



Billings Area I-90 Corridor Planning Study

APPENDIX C ENVIRONMENTAL SCAN REPORT

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ABBREVIATIONS AND ACRONYMS

AOI	Area of Interest
APE	Area of Potential Effect
BMPs	Best Management Practices
BNSF	Burlington Northern Santa Fe
CECRA	Comprehensive Environmental Cleanup and Responsibility Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CWA	Clean Water Act
DEQ	Montana Department of Environmental Quality
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FPPA	Farmland Protection Policy Act
FWP	Montana Fish, Wildlife & Parks
GIS	Geographic Information System
HUC	Hydrologic Unit Code
HWA	Hazardous Waste Act
I-90	Interstate 90
I-94	Interstate 94
LUST	Leaking Underground Storage Tank
LWCF	Land and Water Conservation Fund
MBMG	Montana Bureau of Mines and Geology
MDT	Montana Department of Transportation
MEPA	Montana Environmental Policy Act
MNHP	Montana Natural Heritage Program
MPDES	Montana Pollutant Discharge Elimination System
NEPA	National Environmental Policy Act
NHP	Natural Heritage Program
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NRIS	Natural Resource Information System
NWI	National Wetlands Inventory
PWS	Public Water Supply
RCRA	Resource Conservation and Recovery Act
RP	Reference Post
Section 4(f)	Section 4(f) of the 1966 Department of Transportation Act
Section 6(f)	Section 6(f) of the National Land and Water Conservation Funds Act
SO ₂	Sulfur Dioxide
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VCRA	Voluntary Cleanup and Redevelopment Act
WQA	Water Quality Act



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1.0 INTRODUCTION

1.1 Background and Study Area

This Environmental Scan Report identifies environmental resource constraints and opportunities for the Montana Department of Transportation (MDT) Billings Area I-90 Corridor Planning Study. The study encompasses the Interstate 90 (I-90) corridor from the Laurel Interchange at Reference Post (RP) 433.8 to the Pinehills (I-90/I-94) Interchange at RP 455.85. The analysis area for this Environmental Scan is limited to a reasonable width for potential future interstate widening, defined as the area approximately one hundred yards (300 feet) beyond the center of the median on either side of Interstate 90 (I-90). The information presented in this planning-level environmental scan was obtained from previously-published documents and websites. Although a windshield survey was performed in support of this study, no detailed environmental investigations have been conducted.

If improvement options are forwarded from the study, an analysis complying with the National and/or Montana Environmental Policy Acts (NEPA/MEPA) will be completed as part of the project development process. Certain planning decisions and information gathered as part of the study may be adopted in the NEPA/MEPA process for an individual project, including needs and objectives statement(s), preliminary screening of alternatives and elimination of unreasonable alternatives, a basic description of the environmental setting, and preliminary identification of environmental impacts and environmental mitigation.

1.2 Geographic Setting

The study corridor is located in south central Montana in Yellowstone County. The major communities within the study area are Laurel, Billings, and Lockwood. Sandstone cliffs, from 300 to 500 feet high, form a landmark border known as the "Rimrocks" to the north and east of the City of Billings, above which the land is primarily rolling hills. Terrain south of Billings is characterized by rolling to moderately steep hills with high, flat tablelands. I-90 generally follows the Yellowstone River in a northeasterly direction, crossing the river once within the study area.

Figure 1-1 illustrates the study area, including the I-90 mainline segments and interchanges within the corridor.



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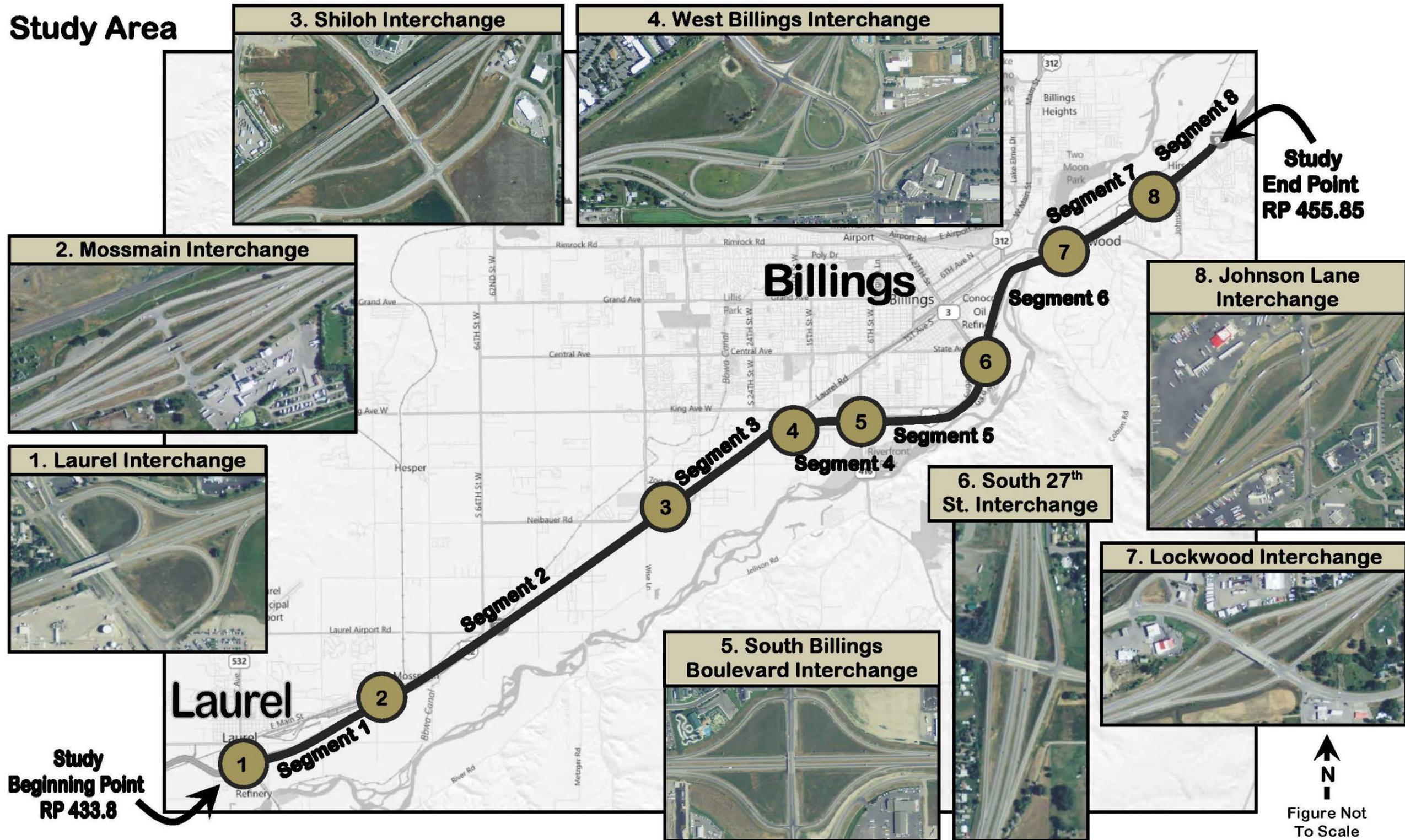
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Figure 1-1 Study Area

Study Area





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2.0 PHYSICAL ENVIRONMENT

2.1 Soil Resources and Prime Farmland

The Farmland Protection Policy Act (FPPA) of 1981 (Title 7 United States Code, Chapter 73, Sections 4201-4209) has as its purpose “to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses, and to assure that federal programs are administered in a manner that, to the extent practicable, will be compatible with State, unit of local government, and private programs and policies to protect farmland.” Farmland is defined by the Act in Section 4201 as including prime farmland; unique farmland; and farmland, other than prime or unique farmland, that is of statewide or local importance.

Prime farmland soils are those that have the best combination of physical and chemical characteristics for producing food, feed, and forage. Prime farmland can be either non-irrigated or lands that would be considered prime if irrigated. Farmland of statewide importance is land, in addition to prime and unique farmlands, that is of statewide importance for the production of food, feed, fiber, forage, and oilseed crops.

General information regarding soil resources and areas of prime farmland in the study area was compiled from the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). Appendix 1 contains maps and descriptions of the farmland classification types found in the study area. The NRCS Web Soil Survey website (<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>) can be used to customize maps with specific areas of interest (AOI) that include detailed descriptions of the farmland classification types.

The NRCS uses the CPA-106 Farmland Conversion Impact Rating Form for Linear Projects to maintain an inventory of the prime and important farmlands within the state. As illustrated in the maps contained in Appendix 1, soils within the study area are classified as prime and important farmlands. Any construction activities associated with an individual project within the corridor would likely impact soils classified as prime and important farmland. A CPA-106 Farmland Conversion Impact Rating Form for Linear Projects would need to be completed for any improvements impacting designated farmlands. The process for completing this form requires mapping of the prime and important farmlands to be converted to non-farmable land, coordination with the NRCS, and final completion of the conversion form.



2.2 Geologic Resources

Information about geologic resources, fault lines, and seismic hazard areas was reviewed in order to assist in determining potential design and construction issues related to embankments and road design.

According to the Seismic Zone map in the Uniform Building Code, Yellowstone County is located in a Zone One area (minor risk). The greatest potential hazards associated with unstable geologic conditions are rock falls and mass failure. These potential hazards correlate with steep slopes composed of sandstone and shale bedrock.

Appendix 2 contains a map showing the alluvium geologic map for the Billings Quadrangle and a description of map units. This map may be viewed online at http://www.mbmgt.mtech.edu/pdf_100k/billings-gm59.pdf and a geologic map of the Laurel area may be viewed at http://www.mbmgt.mtech.edu/pdf-open-files/mbmg580_laurel.pdf.

Additional information related to the geology of the study area can be found on pages 137-143 of the Yellowstone County and City of Billings 2008 Growth Policy Update, which can be viewed at http://www.co.yellowstone.mt.gov/planning/growthproject/GrowthPolicy_2008.pdf.

2.3 Water Resources

2.3.1 Surface Water Bodies, Water Quality, and Waters of the U.S.

The study corridor lies within the Yellowstone River Valley, specifically the Upper Yellowstone-Lake Basin (HUC: 10070004) and Upper Yellowstone-Pompeys Pillar (HUC: 10070007). The Yellowstone River, Canyon Creek, Hogan's Slough, the Billings Bench Water Association (BBWA) Canal, and several minor irrigation ditches cross I-90 within the study area. Information on the surface waters within the study area was obtained from the Montana Department of Environmental Quality (DEQ) website.

The Clean Water Act (CWA) requires the State of Montana to develop a list, subject to U.S. Environmental Protection Agency (USEPA) approval, of water bodies that do not meet water quality standards. When water quality fails to meet state water quality standards, DEQ determines the causes and sources of pollutants in a sub-basin assessment and establishes maximum pollutant levels, called total maximum daily loads (TMDLs), within a watershed. The TMDLs become the basis for implementation plans to restore water quality to a level that



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supports its designated beneficial uses. Implementation plans are developed to identify and describe pollutant controls and management measures to be undertaken (such as Best Management Practices, or BMPs), the mechanisms by which the selected measures would be put into action, and the individuals and entities responsible for implementation projects.

The Upper Yellowstone and Middle Yellowstone watersheds are listed as impaired in the 2010 Integrated 303(d)/305(b) Water Quality Report for Montana by DEQ. Water bodies within the Upper Yellowstone and Middle Yellowstone watersheds located in the study area are classified as Category 5 and Category 2B. Category 5 indicates waters where one or more applicable beneficial use has been assessed as being impaired or threatened and a TMDL is required to address the factors causing the impairment or threat. Category 2B indicates waters where available data and/or information indicate that a water quality standard is exceeded due to an apparent natural source in the absence of any identified anthropogenic sources. TMDLs have not yet been written for water bodies in the study corridor. Any construction activities would have to comply with the requirements of Yellowstone River TMDLs and implementation plans once established. Coordination with DEQ should be conducted during the project development process to obtain any needed permits or authorizations, including a short-term water quality standard for turbidity (318 Authorization).

The 303(d) listed water bodies within the Upper Yellowstone and Middle Yellowstone watersheds that are located in the study area are summarized in Table 2.1. Appendix 3 contains 2010 Water Quality Information from the DEQ Clean Water Act Information Center.



Table 2.1 303(d) Listed Water Bodies in Study Area

Attributes	Yellowstone River (City of Laurel PWS to City of Billings PWS)	Yellowstone River (City of Billings PWS to Huntley Diversion Dam)
Beneficial Use	Drinking Water, Cold Water Fishery, Primary Contact Recreation, Agricultural, Industrial, Aquatic Life	Drinking Water, Warm Water Fishery, Primary Contact Recreation, Agricultural, Industrial, Aquatic Life
Probable Cause of Impairment	Nitrate/Nitrite (Nitrite + Nitrate as N), Other Anthropogenic Substrate Alterations, Chlorophyll-a, Physical Substrate Habitat alterations	Arsenic, Benthic-Macroinvertebrate Bioassessments, Dissolved Oxygen Saturation, Excess Algal Growth, Nutrient/Eutrophication Biological Indicators, Periphyton (Aufwuchs) Indicator Bioassessments, Solids (Suspended/Bedload)
Probable Source of Impairment	Channelization, Municipal Point Source Discharges, Streambank Modifications/destabilization, Crop Production (Crop Land or Dry Land)	Natural Sources, Agriculture, Municipal Point Source Discharges

Note: PWS = Public Water Supply

Waters of the United States include all surface waters such as all navigable waters and their tributaries, all interstate waters and their tributaries, all wetlands adjacent to these waters, and all impoundments of these waters. Coordination with the U.S. Army Corps of Engineers (USACE) and Fish, Wildlife & Parks (FWP) should be conducted during the project development process to obtain any needed permits or authorizations, such as a Clean Water Act (CWA) Section 404 and Section 10 permit and a Stream Protection Act (SPA) 124 authorization.

Additional information on the Yellowstone River and its tributaries within the study area can be found on pages 147-148 of the Yellowstone County and City of Billings 2008 Growth Policy Update, which can be viewed at http://www.co.yellowstone.mt.gov/planning/growthproject/GrowthPolicy_2008.pdf.

2.3.2 Groundwater

The entire Yellowstone Valley is an area of potential groundwater recharge. In addition to rainfall, surface water from irrigation ditches, flood irrigation of cropland, and the Yellowstone River and its tributaries are important sources of groundwater. A recent study by the Montana Bureau of Mines and Geology (MBMG) provides evidence that the aquifer west of Billings is recharged to a substantial extent by flood irrigation practices from irrigation ditches and canals. The report suggests that without irrigation water, the West Billings-East Laurel area could



experience a drastic drop in the water table. Irrigation facilities in this area are the most important sources for groundwater recharge and the natural creeks and streams act as groundwater drains (Olson, L. John and Reiten, J. C., 2002, Hydrogeology of the West Billings Area: Impacts of Land-Use Changes on Water Resources, MBMG Report of Investigation 10. http://www.mbmgt.mtech.edu/mbmgcat/public/ListCitation.asp?pub_id=11607&).

An additional groundwater study initiated by the City of Billings and Yellowstone County called the West Billings Flood Mitigation and Groundwater Recharge Study is intended to identify and evaluate the feasibility of alternatives to mitigate flooding impacts in the study area, and to assess the potential of using those mitigation measures to provide recharge to groundwater in the West Billings area. This document includes modeling results of potential benefits from groundwater recharge of flood water. Additional information on this groundwater study can be obtained online at <http://ci.billings.mt.us/index.aspx?NID=1588>.

2.3.3 Irrigation

Irrigated farmland exists in Yellowstone County adjacent to the study corridor. Impacts to irrigation facilities should be avoided to the greatest extent practicable. However, depending on the improvement option(s) proposed during the study, there is a potential for impacts to irrigation facilities. To mitigate any anticipated lateral impacts, MDT will likely reconstruct existing culverts to maintain existing size and flow requirements. Operators of irrigation facilities will be contacted for flow requirements during final design. Consultation with ditch owners to minimize impacts to farming operations would need to be completed on any impacted irrigation canals and ditches.

Irrigation facilities will need to be examined to determine if they are considered Waters of the U.S. and subject to jurisdiction by USACE.

Irrigation maps for Yellowstone County within the study area are available at http://dnrc.mt.gov/wrd/water_rts/survey_books/default.asp, and are provided in Appendix 4.

Additional information related to existing irrigation facilities can be found on pages 155 and 152 of the Yellowstone County and City of Billings 2008 Growth Policy Update (http://www.co.yellowstone.mt.gov/planning/growthproject/GrowthPolicy_2008.pdf).



2.3.4 Stormwater

The CWA provides the basis for regulating the discharge of pollutants to waters of the United States through implementation of the National Pollutant Discharge Elimination System (NPDES). DEQ is responsible for implementing CWA programs in the state of Montana as part of the Montana Pollutant Discharge Elimination System (MPDES) program. Under DEQ's MPDES program, a Small Municipal Separate Storm Sewer System (MS4) general permit is required for entities in the state of Montana with storm sewer systems serving a population of at least 10,000 people. The City of Billings and MDT are co-permittees for the portion of the Billings Urbanized Area within the Billings city limits; Yellowstone County and MDT are co-permittees for the portion of the Billings Urbanized Area outside the Billings city limits. The City of Billings, Yellowstone County and MDT have a partnership with each other through the MS4 program. Receiving waters for the Billings MS4 include the BBWA Canal, Canyon Creek Ditch, Canyon Creek, Suburban Ditch, Grey Eagle Ditch, Yellowstone River, Shiloh Drain, Alkali Creek, City/County Drain, Yegen Drain, Holling Drain, Blue Creek, Tributary to Blue Creek, Five Mile Creek, Coulson Ditch, Lockwood Ditch, Dry Creek, and Tributary to Dry Creek. Appendix 5 includes a map showing the Billings urbanized area, which serves as the boundary for the Billings MS4 program. If improvement options are forwarded from this study, stormwater must be addressed according to the MS4 permit.

Additional information related to the Billings MS4 program can be found on the City of Billings website (<http://ci.billings.mt.us/index.aspx?NID=571>), the Yellowstone County website (<http://www.co.yellowstone.mt.gov/publicworks/downloads.asp>), and the MDT website (<http://www.mdt.mt.gov/pubinvolve/stormwater/permits.shtml>).

2.4 Wetlands (EO 11990)

The USACE defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

National Wetlands Inventory (NWI) mapping for the study area was reviewed to identify general wetland locations, however, this mapping was not used in the preparation of this report. NWI maps are generated by the U.S. Fish and Wildlife Service (USFWS), and are based on the USFWS definition of wetlands, which does not follow the USACE definition that MDT uses in



wetland identification and delineation. NWI maps are typically generated based on aerial and satellite imagery, and are not accurate or detailed enough for project wetland identification and/or delineation. The NWI maps for this area can be viewed at <http://www.fws.gov/wetlands/Data/Mapper.html>.

The study area encompasses portions of the Yellowstone River and several other drainages with associated wetland areas. This report does not provide a complete determination and/or delineation of wetlands in the study area. Formal wetland delineations will need to be conducted according to standard USACE procedures if improvement options are forwarded from the study. Jurisdictional wetland determinations will need to be conducted during the project development process.

Wetland impacts should be avoided to the greatest extent practicable. All unavoidable impacts to wetlands would need to be permitted and mitigated as required by the CWA and in accordance with Federal Highway Administration (FHWA) and MDT policies and Executive Order (EO) 11990. Coordination with USACE should be conducted during the project development process to obtain any needed permits, including a CWA Section 404 permit and Section 10 permit.

2.5 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 23 CFR 650 Part A require an evaluation of project alternatives to determine the extent of any encroachment into the base floodplain. The base flood (100-year flood) is the regulatory standard used by federal agencies and most states to administer floodplain management programs. A “floodplain” is defined as lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, with a one percent or greater chance of flooding in a given year. As described in FHWA’s floodplain regulation (23 CFR 650 Part A), floodplains provide natural and beneficial values serving as areas for fish, wildlife, plants, open space, natural flood moderation, water quality maintenance, and groundwater recharge.

Within the study corridor, I-90 encroaches into the 100-year floodplain for the Yellowstone River delineated by the Federal Emergency Management Agency (FEMA). FEMA is in the process of updating its floodplain mapping within the Billings area. Floodplain impacts should be avoided to the greatest extent practicable. If improvement options are forwarded from the



study, coordination with Yellowstone County should be conducted during the project development process to obtain floodplain permits as necessary.

Additional information related to floodplains within the study area can be found on pages 148-151 of the Yellowstone County and City of Billings 2008 Growth Policy Update, which can be viewed at http://www.co.yellowstone.mt.gov/planning/growthproject/GrowthPolicy_2008.pdf.

2.6 Hazardous Substances

The Montana Natural Resource Information System (NRIS) database was searched for leaking underground storage tank (LUST) sites, abandoned mine sites, DEQ remediation response sites, landfills, USEPA National Priority List (NPL) sites, hazardous waste, and liquid petroleum pipelines within the study corridor. Where available, site facility addresses were confirmed using Google Maps.

As listed in Table 2.2, sixteen (16) petroleum release sites were identified within the I-90 study corridor. The majority of these sites are active and former commercial gasoline stations and truck stops. Table 2.3 lists the seven (7) sites identified in the DEQ Site Response Section database accessed via NRIS.

In addition to the sites listed in Tables 2.2 and 2.3, there are two active refinery sites in the corridor that have ongoing USEPA Resource Conservation and Recovery Act (RCRA) investigations and corrective actions. I-90 crosses through the Lockwood Solvent Site, a federal NPL Superfund site. Portions of the solvent plume originated from the Beall Trailer, Inc. facility and extend under I-90 from the US 87 Interchange to the east approximately one mile. Appendix 6 contains a map illustrating hazardous materials sites within the corridor.

Petroleum pipelines enter the Billings area from several directions and are connected to the Cenex Laurel Refinery, the Conoco-Phillips Refinery, and the Exxon-Mobil Refinery. The lines in close proximity to I-90 generally follow the Burlington Northern Santa Fe (BNSF) rail corridor. NRIS data indicate a 12-inch petroleum liquid pipeline crosses under I-90 at the Laurel Interchange and another 12-inch petroleum liquid line crosses under I-90 approximately 5 miles east of Laurel. Although not identified on NRIS, a third line of unknown diameter crosses under I-90 in Lockwood at the US 87 Interchange.



Further evaluation may be needed at specific sites to determine the exact location of facilities of concern and if soil or groundwater contamination could be encountered during construction. This may include reviewing DEQ files and conducting a subsurface investigation to determine the extent of soil and groundwater contamination. If contaminated soils or groundwater are encountered during construction, handling and disposing of the contaminated material will be conducted in accordance with applicable state, federal, and local laws and rules.

Table 2.2 DEQ Leaking Underground Storage Tank Sites

Facility Name	Address	DEQ Facility ID No.	DEQ Leak No.
Cenex Convenience Store	315 S 1st Avenue, Laurel	5608161	2574
Montana Rail Link Laurel	1923 Shannon Rd., Laurel	NA	1559, 2377, 2497, 2854
Pelican Truck Plaza	11360 S. Frontage Rd., Laurel	5600626	3502, 3903, 4543, 4546
Tomahawk Transportation	10142 Rudio Rd., Billings	5604999	412
Market Basket Store	8014 S. Frontage Rd., Billings	5608286	2758
Elk River Concrete	4240 Neibauer Rd., Billings	5605418	4549
Tractor & Equipment Co.	1835 Harnish Blvd., Billings	5603892	874
Old Ford Tractor Building	6400 S. Frontage Rd., Billings	5611795	975
Trading Post Conoco	1225 Mallowney Ln., Billings	5606963	2404, 3978
Yellowstone Co. Road Dept.	3321 King Ave. E., Billings	5603658	896, 2930
Town Pump Billings No. 3	1028 US Hwy 87 E, Billings	5600767	1080
Pierce Truck Equipment	1635 N Frontage Rd., Billings	5600117	2278
Meyer Construction Co.	2210 Old Hardin Rd., Billings	5601283	1078
Billings Livestock Commission	2443 N. Frontage Rd., Billings	5613776	3109
Flying J Plaza	2775 Old Hardin Rd., Billings	5612585	2196, 4400, 4548, 4600, 4604, 4607
E Z Shoppe	I-90 and Lockwood Interchange, Billings	5605549	574



Table 2.3 DEQ Site Response Section Facilities

Facility Name	Address	Program
Cenex Laurel Refinery	S of I-90 Laurel Interchange	HWA, CECRA, WQA
BNSF Laurel Facility	NE of I-90 Laurel Interchange	VCRA, CECRA
Conoco Pipeline Release	NE of I-90 Laurel Interchange	WQA
Coffman Lumber & Treatment Co	6540 South Frontage Road Billings	CECRA
General Electric	6540 South Frontage Road Billings	CECRA
Cummins Rocky Mountain	5151 Midland Road Billings	WQA
Motor Power Equipment	4941 Midland Rd Billings	WQA

Notes: HWA = Hazardous Waste Act

CECRA = Comprehensive Environmental Cleanup and Responsibility Act

VCRA = Voluntary Cleanup and Redevelopment Act

WQA = Water Quality Act

2.7 Air Quality

Portions of the study corridor are located within the Billings carbon monoxide (CO) designated re-attainment area (2002). The corridor also traverses the former sulfur dioxide (SO₂) area of concern, which is no longer legally designated as a nonattainment area. If improvement options are forwarded from the study, an air quality analysis may be required.



3.0 BIOLOGICAL RESOURCES

Biological resources in the study corridor were identified using maps; aerial photographs; the endangered, threatened, proposed, and candidate species list for Montana counties (January 2011) from the USFWS; Montana Natural Heritage Program (MNHP) data; and windshield surveys of the project site. This limited survey is in no way intended to be a complete and accurate biological survey of the study area. If improvement options are forwarded from the study, a complete biological survey of the study area will be completed in accordance with accepted MDT practices during the project development process.

3.1 Fish and Wildlife

No field work was conducted for this study to identify general fish and wildlife resources in the study area; a survey will need to be conducted during the project development process if improvement options are forwarded from the study. The Montana Department of Fish, Wildlife, & Parks (FWP) should be contacted during the project development process for local expertise of the study area. Riparian and river, stream or creek habitats should be avoided to the greatest extent practicable, including but not limited to, the Yellowstone River riparian and river habitat. Fish and wildlife species use waterway corridors during all life stages. Encroachment into the wetted width and waterway and the associated riparian habitat should be avoided and minimized to the greatest extent practicable. It is recommended that a riparian corridor remain on both sides of waterways to facilitate wildlife movement along the river corridor.

3.1.1 Threatened and Endangered Wildlife Species

The federal list of endangered and threatened species is maintained by the USFWS. Species on this list receive protection under the Endangered Species Act (ESA). The term “endangered” indicates a species that is in danger of extinction throughout all or a significant portion of its range, while the term “threatened” indicates a species that is likely to become endangered in the foreseeable future. The USFWS also maintains a list of species that are candidates or proposed for possible addition to the federal list.

The endangered, threatened, proposed, and candidate species list for Montana counties (January 2011) was downloaded from the USFWS website on May 16, 2011. This list generally identifies the counties where one would reasonably expect the species to occur, although not necessarily every county where the species is listed.



There are five endangered, threatened, proposed, or candidate animal species listed for Yellowstone County, as presented in Table 3.1.

Table 3.1 Threatened and Endangered Species in Yellowstone County

Scientific Name	Common Name	Federal Status
<i>Anthus spragueii</i>	Sprague’s Pipit	Candidate
<i>Centrocercus urophasianus</i>	Greater Sage Grouse	Candidate
<i>Charadrius montanus</i>	Mountain Plover	Proposed
<i>Grus Americana</i>	Whooping Crane	Endangered
<i>Mustela nigripes</i>	Black-footed Ferret	Endangered

Source: USFWS, 2011.

No endangered, threatened, proposed, or candidate animal species are located within the study corridor. If improvement options are forwarded from the study, an evaluation of potential impacts to all endangered, threatened, proposed, or candidate species will need to be completed during the project development process.

3.1.2 Wildlife and Fish Species of Concern

Montana animal species of concern are native animals breeding in the state that are considered to be “at risk” due to declining population trends, threats to their habitats, and/or restricted distribution. Designation of a species as a Montana animal species of concern is not a statutory or regulatory classification. Instead, these designations provide a basis for resource managers and decision-makers to direct limited resources to priority data collection needs and address conservation needs proactively. Each species is assigned a state rank that ranges from S1 (greatest concern) to S5 (least concern). Other state ranks include SU (unrankable due to insufficient information), SH (historically occurred), and SX (believed to be extinct). State ranks may be followed by modifiers, such as B (breeding), N (non-breeding), or M (migratory).

Table 3.2 lists the animal species of concern for which the MNHP has records in Yellowstone County as of October 2010. These results are not intended as a final assessment of sensitive species within a given area, or as a substitute for on-site surveys. If improvement options are forwarded from the study, on-site surveys will need to be completed during the project development process.



Table 3.2 Animal Species of Concern in Yellowstone County

Group Name	Scientific Name	Common Name	State Rank
Mammals	<i>Corynorhinus townsendii</i>	Townsend's Big-eared Bat	S2
	<i>Cynomys ludovicianus</i>	Black-tailed Prairie Dog	S3
	<i>Euderma maculatum</i>	Spotted Bat	S2
Birds	<i>Ammodramus bairdii</i>	Baird's Sparrow	S3B
	<i>Ammodramus savannarum</i>	Grasshopper Sparrow	S3B
	<i>Aquila chrysaetos</i>	Golden Eagle	S3
	<i>Ardea herodias</i>	Great Blue Heron	S3
	<i>Athene cunicularia</i>	Burrowing Owl	S3B
	<i>Botaurus lentiginosus</i>	American Bittern	S3B
	<i>Buteo regalis</i>	Ferruginous Hawk	S3B
	<i>Calcarius ornatus</i>	Chestnut-collared Longspur	S2B
	<i>Carpodacus cassinii</i>	Cassin's Finch	S3
	<i>Catharus fuscescens</i>	Veery	S3B
	<i>Chlidonias niger</i>	Black Tern	S3B
	<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	S3B
	<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo	S3B
	<i>Dolichonyx oryzivorus</i>	Bobolink	S3B
	<i>Falco peregrinus</i>	Peregrine Falcon	S3
	<i>Gymnorhinus cyanocephalus</i>	Pinyon Jay	S3
	<i>Haliaeetus leucocephalus</i>	Bald Eagle	S3
	<i>Himantopus mexicanus</i>	Black-necked Stilt	S3B
	<i>Lanius ludovicianus</i>	Loggerhead Shrike	S3B
	<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	S3B
<i>Nucifraga columbiana</i>	Clark's Nutcracker	S3	
<i>Rhynchophanes mccownii</i>	McCown's Longspur	S3B	
<i>Spizella breweri</i>	Brewer's Sparrow	S3B	
<i>Tympanuchus phasianellus</i>	Sharp-tailed Grouse	S1,S4	
Reptiles	<i>Apalone spinifera</i>	Spiny Softshell	S3
	<i>Chelydra serpentina</i>	Snapping Turtle	S3



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Group Name	Scientific Name	Common Name	State Rank
Reptiles	<i>Heterodon nasicus</i>	Western Hog-nosed Snake	S2
	<i>Lampropeltis triangulum</i>	Milksnake	S2
	<i>Phrynosoma hernandesi</i>	Greater Short-horned Lizard	S3
	<i>Sceloporus graciosus</i>	Common Sagebrush Lizard	S3
Amphibians	<i>Rana pipiens</i>	Northern Leopard Frog	S1,S4
	<i>Spea bombifrons</i>	Plains Spadefoot	S3
Fish	<i>Oncorhynchus clarkii bouvieri</i>	Yellowstone Cutthroat Trout	S2
	<i>Sander canadensis</i>	Sauger	S2

Source: MNHP, 2011.

Table 3.3 lists the animal species of concern documented by the MNHP within three miles of the study area as of October 2010. As noted previously, these results are not intended as a final assessment of sensitive species within a given area, or as a substitute for on-site surveys. If improvement options are forwarded from the study, on-site surveys will need to be completed during the project development process.



Table 3.3 Animal Species of Concern Documented within Three Miles of Study Area

Group Name	Scientific Name	Common Name	State Rank
Mammals	<i>Euderma maculatum</i>	Spotted Bat	S2
Birds	<i>Ardea herodias</i>	Great Blue Heron	S3
	<i>Catharus fuscescens</i>	Veery	S3B
	<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	S3B
	<i>Falco peregrinus</i>	Peregrine Falcon	S3
	<i>Gymnorhinus cyanocephalus</i>	Pinyon Jay	S3
	<i>Haliaeetus leucocephalus</i>	Bald Eagle	S3
	<i>Spizella breweri</i>	Brewer's Sparrow	S3B
Reptiles	<i>Apalone spinifera</i>	Spiny Softshell	S3
	<i>Heterodon nasicus</i>	Western Hog-nosed Snake	S2
	<i>Lampropeltis triangulum</i>	Milksnake	S2
	<i>Phrynosoma hernandesi</i>	Greater Short-horned Lizard	S3
	<i>Sceloporus graciosus</i>	Common Sagebrush Lizard	S3
Fish	<i>Oncorhynchus clarkii bouvieri</i>	Yellowstone Cutthroat Trout	S2
	<i>Sander canadensis</i>	Sauger	S2

Source: MNHP, 2011.

3.1.3 Wildlife and Traffic Concerns

During the project development process, MDT will coordinate with the FWP wildlife biologists for the area to determine what measures, if any, are needed to address wildlife crossings within the corridor.

3.2 Vegetation

Native vegetation in the study area generally consists of wetland and riparian areas along waterways and sagebrush/grasslands in the upland areas. The remaining vegetation consists of cultivated crop land.

3.2.1 Threatened and Endangered Plant Species

As noted previously, the federal list of endangered and threatened species is maintained by the USFWS. Species on this list receive protection under ESA. As with animal species, the term



“endangered” indicates a species that is in danger of extinction throughout all or a significant portion of its range, while the term “threatened” indicates a species that is likely to become endangered in the foreseeable future. The USFWS also maintains a list of species that are candidates or proposed for possible addition to the federal list.

The endangered, threatened, proposed, and candidate plant species list for Montana counties (January 2011) was downloaded from the USFWS website on May 16, 2011. This list generally identifies the counties where one would reasonably expect the plant species to occur, not necessarily every county where the species is listed.

There are no endangered, threatened, proposed, or candidate plant species listed for Yellowstone County, and none are currently expected to occur in the study area. If improvement options are forwarded from the study, an evaluation of potential impacts to all endangered, threatened, proposed, or candidate plant species will need be conducted during the project development process.

3.2.2 Plant Species of Concern

Montana plant species of concern are native plants in the state that are considered to be “at risk” due to declining population trends, threats to their habitats, and/or restricted distribution. As with animal species, designation of a species as a Montana plant species of concern is not a statutory or regulatory classification. Instead, these designations provide a basis for resource managers and decision-makers to direct limited resources to priority data collection needs and address conservation needs proactively. Each species is assigned a state rank that ranges from S1 (greatest concern) to S5 (least concern). Other state ranks include SU (unrankable due to insufficient information), SH (historically occurred), and SX (believed to be extinct). State ranks may be followed by modifiers, such as B (breeding), N (non-breeding).

Table 3.4 lists the plant species of concern documented by the MNHP in Yellowstone County as of October 2010. 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 assessment of sensitive species within a given area, or as a substitute for on-site surveys. If improvement options are forwarded from the study, on-site surveys will need to be completed during the project development process.



Table 3.4 Plant Species of Concern in Yellowstone County

Scientific Name	Common Name	State Rank
<i>Ipomoea leptophylla</i>	Bush morning-glory	S1S2
<i>Rorippa calycina</i>	Persistent-sepal Yellow-cress	S1

Source: MNHP, 2011.

No plant species of concern have been documented within three miles of the study area. If improvement options are forwarded from the corridor study, the MNHP should be contacted to determine if any new plant species of concern have been documented in the study area and on-site surveys will need to be completed during the project development process to determine any potential impacts to listed plant species of concern.

3.2.3 Noxious Weeds

Noxious weeds can degrade habitat, choke streams, crowd native plants, create fire hazards, poison and injure livestock and humans, and foul recreation sites. Areas with a history of disturbance are at particular risk of weed encroachment. There are 33 noxious weeds in Montana, as designated by the Montana Statewide Noxious Weed List (effective January 2010).

If improvement options are forwarded from the study, the study area will need to be surveyed for noxious weeds during the project development process. Any construction activities resulting from a forwarded project should abide by the MDT Roadside Vegetation Management Plan – Integrated Weed Management Component, dated April 2006. County Weed Control Supervisors should be contacted prior to any construction activities regarding specific measures for weed control. To reduce the spread and establishment of noxious weeds and to re-establish permanent vegetation, areas disturbed by any project will be seeded with desirable plant species.



4.0 SOCIAL AND CULTURAL RESOURCES

4.1 Demographic Information

To provide a context in which to evaluate social impacts, characteristics of the existing population within the study corridor are presented in Table 4.1 and Table 4.2.

Table 4.1 Demographic Information

Area	Population (2000)	Population (2010)	Population Change (2000 to 2010)	Median Household Income (2008)	Percent of Persons Below Poverty (2008)
Yellowstone County	129,352	147,972	18,620	\$49,337	10.80%
Montana	902,195	989,415	87,220	\$43,948	14.1%
USA	281,421,906	308,745,538	27,323,632	\$52,029	13.2%

Sources: US Census Bureau State & County QuickFacts; U.S. Census 2000 and 2010.

As shown in Table 4.1, the population in Yellowstone County has increased since 2000. Yellowstone County residents have a higher median household income compared to Montana as a whole, which can be generally attributed to the fact that Billings, the largest population center in the state, is located in Yellowstone County.

Table 4.2 Racial Composition (2010)

Racial Groups	State of Montana		Yellowstone County		City of Billings	
	Number	Percent	Number	Percent	Number	Percent
White	884,961	89.4%	134,228	90.7%	93,313	89.6%
Black of African American	4,027	0.4%	935	0.6%	828	0.8%
American Indian and Alaska Native	62,555	6.3%	5,881	4.0%	4,619	4.4%
Asian	6,253	0.6%	939	0.6%	778	0.7%
Native Hawaiian and Other Pacific Islander	668	0.1%	114	0.1%	93	0.1%
Some Other Race	5,975	0.6%	1,763	1.2%	1,467	1.4%
Two or More Races	24,976	2.5%	4,112	2.8%	3,072	2.9%
Total Population	989,415	100%	147,972	100%	104,170	100%

Source: U.S. Census Bureau, 2010.



As presented in Table 4.2, the racial makeup of Yellowstone County and the City of Billings is primarily white, which is consistent with the state as a whole.

4.2 Environmental Justice

Title VI of the US Civil Rights Act of 1964, as amended (USC 2000(d)) and Executive Order (EO) 12898 require that no minority or 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 resulting from a project.

Minority and low-income persons likely live within the study corridor. If improvement options are forwarded from the study, Environmental Justice will need to be further evaluated during the project development process to determine if these populations are disproportionately adversely affected.

4.3 Cultural and Archaeological Resources

Federally-funded projects forwarded from the study would require a cultural resource survey of the Area of Potential Effect (APE) as specified in Section 106 of the National Historic Preservation Act (NHPA) (36 CFR 800). Section 106 requires federal agencies to “take into account the effects of their undertakings on historic properties.” The purpose of the Section 106 process is to identify historic properties that could be affected by the undertaking, assess the effects of the project and investigate methods to avoid, minimize or mitigate adverse effects on historic properties. Special protections to these properties are afforded under Section 4(f) of the Transportation Act.

A windshield survey of the study area revealed at least eleven historic or potentially historic sites within 300 feet of the existing alignment. Table 4.3 lists the sites, their approximate locations and National Register of Historic Places (NRHP) eligibility. Six of the sites have not been previously recorded and their NRHP status would need to be determined during the project development process. There are also several historic-age residences north of the Interstate between the South Billings Boulevard and South 27th Street interchanges (segment 5). If improvements are proposed in this area, it will need to be determined if these properties lie within the 300-foot limit.



With the exception of the Coulson Townsite (located in segment 6), the study corridor is substantially developed and there is a low likelihood of finding any intact archaeological sites within the corridor. Appendix 6 contains a map illustrating historic sites within the corridor.

Table 4.3 Known and Potential Cultural Resources within the Study Area

Site	Site No.	Section	Township	Range	NRHP Eligible	RP±
Italian Ditch	24YL663	16	2S	24E	Yes	434.0
Canyon Creek Ditch	Unrecorded	11 & 12	2S	24E	Unknown	436.9
Mossmain Overpass	24YL698	1 & 12	2S	24E	Yes	437.0
BBWA Canal & Laterals	24YL161	6	2S	25E	Yes	438.3
Northern Pacific Railway	24YL277	*	*	*	Yes	*
Old KGHL Building	Unrecorded	23	1S	25E	Unknown	442.7
Suburban Ditch	24YL659	16 & 17	1S	26E	Yes	448.4
Eagle Ditch	Unrecorded	16	1S	26E	Unknown	448.6
Grey Eagle Ditch	Unrecorded	15	1S	26E	Unknown	449.0
Coulson Townsite	Unrecorded	35	1N	26E	Unknown	451.8
Lockwood Ditch	Unrecorded	35	1N	26E	Unknown	453.0

Source: MDT, 2011.

*Northern Pacific Railway located throughout study corridor.

If improvement options are forwarded from the study, a cultural resource survey would need to be completed during the project development process to identify all recorded and unrecorded historic properties within the Area of Potential Effect. Impacts to significant cultural and archaeological resources should be avoided or minimized to the greatest extent practicable.

4.4 Land Ownership

Geographic Information System (GIS)-based information was reviewed to assess the amount of area in the study corridor that is publicly versus privately owned. The land within the study corridor is a mix of agricultural and ranch land, and urban land including commercial and residential developments. Maps showing land ownership by type are included in Appendix 7.

4.5 Protected Resources

Database and field reviews were conducted to determine the presence of Section 4(f) and Section 6(f) properties within the corridor.



4.5.1 Section 4(f) Resources

Section 4(f) refers to the original section within the Department of Transportation Act of 1966 (49 USC 303), which established the requirement for consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development. Prior to approving a project that “uses” a Section 4(f) resource, FHWA must find that there is no prudent or feasible alternative that completely avoids Section 4(f) resources. A “use” can occur when land is permanently incorporated into a transportation facility or when there is a temporary occupancy of the land that is adverse to a Section 4(f) resource. Constructive “use” can also occur when a project’s proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are “substantially impacted.” Section 4(f) resource information was gathered by field observation, GIS review of public park lands, and review of the NRHP list for Yellowstone County. Possible Section 4(f) resources within the study corridor are listed in Table 4.4. Appendix 6 contains a map illustrating Section potential 4(f) resources within the corridor.



Table 4.4 Possible Section 4(f) Resources within the Study Area

Name	Type of 4(f) Resource	Location (RP±)
Italian Ditch	Historic	434.0
Canyon Creek Ditch	Historic	436.9
Mossmain Overpass	Historic	437.0
BBWA Canal & Laterals	Historic	438.3
Old KGHL Building	Historic	442.7
Southgate Park	Recreational	446.5 LT
Ponderosa Park	Recreational	447.75 LT
Ponderosa Elementary School	Recreational	448.0 LT
Kings Green Subdivision Park	Recreational	448.2 LT
Riverfront Park	Recreational	448.3 RT
Suburban Ditch	Historic	448.4
Eagle Ditch	Historic	448.6
Grey Eagle Ditch	Historic	449.0
Coulson Park	Recreational	451.5 RT
Coulson Townsite	Historic	451.8
Four Dances Natural Area	Recreational	452.25 RT
Lockwood Ditch	Historic	453.0
Shawnee Park	Recreational	456.3 RT
Northern Pacific Railway	Historic	NA

The Four Dances Natural Area is designated as a Special Recreation Management Area and Area of Critical Environmental Concern (ACEC). BLM's objectives for the site are the protection of open space and natural and cultural resources, while providing dispersed public recreation in Billings. Additional information about this site is available online at http://www.blm.gov/mt/st/en/fo/billings_field_office/four_dances.html.

4.5.2 Section 6(f) Resources

Section 6(f) of the Land and Water Conservation Funds Act (LWCF) applies to all projects that impact recreational lands purchased or improved with land and water conservation funds. The Secretary of the Interior must approve any conversion of property acquired or developed with



assistance under this Act to a use other than public outdoor recreation. Possible 6(f) resources within the study corridor are listed in Table 4.5

Table 4.5 Possible Section 6(f) Resources within the Study Area

Resource Name	Location (RP±)
Ponderosa Park	447.75 LT
Coulson Park	451.5 RT

Appendices 6 and 8 include maps illustrating possible Section 6(f) resources within the corridor.

4.6 Noise

There are a number of residential developments within proximity to the study corridor. In accordance with MDT policies, a noise analysis may be needed to identify impacts resulting from forwarded options such as adding travel lanes or changing lane configurations.

4.7 Visual Resources

Visual resources refer to the landscape character (what is seen), visual sensitivity (human preferences and values regarding what is seen), scenic integrity (degree of intactness and wholeness in landscape character), and landscape visibility (relative distance of seen areas) of a geographically defined view shed.

The study corridor lies within the Yellowstone River Valley and is framed on three sides by scenic mountain ranges. Within the Yellowstone River Valley, the Yellowstone River flows in a northeasterly direction and I-90 generally parallels its course, crossing the river once on the east end of Billings. Sandstone cliffs, from 300 to 500 feet high, form a landmark border known as the "Rimrocks" to the north and east of the city of Billings. In the Yellowstone County and City of Billings 2008 Growth Policy Update, the preservation of the view corridor created by the Rimrocks and protection of the Yellowstone River were targeted as ways to increase the aesthetic or visual quality of the community. The Growth Policy Update also includes creation of a visually appealing urban Interstate corridor in its implementation tools and strategies section.



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Additional information related to visual resources can be found on page 218 and 219 of the Yellowstone County and City of Billings 2008 Growth Policy Update, which can be found online at http://www.co.yellowstone.mt.gov/planning/growthproject/GrowthPolicy_2008.pdf.

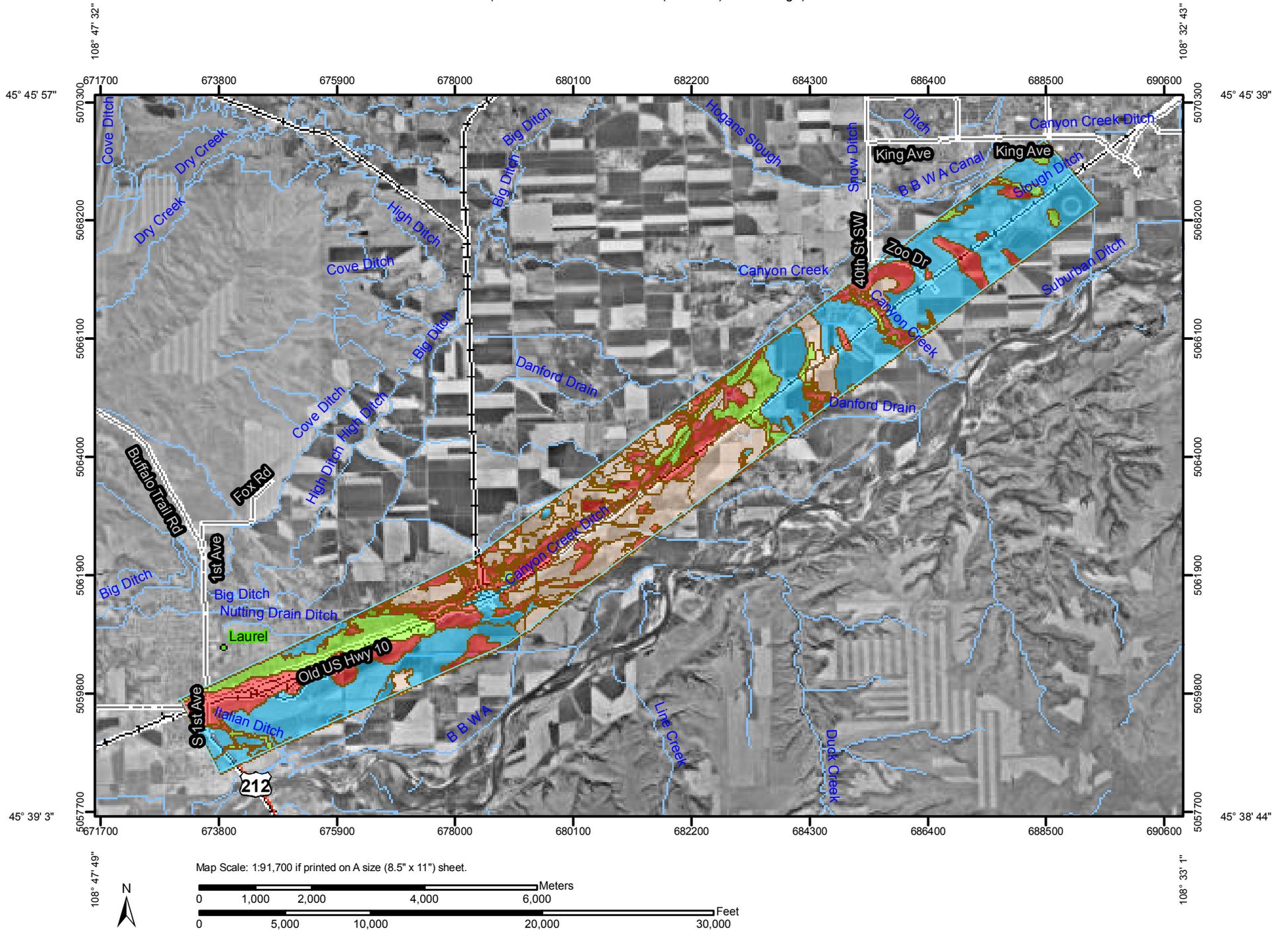


Appendix 1

Farmland Classification Maps



Farmland Classification—Yellowstone County, Montana
(I-90 - Laurel to the Pinehill (I-90/I-94) Interchange)



Farmland Classification—Yellowstone County, Montana
(I-90 - Laurel to the Pinehill (I-90/I-94) Interchange)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Units

Soil Ratings

 Not prime farmland

 All areas are prime farmland

 Prime farmland if drained

 Prime farmland if protected from flooding or not frequently flooded during the growing season

 Prime farmland if irrigated

 Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

 Prime farmland if irrigated and drained

 Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

 Prime farmland if subsoiled, completely removing the root inhibiting soil layer

 Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

 Prime farmland if irrigated and reclaimed of excess salts and sodium

 Farmland of statewide importance

 Farmland of local importance

 Farmland of unique importance

 Not rated or not available

Political Features

 Cities

Water Features

 Oceans

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

MAP INFORMATION

Map Scale: 1:91,700 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 12N NAD83

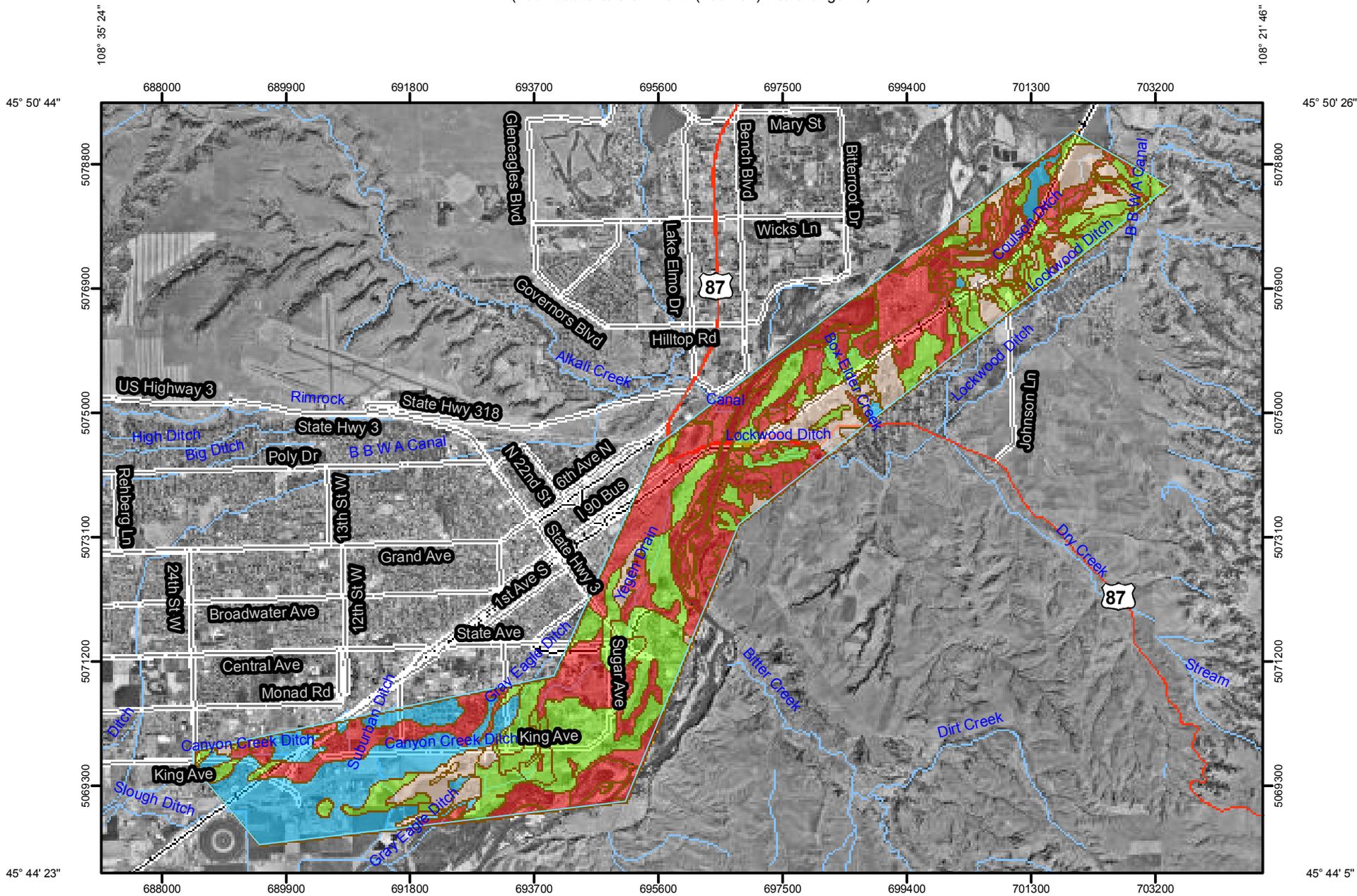
This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Yellowstone County, Montana
Survey Area Data: Version 8, Jan 6, 2010

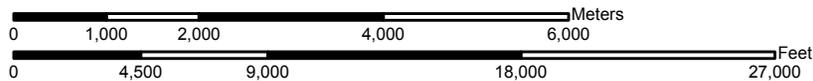
Date(s) aerial images were photographed: 8/23/1996

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Farmland Classification—Yellowstone County, Montana
(I-90 - Laurel to the Pinehill (I-90/I-94) Interchange - 2)



Map Scale: 1:84,300 if printed on A size (8.5" x 11") sheet.



MAP LEGEND

Area of Interest (AOI)

-  Area of Interest (AOI)

Soils

-  Soil Map Units

Soil Ratings

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

Political Features

-  Cities

Water Features

-  Oceans
-  Streams and Canals

Transportation

-  Rails
-  Interstate Highways

-  US Routes
-  Major Roads

MAP INFORMATION

Map Scale: 1:84,300 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 12N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Yellowstone County, Montana
Survey Area Data: Version 8, Jan 6, 2010

Date(s) aerial images were photographed: 8/23/1996;
8/10/1996

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Farmland Classification

Farmland Classification— Summary by Map Unit — Yellowstone County, Montana				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Al	Alluvial land, mixed	Not prime farmland	0.9	0.0%
Am	Alluvial land, seeped	Not prime farmland	62.7	0.9%
An	Alluvial land, wet	Not prime farmland	202.6	2.9%
Ax	Arvada-Bone silty clay loams, 0 to 1 percent slopes	Not prime farmland	11.5	0.2%
Bm	Bew silty clay loam, 0 to 1 percent slopes	Prime farmland if irrigated	183.6	2.6%
Bo	Bew clay, 1 to 4 percent slopes	Farmland of statewide importance	0.3	0.0%
Bt	Bone silty clay, 0 to 1 percent slopes	Not prime farmland	7.8	0.1%
Cg	Clapper gravelly loam, 7 to 15 percent slopes	Not prime farmland	27.0	0.4%
GP	Gravel pit	Not prime farmland	42.9	0.6%
Ha	Haverson loam, 0 to 1 percent slopes	Farmland of statewide importance	219.4	3.1%
Hb	Haverson loam, clay substratum, 0 to 1 percent slopes	Farmland of statewide importance	9.4	0.1%
Hd	Haverson silty clay loam, 0 to 1 percent slopes	Farmland of statewide importance	28.3	0.4%
He	Haverson silty clay loam, 1 to 3 percent slopes	Farmland of statewide importance	22.9	0.3%
Hi	Haverson and Lohmiller soils, 0 to 4 percent slopes	Not prime farmland	20.3	0.3%
Hm	Haverson and Lohmiller soils, channeled, 0 to 35 percent slopes	Not prime farmland	63.1	0.9%
Hx	Hysham-Laurel loams, 0 to 2 percent slopes	Not prime farmland	4.4	0.1%
Hy	Hysham-Laurel silty clay loams, 0 to 2 percent slopes	Not prime farmland	20.0	0.3%
Kc	Keiser silty clay loam, 0 to 1 percent slopes	Not prime farmland	6.6	0.1%
Ke	Keiser silty clay loam, 1 to 4 percent slopes	Not prime farmland	0.4	0.0%
Kh	Keiser and Hesper silty clay loams, 0 to 1 percent slopes	Not prime farmland	303.2	4.3%
Km	Kyle silty clay, 1 to 4 percent slopes	Not prime farmland	2.6	0.0%
La	Lambert silt loam, 1 to 4 percent slopes	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60	14.6	0.2%

Farmland Classification— Summary by Map Unit — Yellowstone County, Montana				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Lb	Lambert silt loam, 4 to 7 percent slopes	Farmland of statewide importance	50.0	0.7%
Lc	Lambert silt loam, 7 to 15 percent slopes	Not prime farmland	6.4	0.1%
Ld	Lambert soils, 7 to 35 percent slopes	Not prime farmland	20.6	0.3%
Le	Larim loam, 0 to 4 percent slopes	Not prime farmland	43.7	0.6%
Lg	Larim gravelly loam, 0 to 4 percent slopes	Not prime farmland	175.8	2.5%
Lh	Larim gravelly loam, 4 to 7 percent slopes	Not prime farmland	14.9	0.2%
Li	Larim gravelly loam, 15 to 35 percent slopes	Not prime farmland	121.2	1.7%
Lr	Lohmiller silty clay, 0 to 1 percent slopes	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60	2,732.2	38.7%
Ls	Lohmiller soils, seeped, 0 to 2 percent slopes	Farmland of statewide importance	395.1	5.6%
Lv	Lohmiller silty clay, gravelly variant, 0 to 1 percent slopes	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60	196.3	2.8%
Mm	McRae loam, 0 to 1 percent slopes	Prime farmland if irrigated	152.1	2.2%
Mn	McRae loam, 1 to 4 percent slopes	Prime farmland if irrigated	39.1	0.6%
Mo	McRae loam, 4 to 7 percent slopes	Farmland of statewide importance	20.5	0.3%
So	Shorey gravelly loam, 1 to 4 percent slopes	Farmland of statewide importance	4.3	0.1%
Te	Toluca clay loam, 0 to 1 percent slopes	Prime farmland if irrigated	127.4	1.8%
Th	Toluca clay loam, 1 to 4 percent slopes	Prime farmland if irrigated	28.1	0.4%
Tm	Toluca clay loam, 4 to 7 percent slopes	Farmland of statewide importance	36.4	0.5%
Tn	Toluca and Wanetta clay loams, 0 to 2 percent slopes	Prime farmland if irrigated	406.1	5.7%
To	Toluca and Wanetta clay loams, 2 to 4 percent slopes	Prime farmland if irrigated	7.7	0.1%
Va	Vananda silty clay, 0 to 1 percent slopes	Not prime farmland	444.4	6.3%
W	Water	Not prime farmland	17.5	0.2%
Wc	Wanetta loam, 1 to 4 percent slopes	Prime farmland if irrigated	5.2	0.1%
We	Wanetta gravelly loam, 0 to 2 percent slopes	Prime farmland if irrigated	167.4	2.4%

Farmland Classification— Summary by Map Unit — Yellowstone County, Montana				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Wf	Wanetta clay loam, 0 to 1 percent slopes	Prime farmland if irrigated	475.3	6.7%
Wg	Wanetta clay loam, 1 to 4 percent slopes	Prime farmland if irrigated	47.1	0.7%
Wh	Wanetta-Larim clay loams, 0 to 1 percent slopes	Not prime farmland	57.9	0.8%
Wk	Wanetta-Larim clay loams, 1 to 4 percent slopes	Not prime farmland	17.1	0.2%
Totals for Area of Interest			7,063.7	100.0%

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options

Aggregation Method: No Aggregation Necessary

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The majority of soil attributes are associated with a component of a map unit, and such an attribute has to be aggregated to the map unit level before a thematic map can be rendered. Map units, however, also have their own attributes. An attribute of a map unit does not have to be aggregated in order to render a corresponding thematic map. Therefore, the "aggregation method" for any attribute of a map unit is referred to as "No Aggregation Necessary".

Tie-break Rule: Lower

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.



Appendix 2

Alluvium Geologic Map and Description

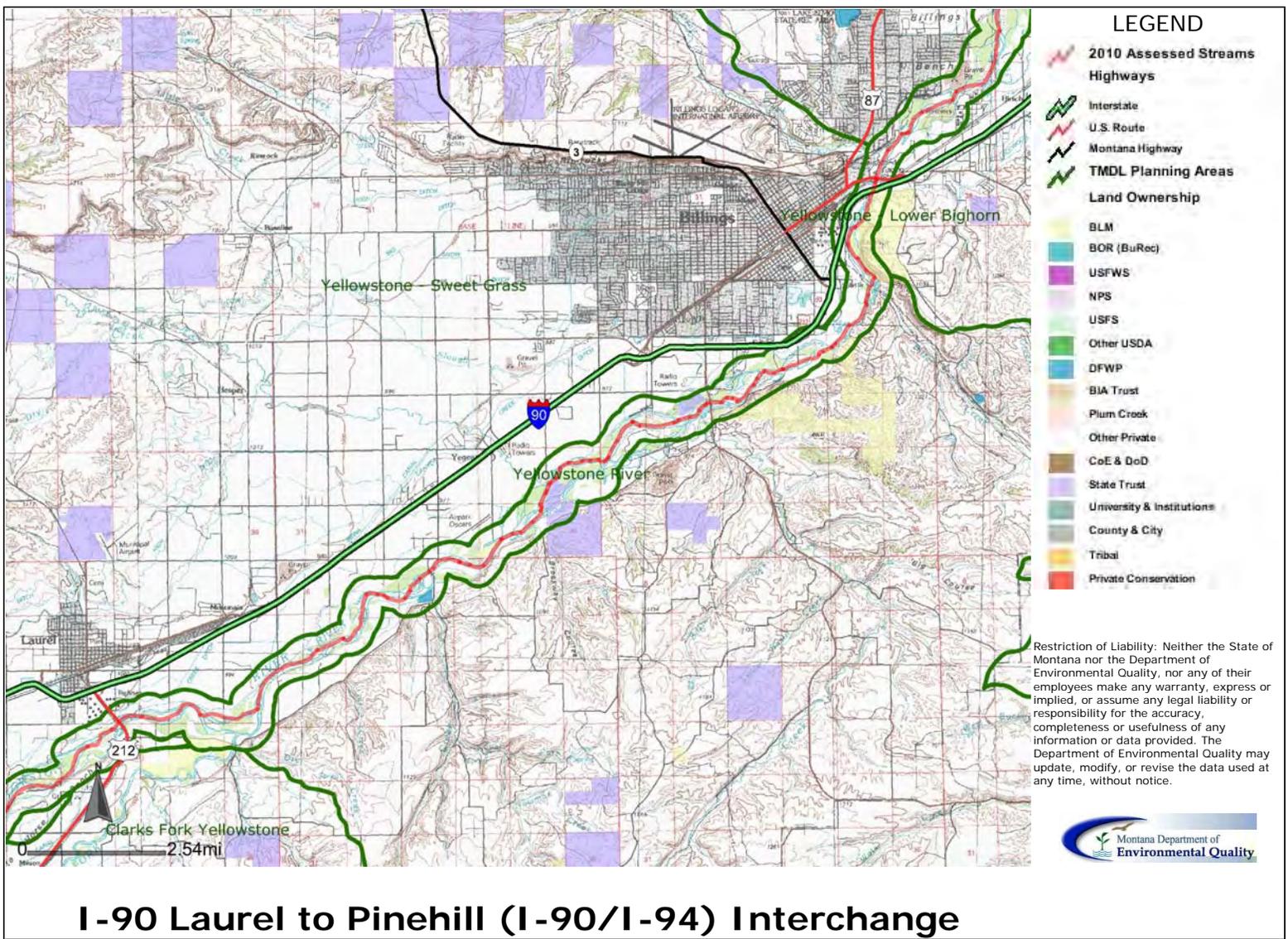




Appendix 3

DEQ 2010 Water Quality Information







Clean Water Act Information Center

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2010 Water Quality Information

Water Information

Waterbody Id	MT43F001_011	Water Type	RIVER
Name	Yellowstone River	Hydro Unit	10070004 - Upper Yellowstone-Lake Basin
Size (Miles/Acres)	19.7	Basin	Yellowstone
Ecoregion	Northwestern Great Plains	Watershed	Upper Yellowstone
County	YELLOWSTONE	Use Class	B-2
TMDL Planning Area	Yellowstone River	Trophic Status and Trend	NA
Location	YELLOWSTONE RIVER, City of Laurel PWS to City of Billings PWS		
Water Quality Category	5 - One or more uses are impaired and a TMDL is required.		

Beneficial Use Support Information

Use Name	Fully Supporting	Partially Supporting	Not Supporting	Threatened	Insufficient Information	Not Assessed
Agricultural	✓					
Aquatic Life			✓			
Cold Water Fishery					✓	
Drinking Water					✓	
Industrial	✓					
Primary Contact Recreation			✓			

Impairment Information

Probable Causes	Probable Sources	Associated Uses	TMDL Completed
Cause Unknown	Channelization Crop Production (Crop Land or Dry Land) Municipal Point Source Discharges Streambank Modifications/destablization	Aquatic Life	NO
Chlorophyll-a	Crop Production (Crop Land or Dry Land) Municipal Point Source Discharges	Aquatic Life Primary Contact Recreation	NO
Nitrate/Nitrite (Nitrite + Nitrate as N)	Crop Production (Crop Land or Dry Land) Municipal Point Source Discharges	Aquatic Life	NO
Other anthropogenic substrate alterations	Channelization Streambank Modifications/destablization	Aquatic Life	NO
Physical substrate habitat alterations	Channelization Streambank Modifications/destablization	Aquatic Life	NO

Assessment Information

Assessment Type	Associated Uses	Confidence
BIOLOGICAL	Aquatic Life Cold Water Fishery Primary Contact Recreation	FAIR
HABITAT	Primary Contact Recreation	FAIR
HABITAT	Aquatic Life Cold Water Fishery	GOOD

PHYSICAL/CHEMICAL	Agricultural Aquatic Life Cold Water Fishery Drinking Water Industrial Primary Contact Recreation	FAIR
Assessment Method		Associated Uses
Ambient toxicity testing (acute)	Aquatic Life	
Ambient toxicity testing (chronic)	Aquatic Life	
Benthic macroinvertebrate surveys	Aquatic Life	
Non-fixed station physical/chemical (conventional + toxicants)	Agricultural Drinking Water Industrial	
Primary producer surveys (phytoplankton/periphyton/macrophyton)	Aquatic Life Primary Contact Recreation	
Quan. measurements of instream parms, channel morphology, floodplain; 1-2 seasons; by prof	Aquatic Life Cold Water Fishery	

Comments

Overall Assessment	
NA	
Use	Comment
Cold Water Fishery	MT FWP did not provide an assessment of fishery quality, nor could it be readily interpreted from the fish data available. There have been major channel alterations along this reach over the past 45 years, and in some sub-reaches as much as 14% channel length has been lost. Channel armoring is extensive, up to 39% along the subreach just upstream of Billings. Channel alterations might be impacting fisheries, but the assessor could not determine this from the data, and conclude there is insufficient information to assess the cold-water fishery use.
Drinking Water	Drinking water could not be assessed because metals/bacteria data were too old, or for more recent data, there were no accompanying hardness data.
Cause	Comment
NA	NA
Source	Comment
NA	NA



Clean Water Act Information Center

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2010 Water Quality Information

Water Information

Waterbody Id	MT43F001_010	Water Type	RIVER
Name	Yellowstone River	Hydro Unit	10070007 - Upper Yellowstone-Pompeys Pillar
Size (Miles/Acres)	10.7	Basin	Yellowstone
Ecoregion	Northwestern Great Plains	Watershed	Middle Yellowstone
County	YELLOWSTONE	Use Class	B-3
TMDL Planning Area	Yellowstone River	Trophic Status and Trend	NA
Location	YELLOWSTONE RIVER, City of Billings PWS to Huntley Diversion Dam		
Water Quality Category	5 - One or more uses are impaired and a TMDL is required. 2B - Available data and/or information indicate that a water quality standard is exceeded due to an apparent natural source in the absence of any identified anthropogenic sources.		

Beneficial Use Support Information

Use Name	Fully Supporting	Partially Supporting	Not Supporting	Threatened	Insufficient Information	Not Assessed
Agricultural	✓					
Aquatic Life			✓			
Drinking Water			✓			
Industrial	✓					
Primary Contact Recreation			✓			
Warm Water Fishery			✓			

Impairment Information

Probable Causes	Probable Sources	Associated Uses	TMDL Completed
Arsenic	Natural Sources	Drinking Water	NO
Benthic-Macroinvertebrate Bioassessments	Agriculture Municipal Point Source Discharges	Aquatic Life	NO
Dissolved oxygen saturation	Agriculture Municipal Point Source Discharges	Aquatic Life Warm Water Fishery	NO
Excess Algal Growth	Agriculture Municipal Point Source Discharges	Aquatic Life Primary Contact Recreation Warm Water Fishery	NO
Nutrient/Eutrophication Biological Indicators	Agriculture Municipal Point Source Discharges	Aquatic Life Warm Water Fishery	NO
Periphyton (Aufwuchs) Indicator Bioassessments	Agriculture Municipal Point Source Discharges	Aquatic Life	NO
Solids (Suspended/Bedload)	Agriculture Municipal Point Source Discharges	Aquatic Life Warm Water Fishery	NO

Assessment Information

Assessment Type	Associated Uses	Confidence
BIOLOGICAL	Aquatic Life Warm Water Fishery	GOOD

HABITAT	Aquatic Life Warm Water Fishery	FAIR
PHYSICAL/CHEMICAL	Agricultural Drinking Water Industrial Primary Contact Recreation	FAIR
PHYSICAL/CHEMICAL	Aquatic Life Warm Water Fishery	GOOD
Assessment Method		Associated Uses
Benthic macroinvertebrate surveys	Aquatic Life	
Ecological/habitat surveys	Aquatic Life	
Fish surveys	Warm Water Fishery	
Fish tissue analysis	Warm Water Fishery	
Fixed station physical/chemical (conventional plus toxic pollutants)	Agricultural Aquatic Life Drinking Water Industrial Warm Water Fishery	
Primary producer surveys (phytoplankton/periphyton/macrophyton)	Aquatic Life Primary Contact Recreation Warm Water Fishery	
PWS pathogen monitoring (ambient water)	Drinking Water	
Quan. measurements of instream parms, channel morphology, floodplain; 1-2 seasons; by prof	Aquatic Life	
Sediment analysis	Aquatic Life Warm Water Fishery	

Comments

Overall Assessment	
This assessment unit is in two HUC4 basins and two state watersheds. The upper 2.2 miles extends into HUC 10070004 Upper Yellowstone-Big Lake Basin and Upper Yellowstone watershed. However, only the lower HUC4 and watershed are listed in the locations table.	
Use	Comment
Drinking Water	Arsenic exceeded the human health standard (10 ug/L) quite consistently, but is very likely natural from the geothermal sources of the river (arsenic, natural sources).
Cause	Comment
NA	NA
Source	Comment
NA	NA



Appendix 4

Historic Irrigation Maps



Township No. 2 South

Range No. 24 East

County Yellowstone

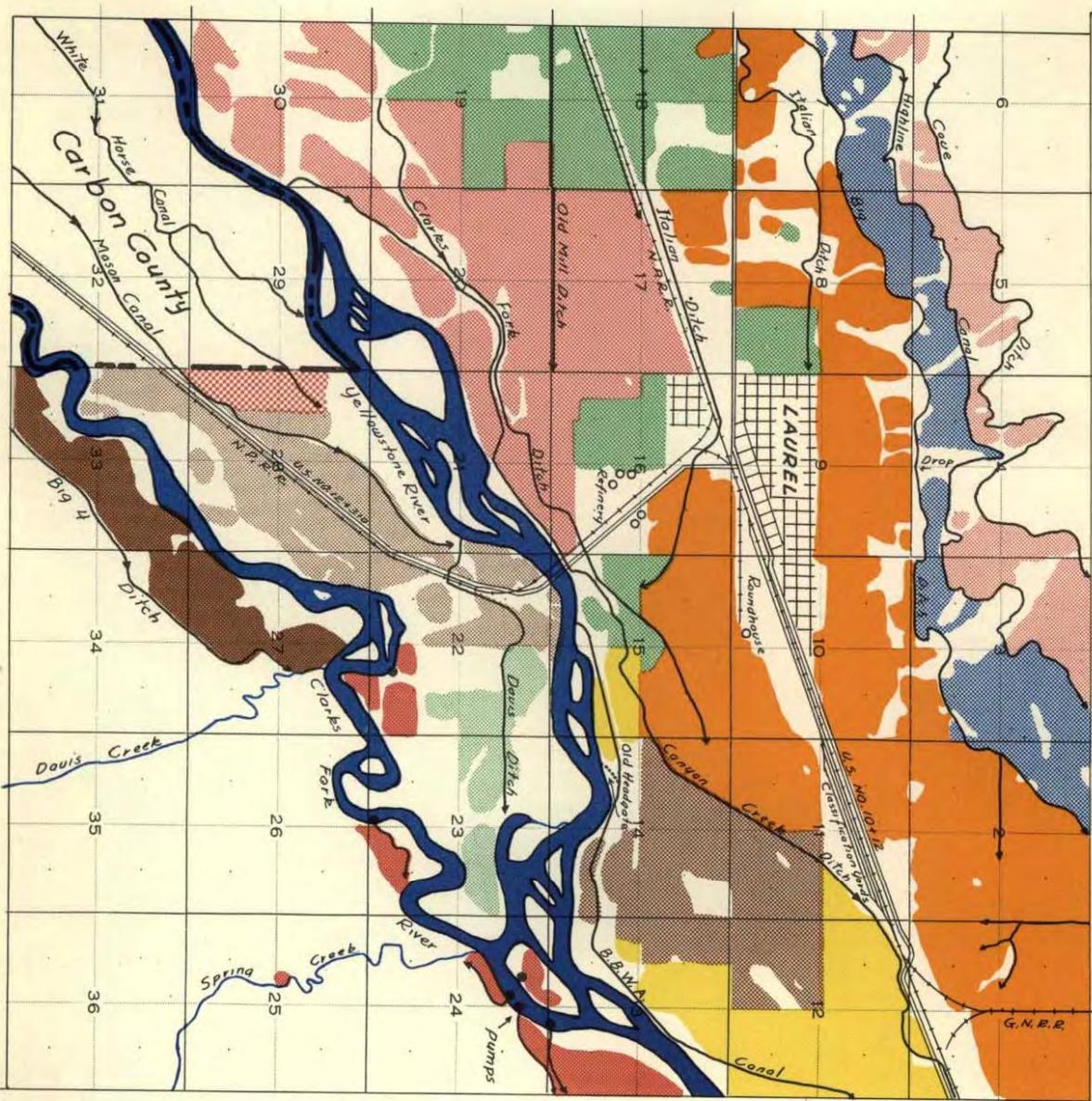
Published by

Billings Commercial Club

1943

T. 2 South
R. 24 East

T15 R23E
T15 R24E



T35 R24E
T35 R25E

LEGEND

- Big
- Canyon Creek Ditch
- Clarks Ford Ditch
- Cove
- Danford District
- Davis
- High
- Italian
- Old Mill
- White Horse
- Private Users
- Streams

Compiled by
The State Engineers Office
 As of January 1, 1943
 G. J. Oravetz in Charge of Survey

6

Township No. 1 South

Range No. 25 East

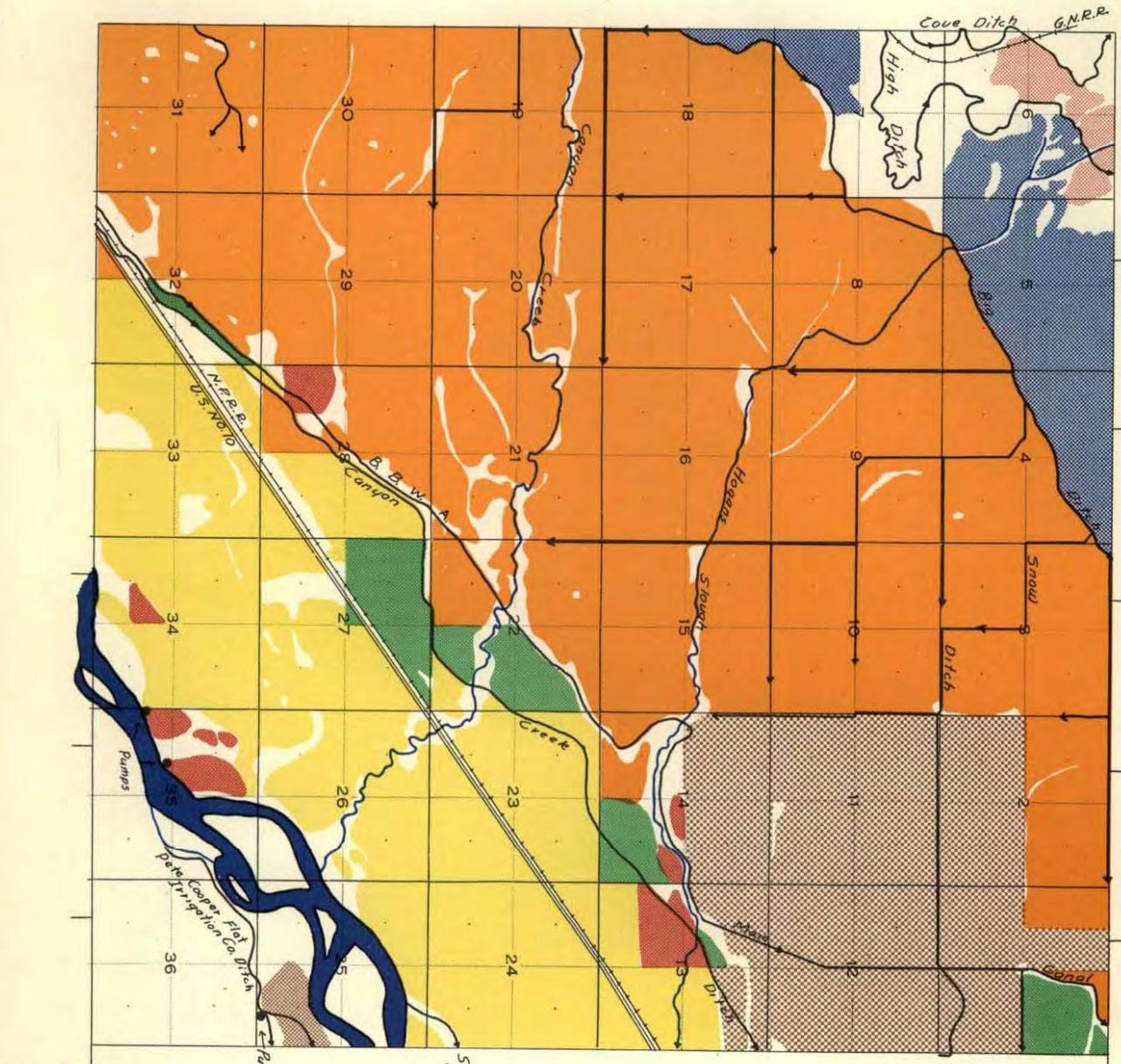
County Yellowstone

Published by
Billings Commercial Club
1943

T. 1 South
R. 25 East

T1N, R24E
T1N, R25E

T1N, R26E

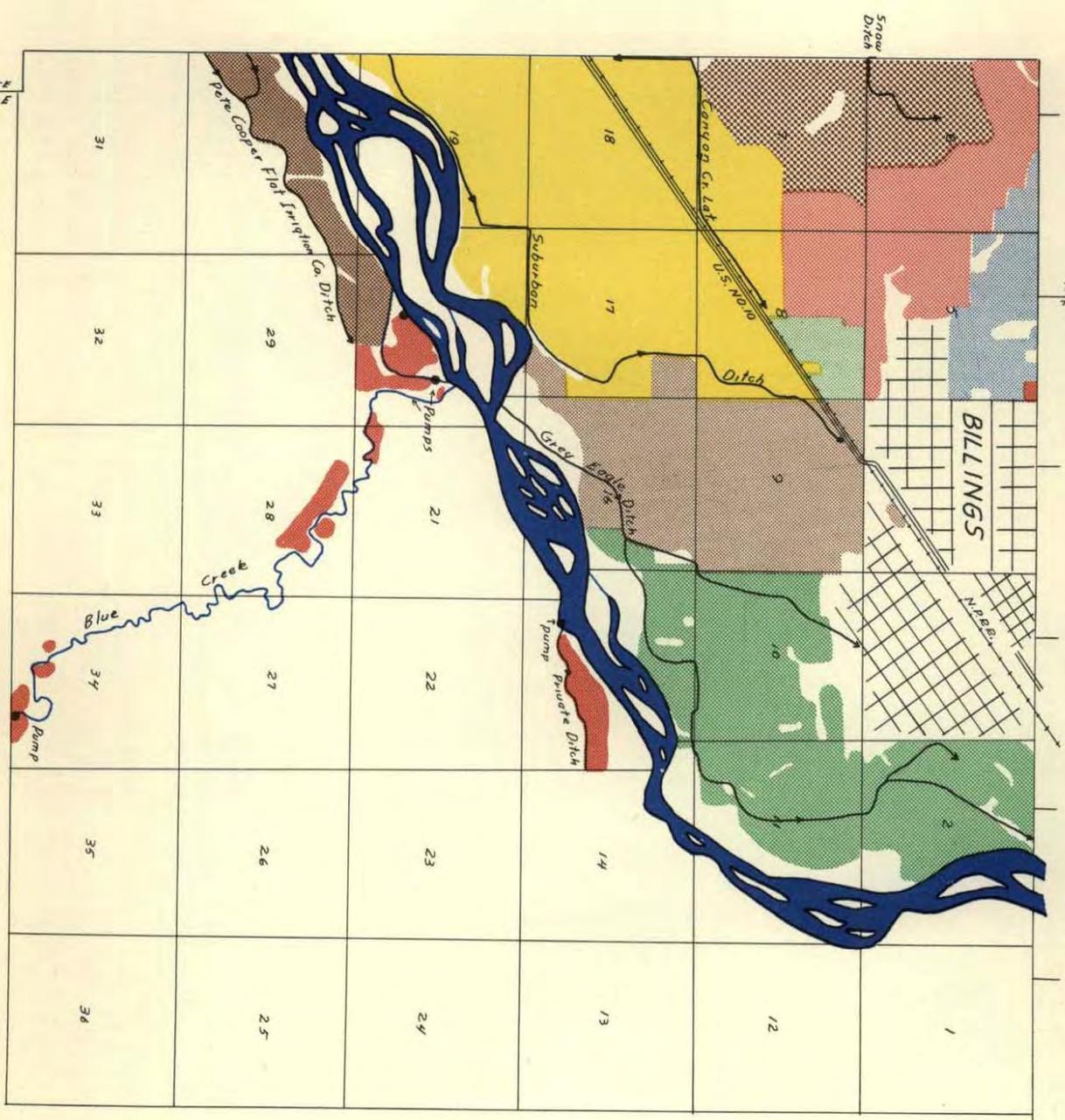


- LEGEND**
- B. B. W. A.
 - Big
 - Canyon Creek Ditch
 - Cove
 - High
 - P. C. F. I. C.
 - Snow
 - Private
 - Streams

T2S, R25E
T2S, R26E

Compiled by
The State Engineers Office
As of January 1, 1943
G. J. Oravetz in Charge of Survey

Published by
 Billings Commercial Club
 1943



- LEGEND**
- Canyon Creek
 - Canyon Creek Lateral
 - Grey Eagle
 - Homestead Lateral
 - P. C. F. I. C.
 - Suburban
 - Upper Lateral
 - Private
 - Streams

Compiled by
The State Engineers Office
 As of January 1, 1943
 G. J. Oravetz in Charge of Survey

Township No. 1 North

Range No. 26 East

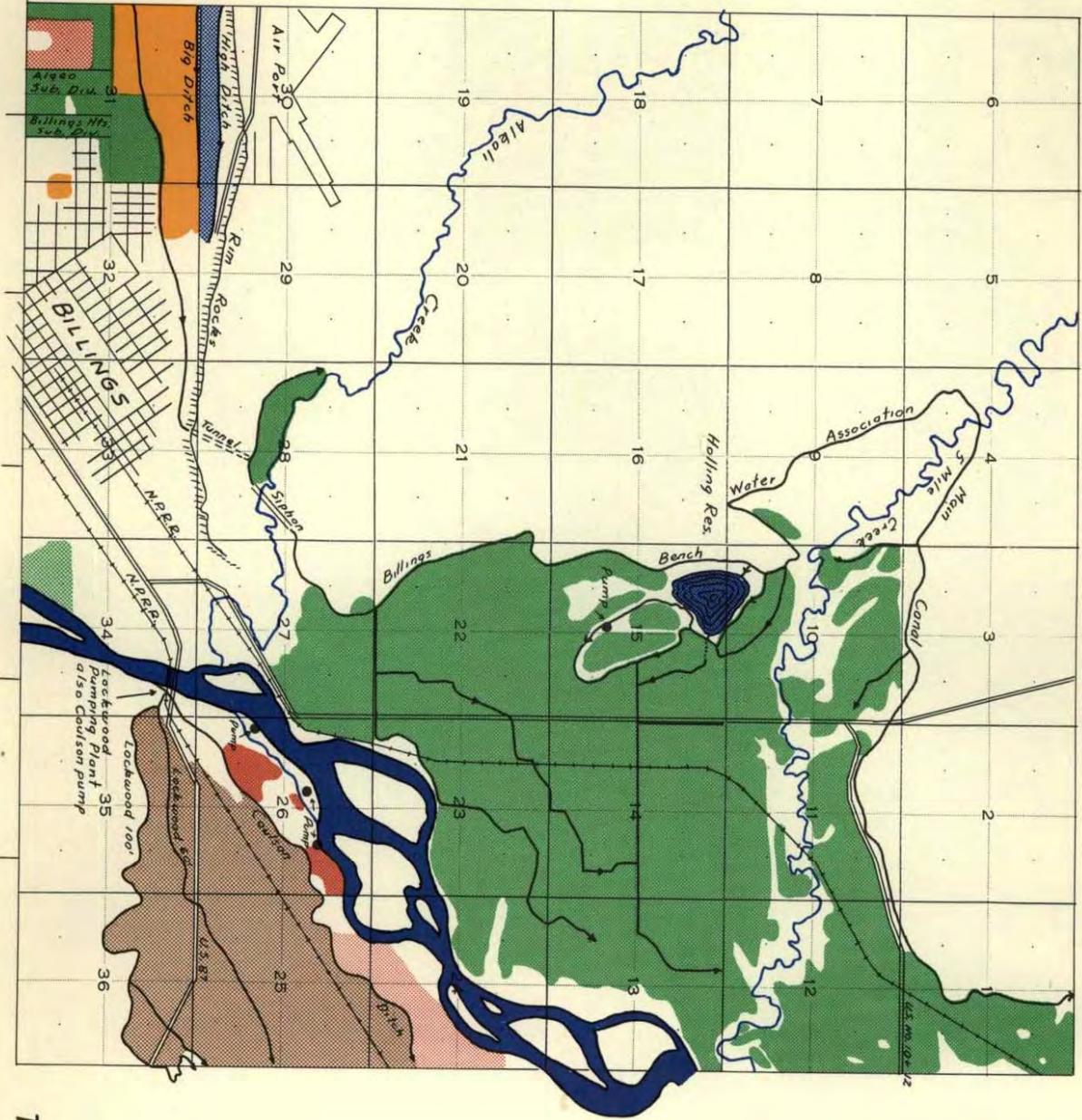
County Yellowstone

Published by
Billings Commercial Club
1943

T. 1 North
R. 26 East

LEGEND

- B. B. W. A.
- Big
- Coulson
- Grey Eagle
- High
- Homestead Lateral
- Lockwood
- Private
- Streams



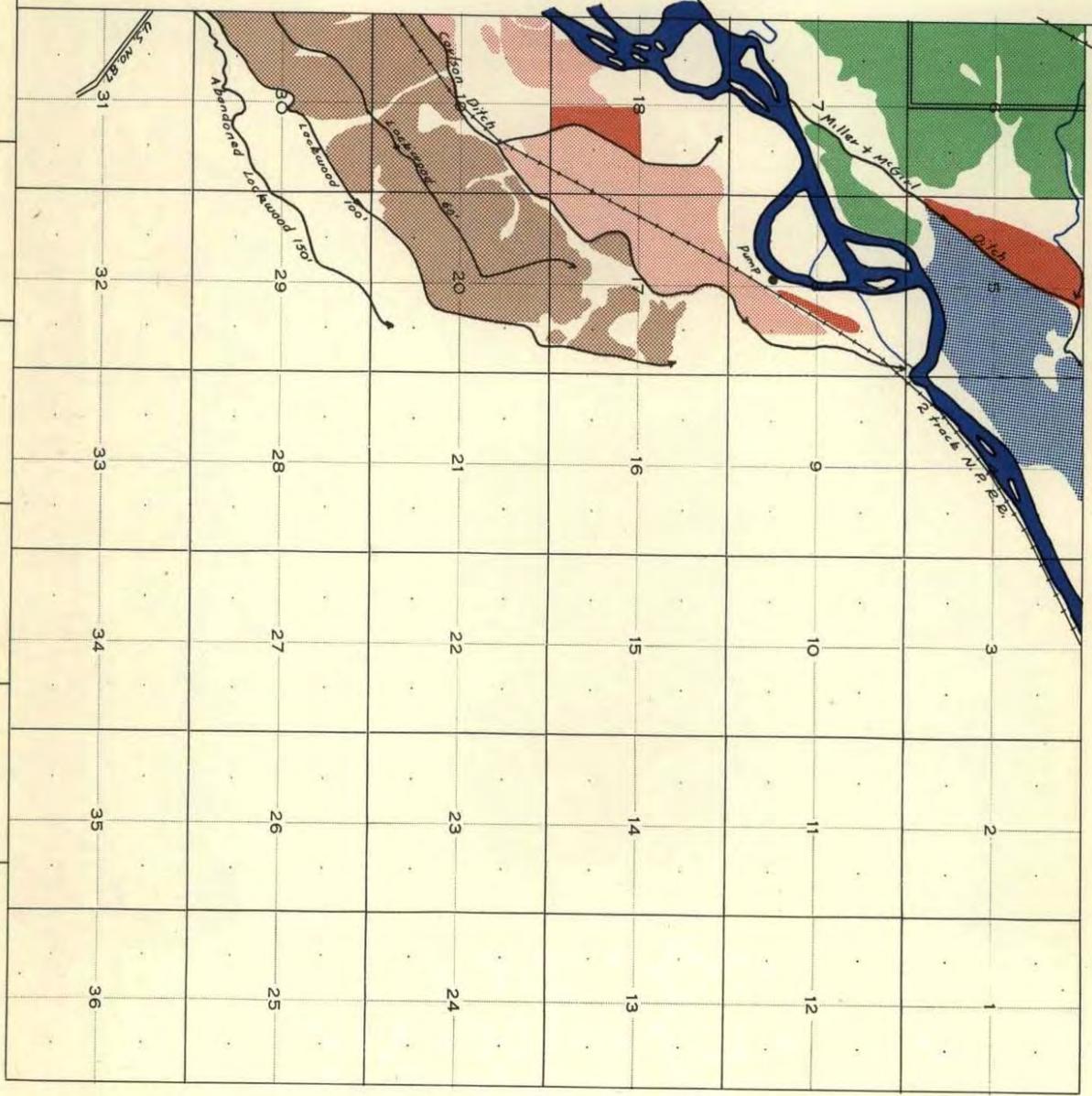
Compiled by
The State Engineers Office

As of January 1, 1943
G. J. Oravetz in Charge of Survey

Township No. 1 North Range No. 27 East County Yellowstone

T. 1 North
R. 27 East

Published by
Billings Commercial Club
1943



- LEGEND**
- B. B. W. A.
 - Coulson
 - Lockwood
 - Miller and McGill
 - Private
 - Streams

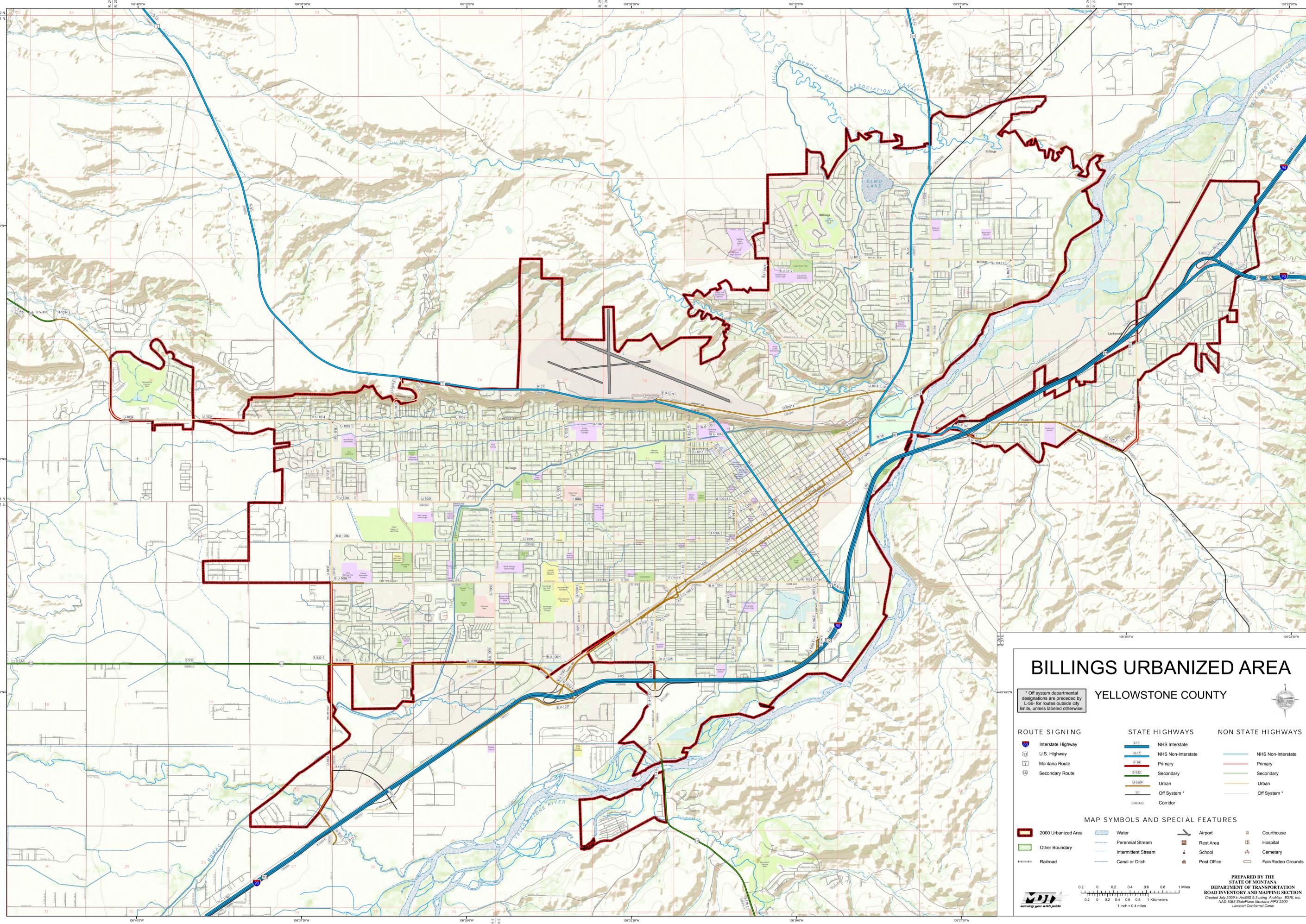
Compiled by
The State Engineers Office
As of January 1, 1943
G. J. Oravetz in Charge of Survey



Appendix 5

Billings Urbanized Area





BILLINGS URBANIZED AREA

YELLOWSTONE COUNTY

* Off system departmental designations are preceded by L-56- for routes outside city limits, unless labeled otherwise.

ROUTE SIGNING

- Interstate Highway
- U.S. Highway
- Montana Route
- Secondary Route

STATE HIGHWAYS

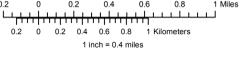
- NHS Interstate
- NHS Non-Interstate
- Primary
- Secondary
- Urban
- Off System *
- Corridor

NON STATE HIGHWAYS

- NHS Non-Interstate
- Primary
- Secondary
- Urban
- Off System *

MAP SYMBOLS AND SPECIAL FEATURES

- 2000 Urbanized Area
- Other Boundary
- Railroad
- Water
- Perennial Stream
- Intermittent Stream
- Canal or Ditch
- Airport
- Rest Area
- School
- Post Office
- Courthouse
- Hospital
- Cemetery
- Fair/Rodeo Grounds



PREPARED BY THE
STATE OF MONTANA
DEPARTMENT OF TRANSPORTATION
ROAD INVENTORY AND MAPPING SECTION
Created July 2009 in ArcGIS 9.3 using ArcMap. ESRI, Inc.
MAD 1993 StatePlane Montana FIPS 2500
Lambert Conformal Conic



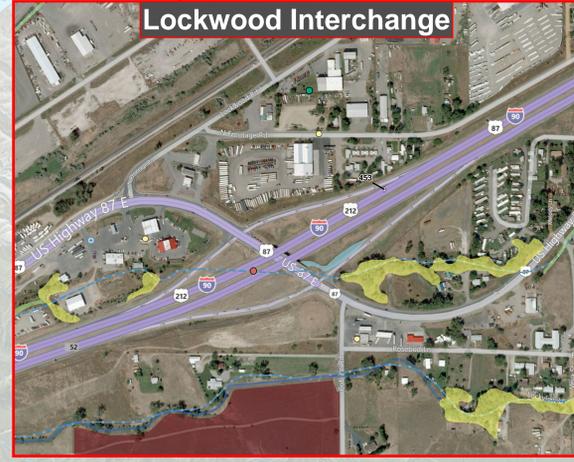
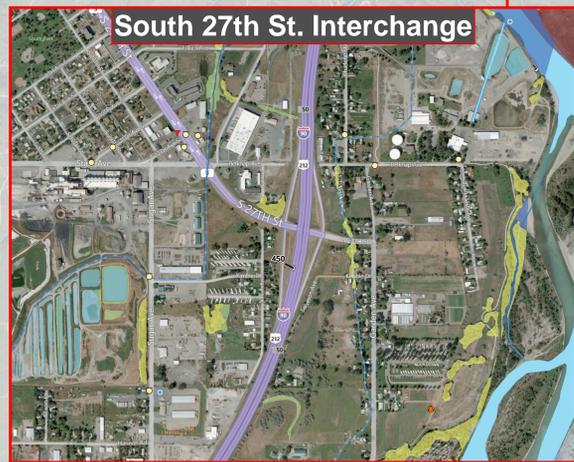
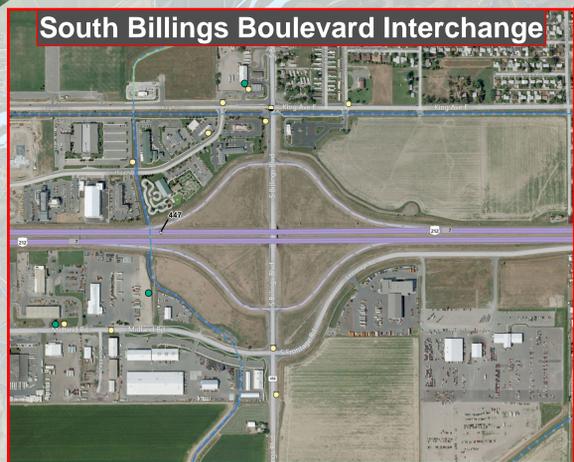
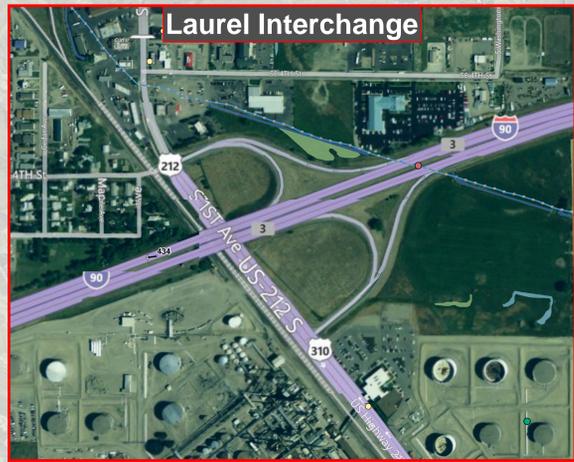
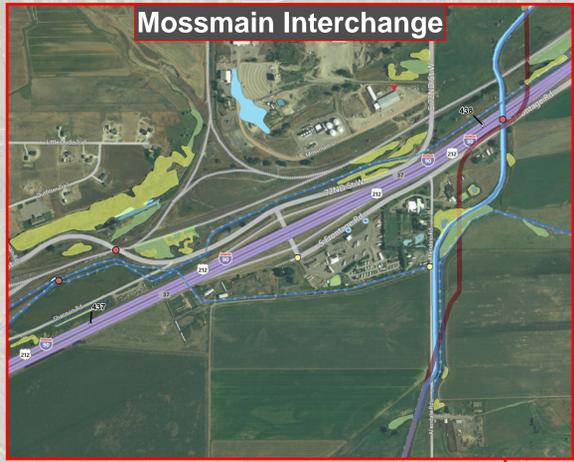
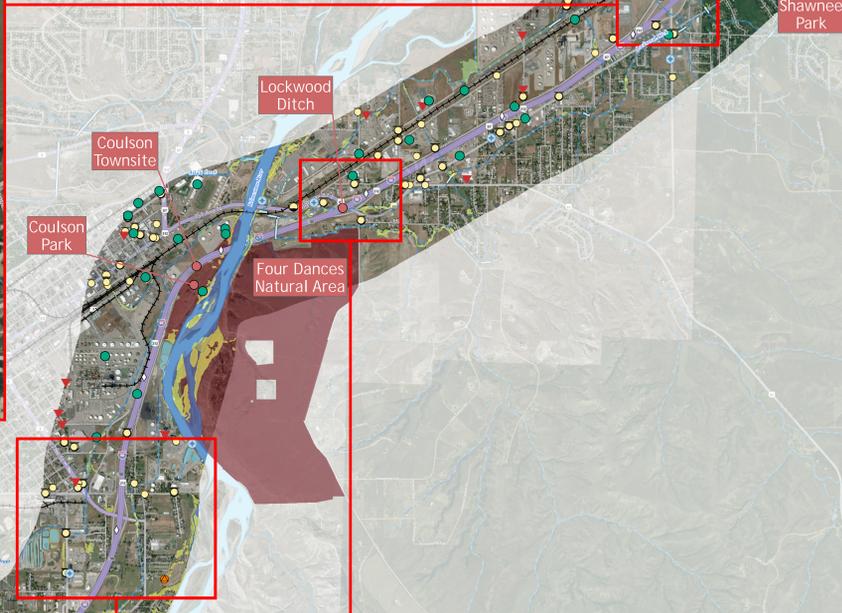
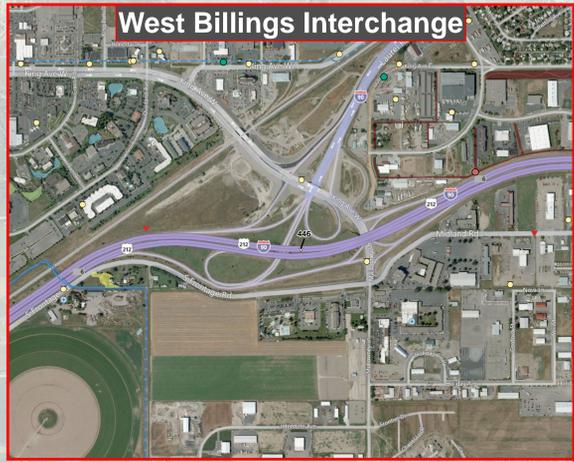
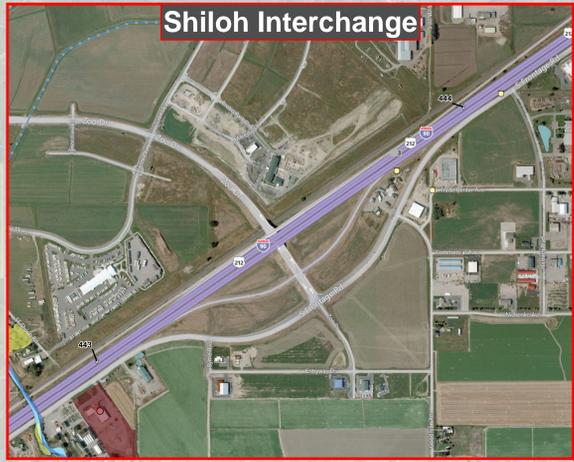
Appendix 6

Map of Environmental Conditions



Billings Area I-90 Corridor Planning Study Environmental Conditions

Study Ending Point
Reference Post 455.85



Study Beginning Point
Reference Post 433.8



- Reference Marker
- Remediation Response Site
- Abandoned Mine
- Hazardous Waste Site
- Public Water Supply
- Underground Storage Tank
- Leaking Underground Storage Tank
- Section 4(f)/6(f) Resource
- Open Water
- Riparian
- Riverine
- Wetland
- Railroad



Appendix 7

Land Ownership Maps



[Click here to close window and return to interactive map.](#)

Montana Landuse - System Output Map

Date 1/14/2011 | Width of Map=21.73 Miles

This map produced by the Natural Resource Information System-Helena MT 59620

Selection Area

COUNTY='YELLOWSTONE'
With a Buffer of 0.00 Miles
AND
NAME='I90' OR NAME LIKE '%I90 %'
OR NAME LIKE '% I90'
With a Buffer of 0.500932256059664 Miles

Land Use

- Urban
- Agriculture
- Rangeland
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Wetland
- Bare Ground
- Tundra
- Ice/Snow
- Water

Hydrologic Unit

Highways

- Interstate Route
- U.S. Route
- Montana Route
- Secondary Route

Town Population

- 0-100
- 101-1,000
- 1,001-5,000
- Over 5,000

Lake

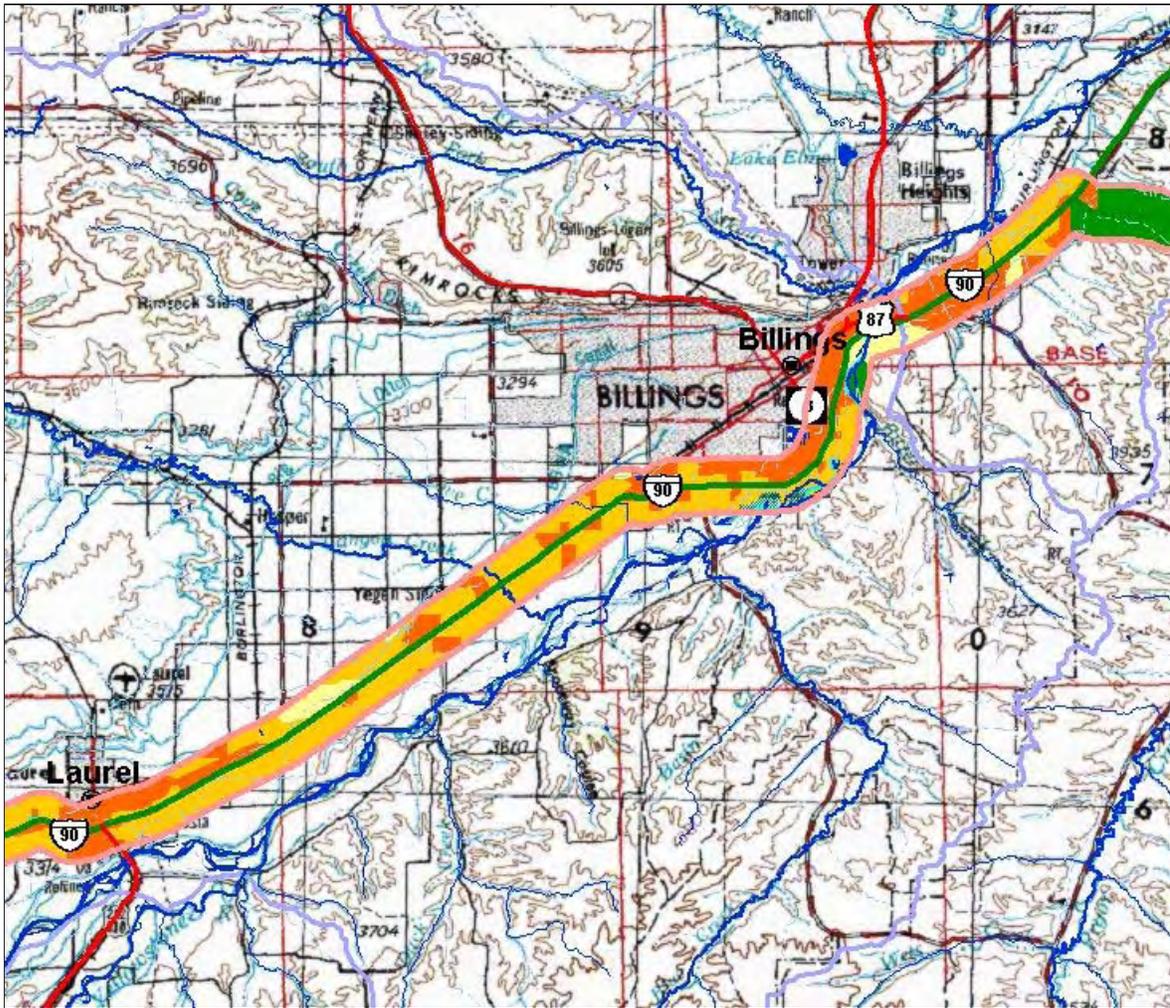
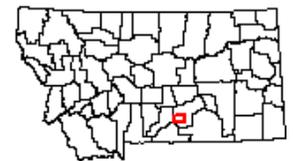
Water Body

- Lake/Pond
- Swamp/Marsh
- Glacier

Stream

Streams

- Major river or stream
- Other stream
- Un-named stream



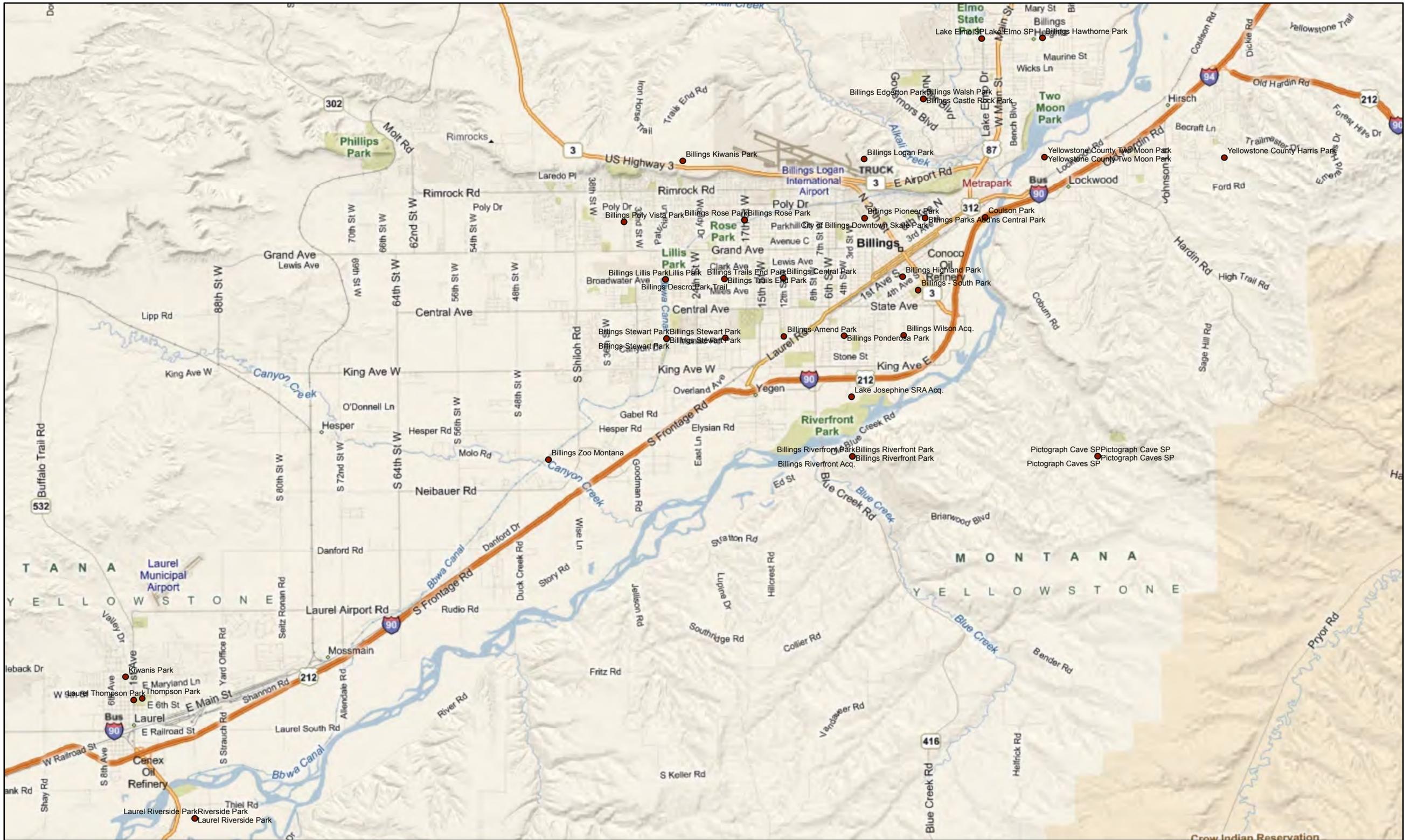


Appendix 8

Section 6(f) Sites



6(f) Sites - Land and Water Conservation Funds



Legend

- 6(f) Locations - FWP

The exact location and extent of the protected properties can be obtained by contacting Walt Timmerman (Montana Fish Wildlife and Parks) at (406) 444-3753; wimmerman@mt.gov