses in the Columbia Heights area will be related to the seasonal influx of tourists.

The annual visitation **to Glacier National Park** has more than doubled since 1956. **During 1992, the total visitation to the Park was 2,199,767 visitors, the highest annual visitation total since the National Park Service (NPS) began its new visitor estimating procedures (18).** A spokesman for the NPS stated that the most important factors influencing annual visitation to the Park are gas prices and the opening date of the Going to the Sun Highway. The west entrance, accessed via US 2, was the most heavily used of the 10 entrances to the Park. Thirty-seven percent of all visitors entered Glacier from US 2 at West Glacier. **There is nothing to indicate that Glacier National Park and surrounding lands will not continue to be popular destinations for visitors.**

There are no current subdivision applications on file for lands in the highway corridor. However, a 150-unit recreational vehicle park has been approved but not constructed for property north of US 2 on the west edge of Hungry Horse. Investors have expressed a desire to convert the property into a destination resort/hunting camp. This proposal includes shuttle service to and from Glacier Park International Airport, north of Kalispell, and attractions for recreational vehicle travelers. It is not known if a formal application to develop the property as planned will be submitted **(19). Additionally, a minor expansion to an existing RV park located south of the US 2/FAS 206 intersection was recently proposed (19).**

The Draft EIS identified two other potential developments, a new planing mill at the Plum Creek Lumber Company in Columbia Falls and the proposed Crown of the Continent Ecosystem Center near West Glacier, that could induce commercial and residential growth in the project area. Plum Creek Lumber Company recently expanded the planing capacity at its existing facilities in Columbia Falls but has no plans to construct major new facilities in the Columbia Falls area (20). The Crown of the Continent Ecosystem Center, a joint development proposal of the USFS and the NPS, has been dropped from consideration at this time.

Land Use and Transportation Planning for the Corridor - Several documents exist that address land use and transportation planning in the US 2 corridor affected by the proposed action. Pertinent information from each document is summarized below.

Columbia Falls Planning Jurisdiction Master Plan, Year 2000 - This 1984 plan generally designated lands adjacent to US 2 in Columbia Heights as "highway commercial". A one-half mile long strip of land between US 2 and Berne Road lying immediately east of Columbia Heights was designated as suitable for "light industrial" activities.

The Master Plan also projects a 45% increase (70 additional acres) in the commercial land uses within the jurisdictional area by the year 2000. An unidentified portion of this additional commercial land use is projected to locate near the intersection of US 2 and FAS 206 in Columbia Heights. Policy recommendations in the plan attempt to discourage the development of new strip commercial areas.

Flathead County Master Plan, Year 2000 (1987) - The transportation and commercial/industrial elements of this comprehensive plan loosely address the project area. The transportation section identifies US 2 from Columbia Heights to Hungry Horse as one of four high accident areas on the Federal-Aid Primary road system in Flathead County. This section also discusses the negative aspects of strip commercial development and its costs to tax payers.

The element relating to commercial/industrial development includes policy statements that discourage additional strip development in the county and specifically oppose additional development along US 2.

Flathead County's existing Master Plan is currently being revised.

Flathead National Forest Plan - This comprehensive land and resource management plan for the Flathead National Forest was adopted by the USFS in December, 1985. The plan provides management direction for all lands in the forest for the 10- to 15-year period following the plan's adoption. Part of the highway corridor lies within the Columbia Mountain geographic unit of the Hungry Horse Ranger District. The management areas in this unit are shown on **FIGURE III-8**.

USFS lands directly adjacent to the project corridor are designated as MA-3, MA-10, or MA-18. The first designation provides for a management emphasis to maintain or enhance wildlife habitat and enhance visual and water quality. The MA-10 designation means that these lands will continue to be used for administrative facilities and activities. These lands have not had specific visual quality objectives assigned to them in the *Forest Plan*, but the USFS still has a general concern for visual quality within the management unit. MA-18 lands lie within the Flathead Recreational River Corridor and are managed to preserve the values of the Wild and Scenic River segment.

Zoning and Land Use Controls - The land use designations suggested by the Master Plans covering lands in the highway corridor are implemented through the use of zoning, the regulatory and enforceable means of land use management. Although the zoning process is available throughout the project area, none of the lands adjacent to US 2 have been zoned at this time. The Flathead County Board of Commissioners recently directed the Flathead Regional Development Office to begin the process of zoning the balance of county lands that lie outside existing zoning districts. Efforts are presently underway to institute County-wide zoning and will probably be in place by the time the proposed action would occur (19).

A group of local residents, known as the Canyon Citizen Initiated Zoning Group (CCIZG), was formed during 1992 to develop a land use plan and implement zoning or other land use controls for properties abutting US 2 between Columbia Heights and Marias Pass. A land use plan covering the US 2 corridor was completed and adopted by Flathead County during 1994.

Currently, subdivision regulations enacted by Flathead County are the primary means of controlling land

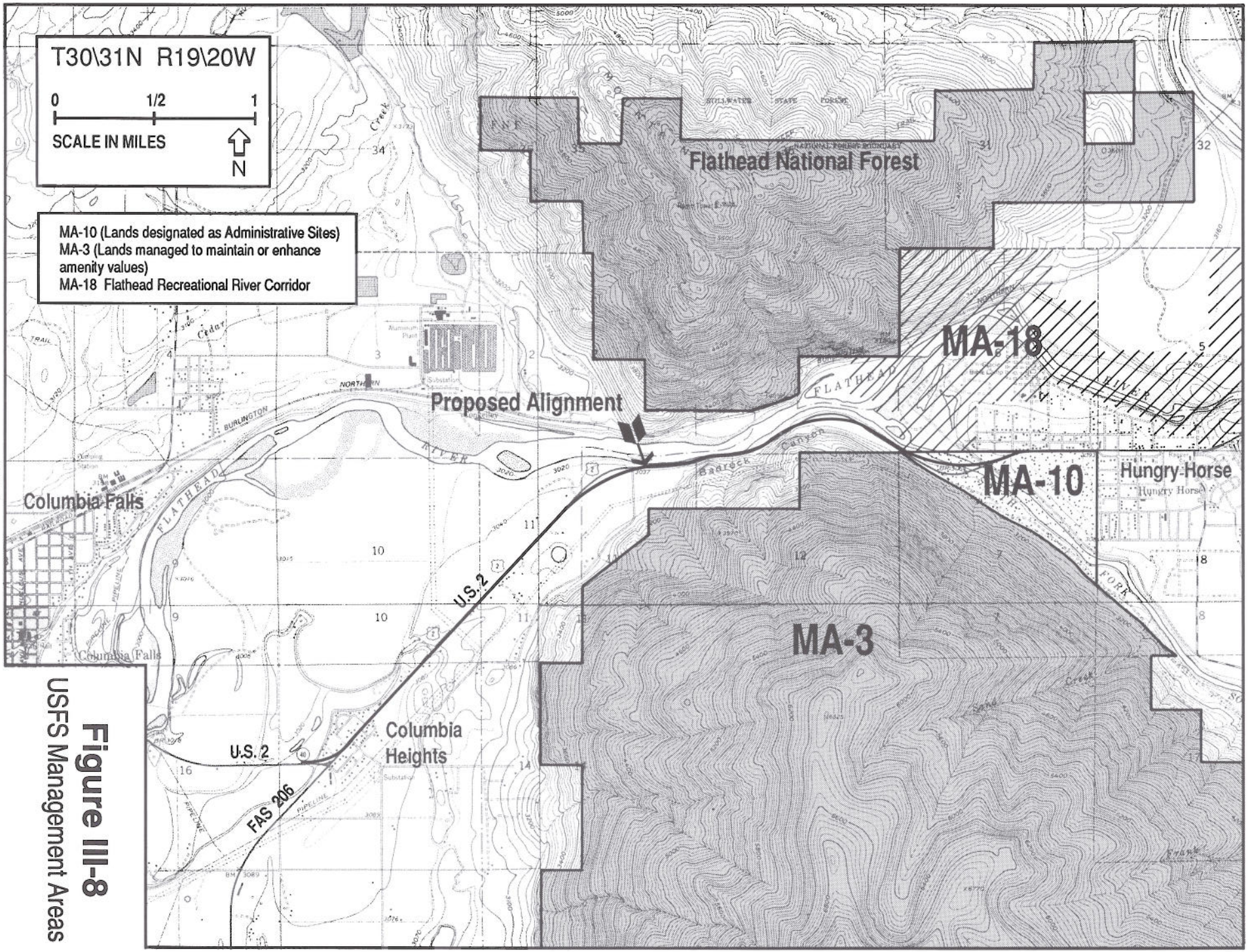


Figure III-8
USFS Management Areas

uses in the project area. The county also has the authority to regulate development within designated floodplains. **Efforts are now underway to implement land use regulations based on the plan developed for lands along US 2 between Columbia Heights and Marias Pass.** MDT has no authority to implement land use controls based on comprehensive planning designations for areas outside of the highway right-of-way. However, the agency does have the authority to control access and outdoor advertising along US 2.

3. COMMUNITY INFRASTRUCTURE

Schools - School District Number 6, with offices in Columbia Falls, administers seven schools which serve the project area. None of the schools are located within the project corridor. School busses and District employees utilize US 2 during the school year. Between 25 and 30 of the estimated 96 students living in the Columbia Heights area are picked up each school day by busses at stops along US 2 **(21)**. During scoping activities, local school officials expressed their concerns about use of the road during inclement winter weather when ground blizzards and icy roads are common.

Law Enforcement - The Flathead County Sheriff's Office is responsible for law enforcement within the project area. The Montana Highway Patrol responds to all traffic-related incidents on US 2.

Emergency Services - Fire protection within the project corridor is provided by either the Badrock Canyon or Hungry Horse Volunteer Fire Departments or the USFS. Emergency medical service and quick response unit support are provided by Columbia Falls Volunteer Ambulance.

Utilities - The project corridor contains several public and private utilities that may be affected by the proposed action. These utilities are discussed below. Typical utility conflicts present in the corridor are shown in **PHOTO PLATE 4**.

Bonneville Power Administration (BPA) Facilities - The BPA operates a transmission line corridor from Hungry Horse Dam containing the 230-kilovolt (kV) Hungry Horse - Hot Springs line and the 115-kV Hungry Horse - Kerr Dam line. The 200 to 240 foot-wide corridor parallels US 2 but is located more than 700 feet southeast of the highway. The transmission lines are within 600 feet of US 2 through Badrock Canyon.

A 230-kV transmission line crosses US 2 east of Columbia Heights. The line extends from BPA transmission lines to the Columbia Falls Aluminum Company. Two towers supporting the line are located 100 feet from the centerline of the existing highway. Overhead lines cross the highway in two locations.

The BPA recently completed and approved an Environmental Assessment (EA) and issued a Finding of No Significant Impact (FONSI) for the proposed rebuild of 8 miles of electric transmission line between Hungry Horse Dam and the Columbia Falls substation. The proposed project would replace an aging 115-kV transmission line with a new 230-kV line. BPA's project would require some relocation of an existing 230-kV line and the removal of the old 115-kV line, resulting in two parallel 230-kV lines between the dam and substation. This project would rebuild the electric transmission lines that generally parallel US 2 between Badrock Canyon and Columbia Heights.

Part VI of the EIS contains correspondence from the BPA (September 26, 1989) about their facilities in the project area **and the proposed Hungry Horse-Columbia Falls Line Rebuild and Relocation project (November 19, 1992 and December 2, 1992).**

Flathead Electrical Co-op Facilities - Overhead and buried electrical distribution lines owned by

Photo Plate 4 - Utility Conflicts

Photo 1 - A variety of electrical transmission lines operated by the Bonneville Power Administration and the Flathead Electric Co-op are located in the project area.

Photo 2 - Numerous utility lines parallel and cross US 2 between Columbia Heights and Hungry Horse.

Photo 3 - The electrical transmission line to the Conkelly Substation at the Columbia Falls aluminum plant crosses US 2 between Columbia Heights and Monte Vista Drive near project Stations 510+00 and 512+00.

Photo 4 - Support towers for the BPA's transmission line to the aluminum plant are located 75 feet south of the existing centerline of US 2. The proposed action will require that fill slopes be adjusted to minimize or avoid impacts to these structures.

Photo 1

Photo 2

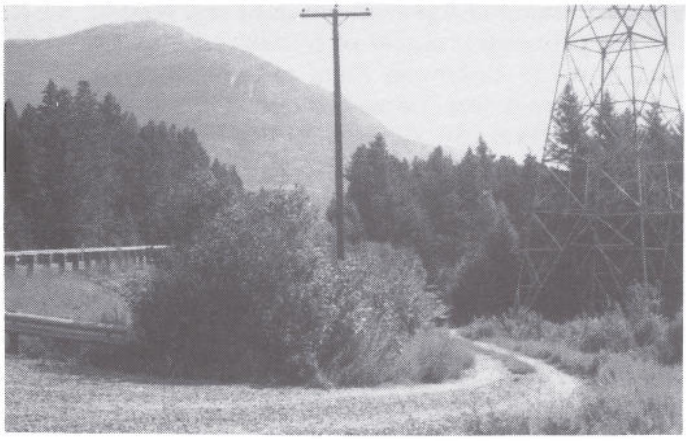


Photo 3

Photo 4

the Flathead Electrical Co-op cross or parallel the highway at 15 locations from Columbia Heights to Badrock Canyon. An electrical substation is located near the existing highway between Badrock Canyon and Hungry Horse.

Montana Power Company Facilities - A 10-inch diameter natural gas transmission line owned by the Montana Power Company parallels the edge of the highway through Badrock Canyon and crosses the highway corridor west of Hungry Horse. A natural gas distribution line crosses US 2 in Columbia Heights and parallels the highway in the Monte Vista Subdivision.

Northwestern Telephone Systems Facilities - Both overhead and buried telephone lines operated by Northwestern Telephone Systems parallel the existing highway through most of the corridor. There are 11 overhead telephone line crossings of US 2 between Columbia Heights and Hungry Horse. **A fiber-optic telephone cable was recently installed in the project area. This cable could be encountered in Badrock Canyon where it exists in a ditch along the south side of the highway.**

Private Facilities - A privately-owned community water system, serving 28 homes, is located immediately south of US 2 in Columbia Heights.

4. ECONOMIC CONDITIONS IN THE PROJECT AREA

Project Area Economy - Kalispell, Whitefish, and Columbia Falls have each developed unique but interdependent economic bases. Kalispell is the major retail trade center for the region as well as the agricultural service center and government base for the County. Whitefish is recreation-oriented community and Columbia Falls hosts the primary industrial employer in Flathead County.

The economy of the project area is most closely tied to Columbia Falls for employment and services. There are currently some **18** businesses operating in the corridor including restaurants, gas stations, motels, specialty shops, **auto sales lots**, and some light industrial/manufacturing activities. **Visitors to Glacier National Park and other tourist attractions will continue to play an important role in the success of many businesses in the corridor.**

Hungry Horse will continue to depend upon the seasonal trade generated by visitors to Glacier National Park, Hungry Horse Reservoir, and surrounding wild lands.

5. TRANSPORTATION SYSTEMS

Roads - **FIGURE III-9** shows the major roads in the general project area. This system includes local roads and streets, collectors, and arterials.

Air Service - Glacier Park International Airport serves the aviation needs of the project corridor. The airport, located adjacent to US 2 some six miles southwest of Columbia Falls, accommodates both general aviation, air freight, and commercial passenger service. The *Montana State Aviation Systems Plan* forecasts that commercial passenger enplanements at Glacier Park International Airport will double by 2005 **(22)**. Continued growth in the tourism industry in Flathead County is a major contributing factor for projected increases in commercial passenger activity at the airport. **FIGURE III-9 shows the location of the airport relative to the proposed action.**

Rail Service - Passenger rail service to the Flathead Valley is provided by AMTRAK which operates eastbound and westbound trains each day. The nearest passenger station, **shown on FIGURE III-9**, is located in Whitefish. Burlington Northern provides freight service to the project area.

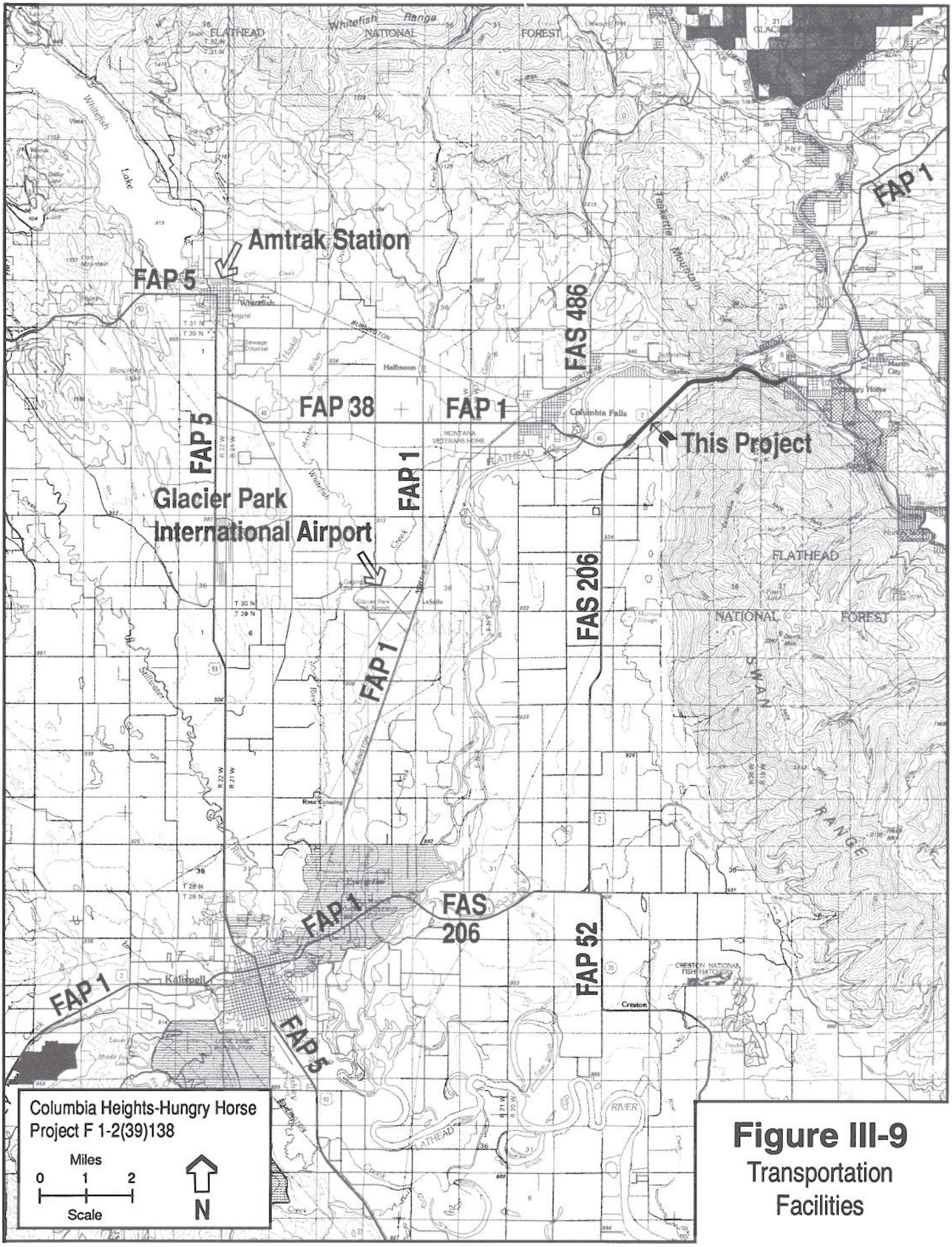


Figure III-9
Transportation Facilities

Public Transportation - Connections with intercity and charter passenger bus services are available in Kalispell and Whitefish. School District Six transports students along routes which follow US 2, Berne Road, and Monte Vista Drive in the general project area.

6. PEDESTRIAN AND BICYCLIST FACILITIES

Existing Facilities and Use - The existing highway receives limited use by pedestrians and bicyclists, primarily due to a lack of facilities for these users. Scoping comments indicated a need for pedestrian facilities in Columbia Heights, where children must cross US 2 to meet school buses. The Big Sky Waterslide, located just west of Columbia Heights, is a popular destination for young residents of the corridor.

These pedestrians must cross US 2 or FAS 206 to reach the seasonal recreation site. There are no designated highway crossings or sidewalks in Columbia Heights. Sidewalks were constructed through Hungry Horse during previous improvements to US 2.

Bicyclists on US 2 must use the 1- to 2-foot wide paved shoulder or travel lanes for riding through the project area. Although there are no counts available to quantify such use, the highway receives substantial seasonal travel by bicycle tourists en route to or from Glacier National Park. Local commuters and recreational riders are thought to account for a smaller percentage of bicyclist traffic on US 2 than long distance bicycle tourists.

Bicyclist and pedestrian facilities on adjacent sections of US 2 vary. Between Columbia Falls and Columbia Heights, such traffic must use the highway shoulder for travel. A separated bicycle path parallels US 2 from Hungry Horse to Coram. From Coram to West Glacier, bicyclists or pedestrians must again use the highway shoulder for travel.

Bikecentennial, a national bicycle touring association, included US 2 as part of its 390-mile Great Parks North Bicycle Route between Missoula, Montana and Elko, British Columbia. The map of the route advises bicycle tourists of heavy traffic during the summer on roads into Glacier National Park. The group also advises bicyclists to ride early in the day and avoid travel on weekends. Bikecentennial's Washington to Minnesota Bicycle Route map bypasses the project area "to avoid some of the hectic tourist traffic near Glacier Park" **(23)**.

A review of motor vehicle accident records for the period between January 1, 1983 and December 31, 1990 showed that no bicyclist or pedestrian accidents occurred within the corridor. One accident involving a bicycle was recorded at MP 142.8 on the west edge of Hungry Horse during 1987.

7. HAZARDOUS WASTE SITES

The National Priorities List (NPL) for Montana established by the EPA was obtained from the MDHES, Solid & Hazardous Waste Bureau and reviewed to identify any known hazardous waste sites in the project area. There are no NPL sites located in or near the project corridor **(24)**.

In 1985, the Montana Legislature passed the Environmental Quality Protection Fund Act, more commonly known as the Mini-Superfund Law. This law authorized MDHES to investigate and clean up, or require those responsible to investigate and clean up hazardous waste site which are not on the federal Superfund NPL. Three known hazardous waste sites are located in the Columbia Falls area which fall under the State's Superfund program. These sites include the Anaconda Aluminum Company, Beaver Wood Products, and Larry's Post and Treating Company **(24)**. None of these sites are located in the vicinity of the proposed action.

Two gas station/convenience stores located adjacent to US 2 are currently in operation in Columbia Heights. The MDHES Underground Storage Tanks Section has no record of leaking underground fuel storage tanks at the gas stations in Columbia Heights **(25)**.

E. Cultural, Recreational and Visual Environment

1. CULTURAL RESOURCES

Cultural Resources Investigations - Historical Research Associates (HRA) of Missoula, Montana performed a cultural resources survey of the project corridor during October, 1989. Two historical properties, identified as 24FH419 and 24FH420, were located in Badrock Canyon. **24FH419 included the archeological remains of a building, a small refuse dump, and a linear rock alignment associated with the Freida Wilkes Herrig homesite and later sold to Billy Berne. 24FH420, a carving consisting of the date " 1908" and the letters "LEO" located on the face of a bedrock outcrop along the south side of US 2 in Badrock Canyon.** Neither of these properties were determined to be eligible for the National Register of Historic Places.

A supplemental cultural resources survey **was conducted** on lands near the House of Mystery during October, 1991. This investigation discovered one historical property (24FH455), **the remains of a small logging operation,** and two prehistoric cultural properties (24FH453 and 24FH454) **consisting of scattered lithic flakes and fire-cracked rock.** Through site testing and other evaluations, none of the properties were **determined** eligible for the National Register.

Remnants of an old road dating from near the turn of the century exists at the west edge of Badrock Canyon and crosses the southern portion of the Berne homestead (24FH419). The transcript of a 1983 interview with Ted Ross, a long-time area resident of the area, indicated that the Great Northern Railroad built the roadway, locally known as the "tote" road, through Badrock Canyon for their own transportation needs by blasting through the rocks on the lower reaches of Columbia Mountain (26). Ross also alludes to the presence of an old Indian trail that passed through the steep cliffs of the canyon that pioneers in wagons traversed with great difficulty.

Several comments on the Draft EIS expressed concern that the proposed action would cause substantial impacts to the portion of the "tote" road that remains in the outcrops above Berne Memorial Park. In response to these concerns, an evaluation of the historical road was completed by HRA in May, 1994. The evaluation included a field review by an archaeologist to determine where evidence of the road is visible, what portions had been previously affected by other activities, and what portion of the road would be affected by the proposed action. HRA's work also included the preparation of site specific descriptions of the "tote" road (identified as 24FH583) and a compilation of background material pertinent to the history of the road.

HRA's research indicates that a remnant of the "tote" road approximately 2,100 feet in length, exists on the lower slopes of Columbia Mountain directly above Berne Memorial Park. The "tote" road was originally built in 1890-1891 as a supply route for transporting material for construction of the Great Northern Railroad. The "tote" road served as a travel route through Badrock Canyon until it was replaced by a less severe roadway in 1911. Other portions of the "tote" road have been lost due to the previous construction of roads and utilities through Badrock Canyon.

With the exception of its east and west ends, the "tote" road is in good condition and can be easily followed. Several features relating the construction and use of the "tote" road, including trees bearing rope scars, fragmented stone retaining walls, dynamite bore holes, and a wooden pry bar, exist along the remaining section of the road. Based on this additional research and field evaluations, the "tote" road (24FH583) was determined eligible for the National Register of Historic

Places due to its associations with the building of the Great Northern Railroad and early road engineering.

Field investigations show that the section of "tote" road affected by the project is located to the west of the outcrop forming the west end of Badrock Canyon. The affected section of the "tote" road is shown on detailed graphics included with Part V of this document.

Copies of the cultural resource surveys for this project are available for review in Helena. Further discussion of these resources is contained in Parts IV and V of this document.

South Fork of the Flathead River Bridge - The bridge over the South Fork of the Flathead River at Hungry Horse is a steel girder and floor beam structure built in 1938. It was one of 137 bridges erected in Montana that year and is one of four steel girder and floor beam bridges located in Flathead County. In accordance with a Programmatic Agreement **between the** FHWA, the Advisory Council on Historical Preservation (ACHP), the Montana State Historic Preservation Office (SHPO), and MDT **regarding historic roads and bridges signed in** 1989, the bridge was not evaluated for its potential eligibility on the National Register of Historic Places; nor was it recommended for inclusion in the Montana Historic Preservation Plan for Roads and Bridges.

There are presently 98 steel girder and floor beam bridges located on Montana's Interstate, Primary, and Secondary road systems. The first such bridge was constructed in 1909 and the last in 1988. All retain original design features, except for 14 of the bridges that have been rehabilitated. Due to the large number of similar bridges that remain in service on the State's highway system and the widespread use of the structure's design, the South Fork Bridge at Hungry Horse has no particular qualities that would recommend it for inclusion in the Historic Preservation Plan. Another similar bridge that has the potential to remain in use for a longer period of time will be recommended for inclusion in the Plan as a representative example of steel girder and floor beam bridges.

Further discussion of the historical significance of the South Fork Bridge is contained in APPENDIX 12. **Additionally, a copy of the Programmatic Agreement regarding historic roads and bridges in Montana is provided for the interested reader in APPENDIX 12.**

Native American Importance of Badrock Canyon - An interpretive sign at Berne Memorial Park describes Badrock Canyon as the site of a battle between the Blackfeet and Flathead Tribes. **The Cultural Committees of the Salish, Kootenai, and the Blackfeet Tribes were contacted for information about the alleged battle and to determine if Badrock Canyon held other culturally sensitive areas that could be affected by the proposed action. Representatives of the Cultural Committees could not place the battle at a specific location in Badrock Canyon. Tribal representatives indicated that the proposed action would not affect sensitive sites in Badrock Canyon. Tribal movements through the area and in Badrock Canyon have been documented by the historical record and by information provided by tribal representatives.**

As a result of comments on the Draft EIS, further investigations about the site of the Indian battle referenced by the historical marker in Badrock Canyon were performed. Research showed that historical records make no references to a battle in Badrock Canyon in Flathead County prior to the installation of the historical marker on US 2 in 1938. The records showed that another "Bad Rock" exists in Sanders County along the Clark Fork River between Plains and Thompson Falls. The historical record contains references to Bad Rock as early as 1809 and there are several accounts of violent confrontations between the Salish, Kootenai, and Blackfeet in this vicinity after that time.

Historical accounts indicate that the placement of the marker along US 2 prompted a response from

a long-time resident (H.P. Stanford) stating that the canyon was named for the tote road that passed over the mountain. According to Stanford, the Indian "battle" occurred near the Soldiers' Home in Columbia Falls sometime between 1840 and 1879 when the Piegan Blackfeet raided into the valley and were met by the Salish and Kootenai. The Piegans then retreated to Badrock Canyon along the north side of the canyon and took up positions midway up Teakettle Mountain.

Salish-Kootenai "historian" Olga Weydemeyer Johnson also reported an account of a battle in the Badrock Canyon area sometime around 1840. Johnson indicates that the Blackfeet were ambushed near the mouth of the canyon and driven toward Flathead Lake. Like Stanford's version, Johnson's narrative suggests that very little, if any, of the confrontation actually took place in Badrock Canyon. If this is indeed the case, the marker in Badrock Canyon may be located inappropriately.

Memos describing coordination efforts with the Cultural Committees and additional research about the Indian battle in Badrock Canyon are on file in Helena.

2. RECREATION

Developed Recreation Sites - US 2 provides access not only to Glacier National Park but to a variety of other public and private recreation sites in the area. These include:

- Big Sky Waterslide at Columbia Heights,
- the House of Mystery east of Columbia Heights,
- **Grizzly Go-Carts and Batting Cages** east of Columbia Heights,
- **Berne Memorial Park, and**
- roadside parks in Hungry Horse.

Dispersed Recreation - Numerous opportunities for dispersed recreation such as hunting, fishing, hiking, cross country skiing, floating, berry picking, and camping are available on public lands near the corridor. The area above Berne Memorial Park is occasionally used by hikers and picnickers.

Two USFS trails are accessible from US 2 in the project area. The trailhead for the Columbia Mountain trail may be accessed from the highway via Monte Vista Drive or Berne Road. Another trail which leads to Fawn Lake is accessed by a primitive road that joins US 2 near the South Fork bridge just outside Hungry Horse. The USFS Hungry Horse Ranger District is in the process of upgrading both trails.

Flathead Recreational Waterway - The State of Montana designated the Flathead River above Flathead Lake, the North and Middle Forks, and the South Fork above Hungry Horse Dam as a Recreational Waterway in 1972. The State recognized the Flathead River and four other streams for their generally undeveloped nature, outstanding scenery, historical features, and increasingly heavy recreational use. The FWP has the administrative responsibility for the State Recreational Waterway System.

Within the project area, the Flathead Recreational Waterway flows adjacent to US 2 from Berne Road through Badrock Canyon to the confluence of the South Fork. The Flathead River can be most easily accessed at Hungry Horse and in Badrock Canyon where US 2 parallels the main stem of the river.

The primary uses of the Flathead Recreational Waterway are for fishing and floating. The FWP conducted a detailed census of fishermen on the main stem of the Flathead from May 16 - November 30, 1981 as part of a five-year baseline inventory of the resources of the Flathead Basin **(27)**. The census determined

that fishing on the segment between Columbia Falls and Hungry Horse accounted for 3% of the total number of fisherman hours spent on the main stem of the Flathead during 1981 **(28)**.

Information from the *State Comprehensive Outdoor Recreation Plan* showed that 56.7% of the population in FWP Region 1 (includes the project area) participated in fishing and about 15% of the residents floated or kayaked in the region during 1985 **(29)**. More recent or specific data about recreational use of the Flathead River in the project area is not available.

Recreational Needs - The *Flathead County Master Plan* contains a list of recreational needs identified for residents of the Canyon communities. These needs include:

- a community center/gymnasium and athletic fields,
- a bicycle trail from Columbia Falls to West Glacier, and
- cross-country ski areas in the Canyon.

3. VISUAL RESOURCES

Existing Landscape - The project corridor is situated at the eastern edge of a broad valley surrounded by mountains. The corridor is located about 15 miles southwest of Glacier National Park, which is highly acclaimed for its natural scenic value and visual quality. During 1979 and 1980, a local group initiated a campaign to designate US 2 between Badrock Canyon and West Glacier as the "Badrock Canyon Scenic Corridor". The group wanted **official recognition of** the scenic qualities of the corridor and its role as the entrance to wildlands in and around Glacier National Park. To date, the route has not been designated as a scenic corridor by any state or federal agency.

Two landscape units, identified as the Columbia Heights and the Badrock Canyon landscape units, have been used to describe the existing visual setting and to analyze the impacts of the proposed action on that setting. The landscape units were defined based on the abrupt changes in the density of manmade development and topography that exists within the project corridor. These units are described below.

Columbia Heights Landscape Unit - The Columbia Heights landscape unit, generally extends from the project's beginning to the mouth of Badrock Canyon (about MP 140.5). The unit is characterized by flat to gently rolling terrain bordered by steep mountains. Columbia and Teakettle Mountains are the dominant features in the unit. The primary water resources visible in the unit are isolated wetlands adjacent to the existing highway. The Flathead River is not apparent until about Berne Road. Vegetation on flat lands adjacent to the road consists of grasslands used for pasture or hayland interspersed with stands of cottonwoods, aspens, and conifers. Spotted knapweed is present on the river benchland near the House of Mystery. Manmade development in the Columbia Heights landscape unit includes the existing highway, large BPA overhead powerlines and support towers, railroad facilities, roadside commercial development, billboards, and scattered residences.

Badrock Canyon Landscape Unit - The Badrock Canyon landscape unit extends from the mouth of the canyon to the project's end in Hungry Horse. The existing highway parallels the south side of the Flathead River through this unit. The dominant natural features in this unit are the steep south rock face of the canyon in the vicinity of Berne Memorial Park and the Flathead River itself. Thick forest cover exists along both sides of the highway east of Berne Memorial Park to Hungry Horse and generally obstructs views of the river. Riparian cottonwoods and conifers are located between the existing highway and the river at the park. Manmade development in this unit includes the existing road and bridge over the South Fork of the Flathead, railroad facilities, a roadside park, overhead utility lines, and residential and commercial development on the edge of Hungry Horse.

Views from the Road - Views from the road are seen by motorists, bicyclists, and pedestrians using the existing highway. The character and quality of these views change notably as viewers pass through the project corridor. The existing visual quality in the Columbia Heights landscape unit is low due to the presence of roadside commercial and residential development, overhead utility lines, and billboards. These features detract from the background views of distant peaks in Glacier National Park. Between Columbia Heights and Badrock Canyon, the quality of views from the road increases as suburban development decreases. Roadside areas are unified by moderately dense timber stands and pasture or haylands. At an average travel speed of 40 to 50 mph, motorists and other highway users are exposed to views in the Columbia Heights unit for less than four minutes.

The quality of views from the road in the corridor are highest in the Badrock Canyon unit as viewers are afforded quick glimpses of the Flathead River and mountain peaks in Glacier National Park and the Great Bear Wilderness. The timber and forest cover adjacent to the road provides a high degree of continuity. The rock cliffs and proximity of the river at Berne Memorial Park provide a substantial change in the landscape within this unit. Assuming an average travel speed of 50 mph, motorists and other highway users are exposed to views in the Badrock Canyon unit for about three minutes.

View of the Road - **The major viewer groups that would see the road include: local residents, business patrons, and seasonal visitors, floaters and fisherman on the Flathead River, users of Berne Memorial Park, and AMTRAK rail passengers.**

Views of the highway are low to moderately low for the 80 residents that live between Columbia Heights and Badrock Canyon due to commercial strip development and roadside utilities. The quality of the view for residents living between Columbia Heights and Badrock Canyon is higher due to dense timber and rolling terrain which often screens the road.

Users of Berne Memorial Park are afforded prolonged views of the nearby highway and Flathead River and distant views of the Flathead Valley and mountainous areas of Glacier National Park from vantage points in the cliffs of Badrock Canyon. Floaters, fishermen, and rail passengers are afforded brief views of the road only in Badrock Canyon because the terrain and vegetation screens the highway. The quality of the view for these groups is moderately high and dominated by Columbia and Teakettle Mountains. Floaters on the Middle Fork Recreational River segment and the main stem of the Flathead River are afforded brief views of the existing bridge over the South Fork.

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