



# Environmental Engineering Analysis Report

***Lockwood Interchange - Billings***

*STPX 90-8(191)450*

*UPN 9588000*

*Yellowstone County, Montana*

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## ***FINAL REPORT***

Prepared for:

MONTANA  
**MDT**★  
DEPARTMENT OF TRANSPORTATION  
Montana Department of Transportation  
2701 Prospect Avenue  
Helena, MT 59620

Prepared by:

**HDR**  
HDR  
970 S 29th St W  
Billings, MT 59102

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APPENDIX A: Representative Site Photographs

# 1 Introduction

The following Environmental Engineering Analysis Report provides an overview of the social and natural resources present within the Lockwood Interchange - Billings project area and assesses the potential impact on those resources. The analysis includes identification of regulatory requirements that may affect implementation of the proposed project as well as identification of necessary avoidance, minimization, and mitigation measures. The purpose of the Environmental Engineering Analysis Report is to identify early in project development which resource areas need to be investigated and which environmental analyses may be triggered by the proposed project. In general, the level of documentation and analysis included under each section of the report is commensurate with the proposed project's scope, resources present, and the potential for impact to that resource.

## 1.1 Project Description and Location

The Montana Department of Transportation (MDT) is conducting an Other (OT) Phase study to evaluate interchange improvement options of the Lockwood Interchange located on Interstate 90 (I-90) near Billings, MT, in Yellowstone County. The evaluation will consider both current and future traffic patterns, ramp functionality, operational issues on I-90 and connecting routes, proposed interstate modifications, safety considerations, and bridge construction options. The project area extends along I-90 from approximately the Lockwood Interchange at reference post (RP) 452.5 to the Johnson Lane interchange at RP 455.3 and includes the vicinity of the Lockwood Interchange, including on/off ramps and Old U.S. Highway 87 (Old Hardin Road) west to the railroad overpass west of North Frontage Road and east to Lockview Lane. This project includes the development of an auxiliary lane (3rd travel lane) on I-90 in each direction between interchanges. Operations on I-90 and lane configurations will be examined from approximately RP 450.0+/- to RP 455.3+/-, which extends from 27th Street to Johnson Lane.

The project is located outside the city limit boundary of the City of Billings and is approximately 1.5 miles from Downtown Billings. The Lockwood Interchange is within the Census-Designated Place for Lockwood, MT. The project is located in Sections 25, 26, and 35 of Township 1 North, Range 26 East and Sections 19 and 30 of Township 1 North, Range 27 East, Montana Principal Meridian. The project area is 175 acres encompassing an approximate 150-foot buffer extending beyond the project roadway centerlines and is shown in Figure 1-1.

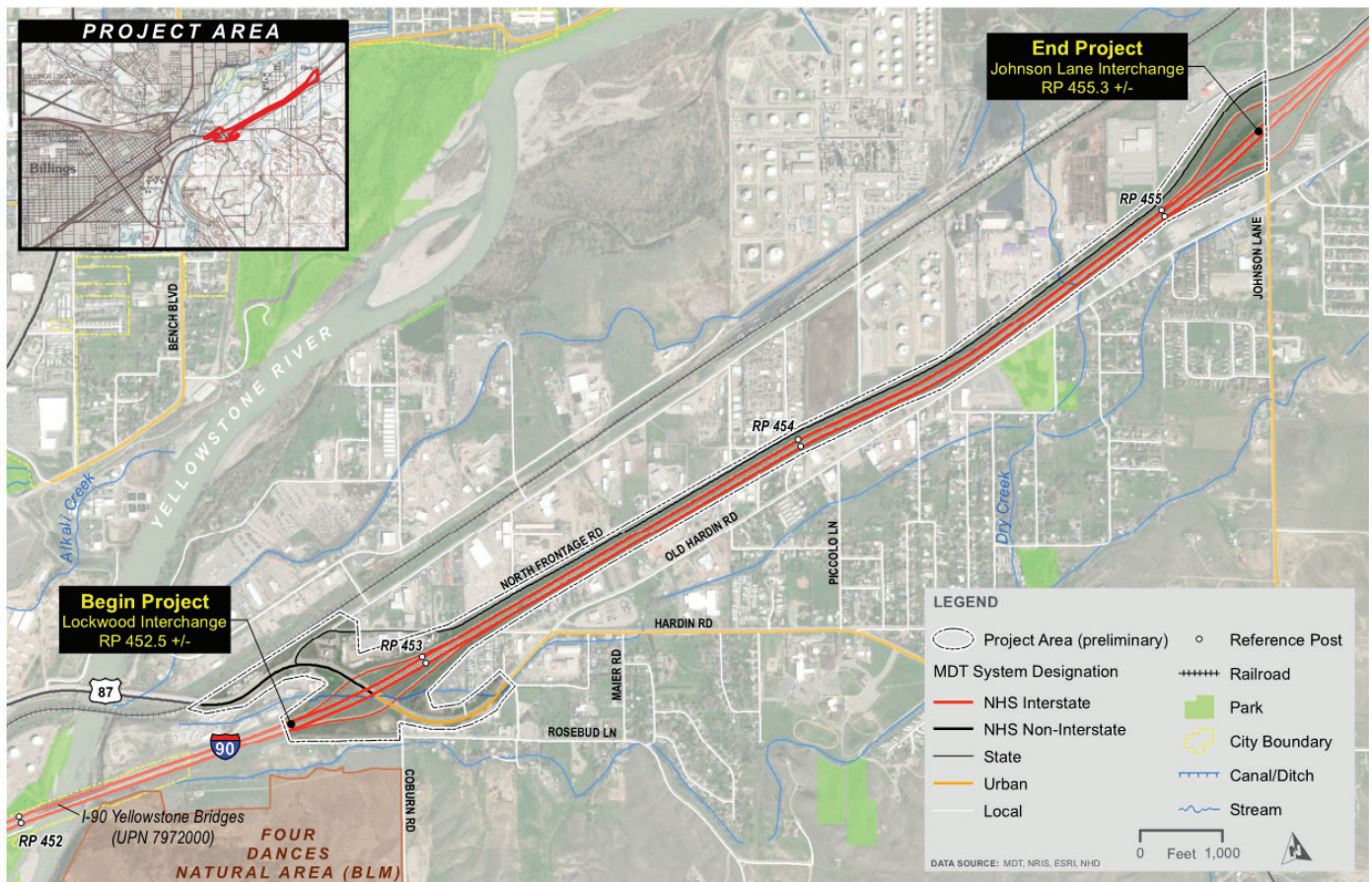


Figure 1-1. Project Location Map



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### 1.1.1 Project Purpose

The purpose of the project is to address roadway deficiencies and improve traffic operations at the Lockwood Interchange as well as along I-90 between the Lockwood Interchange and the Johnson Lane Interchange. Improvements to I-90 are currently being designed on the segment to the west of the project as part of the I-90 Yellowstone R – Billings project (UPN 7972000), which ends on the west side of the Lockwood Interchange and includes interstate widening to provide three through lanes in each direction. The Johnson Lane Interchange directly east of the project will be reconstructed as part of the Billings Bypass project (UPN 4199006 and 4199007). This project will connect the two adjacent projects while taking into consideration the operations and access at the Lockwood Interchange.

### 1.1.2 Crash Analysis

A safety analysis was completed on a portion of I-90 (including interchange ramps) from RP 452.4 to 455.9, a portion of US-87 from RP 0.0 to 0.5, a portion of Old Hardin Road from RP 0.0 to 0.6, and the North Frontage Road from RP 0.0 to 2.5 for the 5-year period January 1, 2013 through December 31, 2017.

The crash data shows the following information:

- 129 crashes along I-90 (including interchange ramps) between RP 452.4 and 455.9
- 108 crashes along US-87 between RP 0.0 and 0.5
- 44 crashes along Old Hardin Road between RP 0.0 and 0.6
- 21 crashes along North Frontage Road between RP 0.0 and 2.5

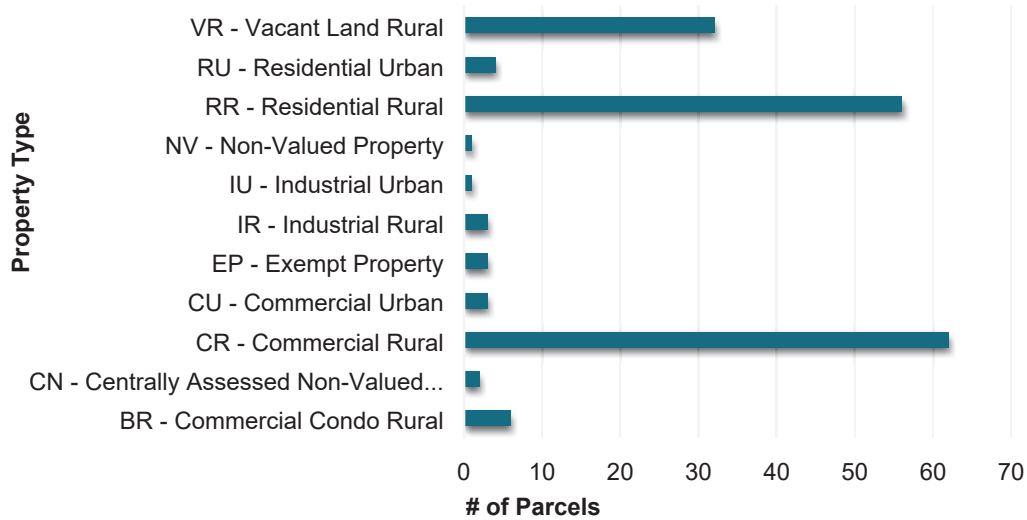
This data provided extends beyond the project limits and includes Johnson Lane and interchange ramps extending east from Johnson Lane.

## 2 Land Use

### 2.1 Existing Land Use

The project area is located east of the city limits of Billings along I-90 in an urbanized environment consisting of the interstate and adjacent residential, commercial, and industrial uses. The commercial businesses within the project area are located at the interchanges and include several gas stations and fast food restaurants servicing the interstate traffic, as well as along North Frontage Road and Old Hardin Road.

The Yellowstone County cadastral records were reviewed for the parcels located immediately adjacent to the project area. Figure 2-1 shows the mix of property types for the 173 parcels immediately adjacent to the proposed project. The property types are based from tax assessment records for Yellowstone County. The Commercial Rural and Residential Rural categories account for approximately 36 and 32 percent, respectively, of the total parcels. Vacant Land Rural accounts for approximately 19 percent.



**Figure 2-1. Land Use by Property Type within the Project Area**

Notable individual properties/landowners within the project area vicinity include the Exxon Mobil refinery and Montana Rail Link, both located on the north side of I-90.

## 2.2 Land Cover

The Montana Natural Heritage Program (MTNHP 2019) provided an Environmental Summary for the project area vicinity that includes information on land cover. The following lists the dominant land cover types and their overall percentage of the project area vicinity (land cover types comprising less than 5 percent of the queried area are not listed).

- Human Land Use, Developed, Commercial/Industrial – 22%
- Grassland Systems, Lowland/Prairie Grassland, Great Plains Mixedgrass Prairie – 13%
- Human Land Use, Developed, Other Roads – 12%
- Shrubland, Steppe and Savanna Systems, Sagebrush Steppe, Big Sagebrush Step – 11%
- Human Land Use, Developed, Low Intensity Residential – 8%
- Human Land Use, Developed, Interstate – 7%
- Wetland and Riparian Systems, Floodplain and Riparian, Great Plains Floodplain – 6%
- Human Land Use, Developed, Developed Open Space – 6%

## 2.3 Induced Growth

The proposed project was assessed for its potential for project-influenced growth (e.g., increased population and/or traffic, changes in land use, etc.). Potential indirect land use effects resulting from the proposed project were evaluated consistent with the MDT publication *Assessing the Extent and Determinants of Induced Growth* (Tidd et al. 2013). The guidance document provides a screening process to assess a project’s potential to result in indirect changes in land use. Particularly, the



Indirect Effects Desk Reference (in Appendix 1 of the report) was followed to assess the proposed project's potential for indirect land use effects.

### 2.3.1 Potential Impact, Avoidance, Minimization, and Proposed Mitigation

The following includes a step-wise analysis assessing the proposed project's potential for induced growth effects.

**Step #1:** *Is the Project exempt from screening?* **Answer: NO.**

The proposed project is not a project type represented in Table 1 of Appendix 1. The purpose of this project is to address roadway deficiencies and improve traffic operations at the Lockwood Interchange as well as along I-90 between the Lockwood Interchange and the Johnson Lane Interchange. The project work type is classified as Work Type 130 – Reconstruction – with added capacity.

**Step #2:** *Does the Project have an economic development purpose?* **Answer: NO.**

The purpose of the proposed project is to evaluate alternatives to improve the access and operations at the Lockwood Interchange and the I-90 corridor between the 27<sup>th</sup> Street Interchange and the Johnson Lane Interchange. The proposed project does not have an economic development purpose.

**Step #3:** *Does the project substantially improve accessibility?* **Answer: YES.**

The proposed project will include an auxiliary lane (3rd travel lane) in each direction between the Lockwood Interchange and the Johnson Lane Interchange. This would extend the new auxiliary lanes currently being designed as part of the adjacent I-90 Yellowstone R - Billings project. While auxiliary lanes typically do not substantially improve accessibility, the project is located in a congested area and a growing region and therefore the response to this question should be YES. In addition, the proposed project will tie into the Billings Bypass project at the Johnson Interchange, which would further improve accessibility to areas north of the Yellowstone River.

**Step #4:** *Is Developable Land Available in the Areas Served by the Project?* **Answer: YES.**

While there may be substantial existing development in the project area, as shown in Figure 2-1 above, a majority of parcels in the immediate project vicinity are classified as Vacant Land Rural. A cursory examination also identified over 100 parcels within one-half mile of the project area that are classified as Vacant Land Rural. Areas east of the project area are zoned as residential and existing densities are low. More analysis would be necessary to ascertain the land availability and its readiness for development.

**Step #5:** *Does the Project Region Exhibit Evidence of Growth Pressure?* **Answer: No.**

The 2018 *Billings Urban Area Long Range Transportation Plan* and 2016 *Billings Growth Policy* were reviewed to identify growth areas projected for the region. Within the vicinity of the project area, the Lockwood area is projected to have infill development occur by 2040. The projected population change is anticipated to be between 2 and 250 people, which is on the lower spectrum for the urban area. Future employment growth appears to have higher potential than residential growth in the areas of Old Hardin Road and Johnson Lane.

Despite the potential for some additional growth, the project area vicinity does not exhibit evidence of growth pressure. The majority of growth in the urban area is projected to occur on the west end of

Billings, particularly west of Shiloh Road and along Highway 3 and Alkali Creek Road to the north of the city limits. Per the MDT guidance, the answer to Step #5 should be no if the project area and surrounding region have remained relatively constant in terms of population and employment levels considering the most recent available data or the project is located in a remote rural area where there is no evidence of development currently or reason to expect the area would be attractive to development in the future. Based on an answer of NO, no detailed analysis is necessary.

As the project develops and a preferred alternative is identified, the proposed project will require a MEPA/NEPA review. This review will include evaluating a project design for potential for induced growth. As such, the factors evaluated above will be re-evaluated for the preferred alternative based on the most current information available at the time of the MEPA/NEPA review.

### 3 Farmland

The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) has issued regulations in 7 CFR 658 that implement the provisions of the Farmland Protection Policy Act (FPPA) requiring federal agencies to take into account the effect their programs have on the preservation of farmland. The FPPA's stated purpose is:

*...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 subject to the requirements of the FPPA includes only prime or unique farmland or farmland of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forestland, pastureland, cropland or other land, but not water or urban developed land.

A custom soil report was generated through the NRCS web soil survey for the project area. Table 3-1 lists the various soils types located within the project area and includes their farmland classification. Soils meeting the criteria of Important Farmland are abundant in the vicinity of the project area and are shown in Figure 3-1.

**Table 3-1. Project Area Soils and Farmland Classification**

Map Unit Symbol (musym)	Map Unit Name	Farmland Classification	Acres in Project Area	Percent of Project Area (%)
80D	Blacksheep sandy loam, 4 to 15 percent slopes	Not prime farmland	0.3	0.2%
Am	Alluvial land, seeped	Not prime farmland	8.0	4.6%
Cg	Clapper gravelly loam, 7 to 15 percent slopes	Not prime farmland	4.0	2.3%
Fr	Fort Collins and Thurlow clay loams, 0 to 1 percent slopes	Farmland of statewide importance	30.4	17.4%
Ft	Fort Collins and Thurlow clay loams, 1 to 4 percent slopes	Farmland of statewide importance	5.6	3.2%
Ha	Haverson loam, 0 to 1 percent slopes	Farmland of statewide importance	0.3	0.2%
HI	Haverson and Lohmiller soils, 0 to 4 percent slopes	Not prime farmland	3.0	1.7%
Hm	Haverson and Lohmiller soils, channeled, 0 to 35 percent slopes	Not prime farmland	1.6	0.9%
Hs	Hilly, gravelly land	Not prime farmland	9.9	5.6%
Hy	Hysham-Laurel silty clay loams, 0 to 2 percent slopes	Not prime farmland	0.3	0.2%
Mm	McRae loam, 0 to 1 percent slopes	Prime farmland if irrigated	14.1	8.1%
Mn	McRae loam, 1 to 4 percent slopes	Prime farmland if irrigated	48.4	27.7%
Mo	McRae loam, 4 to 7 percent slopes	Farmland of statewide importance	15.3	8.7%
Sr	Shorey gravelly loam, 4 to 7 percent slopes	Farmland of statewide importance	12.2	7.0%
Ta	Thurlow clay loam, 0 to 1 percent slopes	Prime farmland if irrigated	14.8	8.5%
Tc	Thurlow clay loam, 4 to 7 percent slopes	Farmland of statewide importance	6.6	3.8%
<b>TOTALS</b>			<b>174.9</b>	<b>100</b>
<b>TOTAL IMPORTANT FARMLAND</b>			<b>147.7</b>	<b>84.45</b>

Source: Natural Resources Conservation Service, 2019

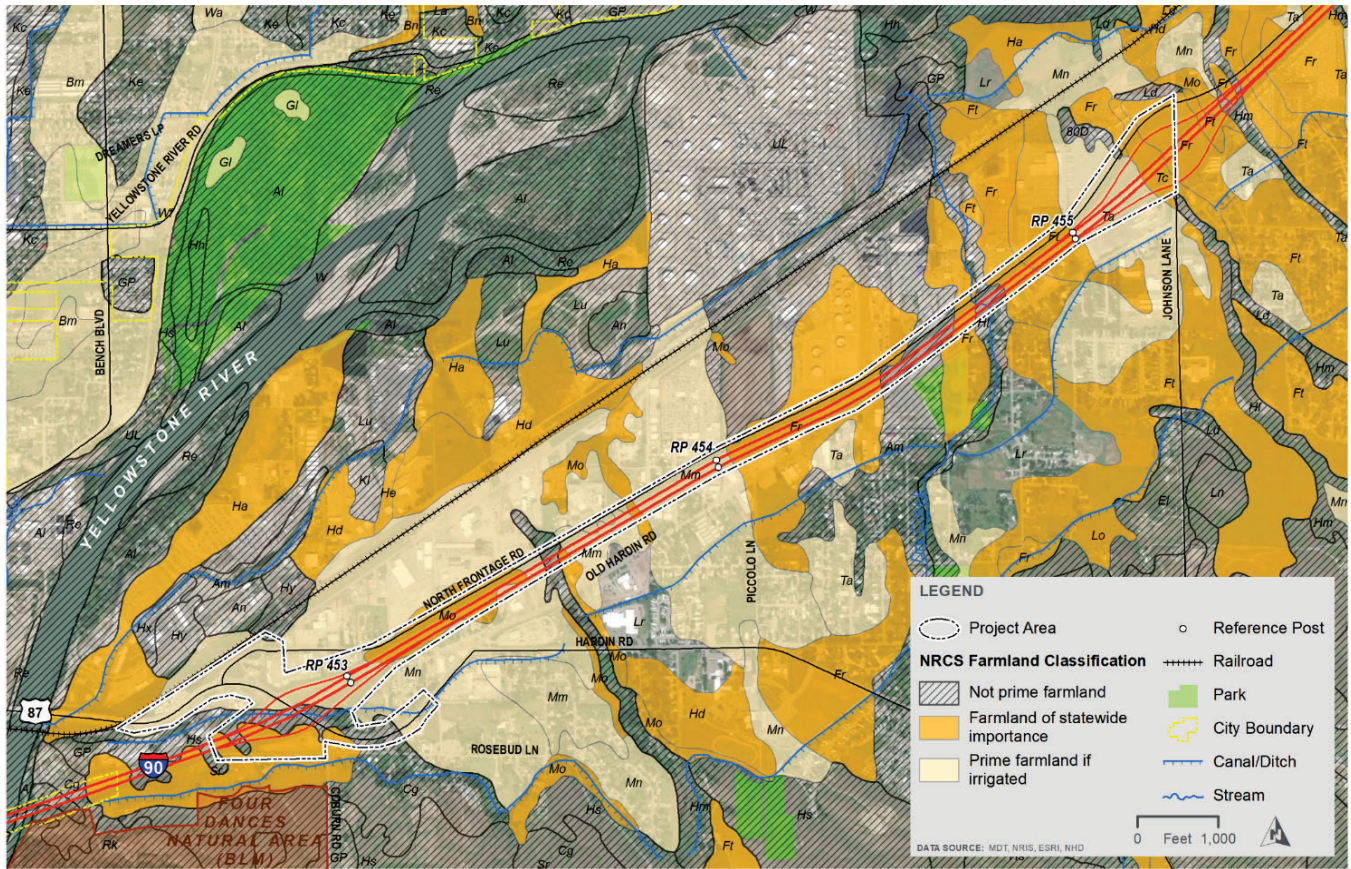


Figure 3-1. Important Farmland in the Project Area

### 3.1 Potential Impact, Avoidance, Minimization, and Proposed Mitigation

A preferred alternative has not been identified and, as such, a proposed design and associated construction limits have not been established. There is potential for new right-of-way to be required depending on the improvements selected for the project. Regardless of right-of-way acquisition, areas in the immediate vicinity of the project area are developed urban land and are not currently used for farmland or reasonably expected to be in the future. Because farmland is not currently present and existing land uses and development patterns preclude converting areas within the project area to farmland in the future, no farmland is anticipated to be directly or indirectly converted to non-farmland uses as a result of the proposed project.

## 4 Socioeconomic Environment

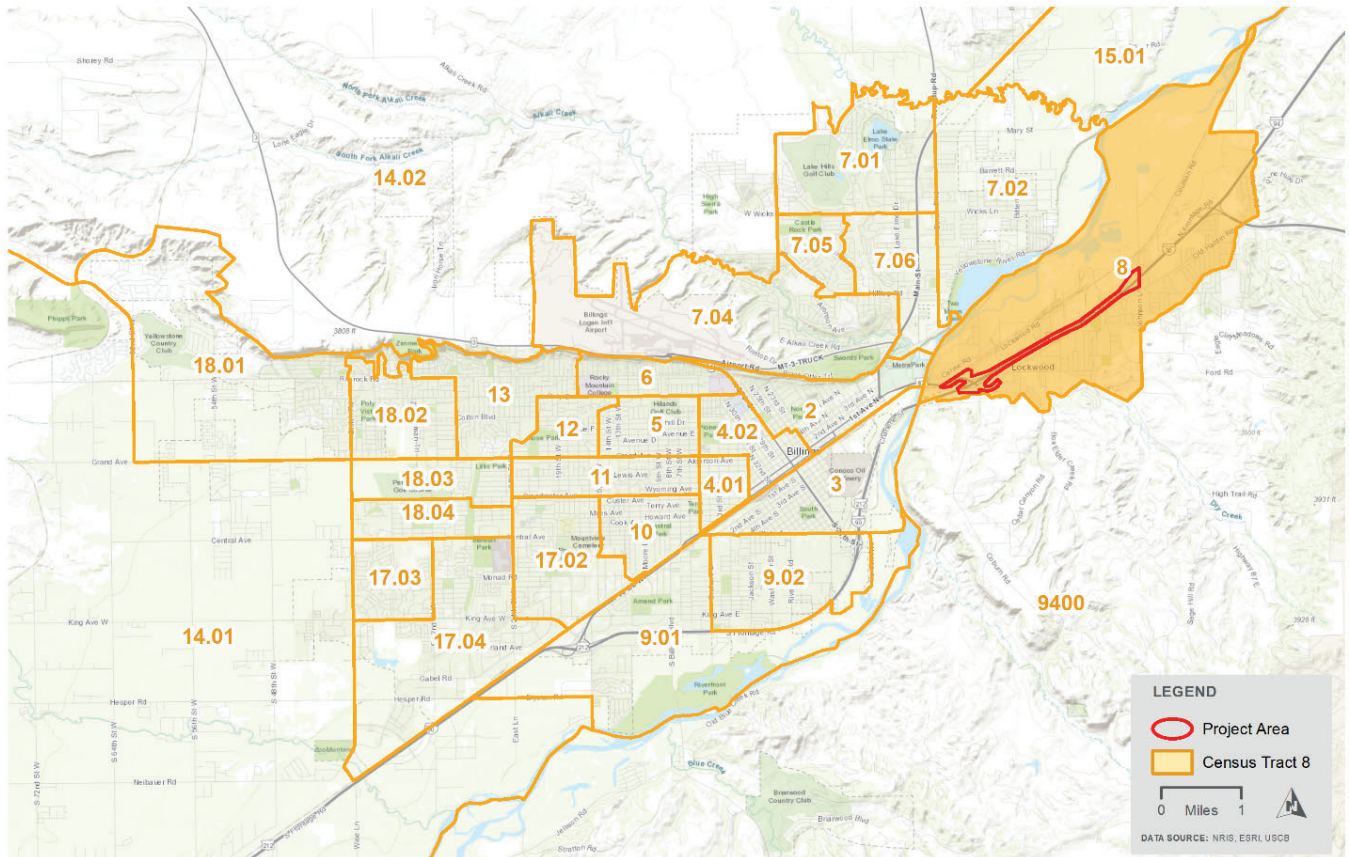
This section presents information on the socioeconomic setting of the project area and provides a review of potential social and economic effects resulting from the proposed project. Information reported within this section is summarized from the U.S. Census Bureau (USCB) 2010 Census and the American Community Survey (ACS) 2013-2017 5-Year Estimates (USCB 2019a). The project area is located within U.S. Census Bureau Census Tract 8 of Yellowstone County. General demographic statistics for Tract 8 are presented in Table 4-1 and the Tract 8 geography relative to the project area is shown in Figure 4-1. Census Tract 8 encompasses the Lockwood area and areas

east of the Lockwood and Johnson interchanges and includes the region northwest of the project area and east of the Yellowstone River. For purposes of evaluating the social and economic environment, statistics for Census Tract 8 are assumed to be reflective of the general conditions of the project area; however, information reported in this section may not be entirely representative of the conditions within the immediate project area.

**Table 4-1. Population Statistics for the Project Area, County and State**

	Tract 8	Yellowstone County	State of Montana
Population	5,120	156,332	1,029,862
Race			
One Race	4,916	152,018	1,001,478
White	4,663	142,087	916,664
Black or African American	0	1,113	4,438
American Indian or Alaska Native	253	6,655	66,865
Asian	0	960	7,448
Native Hawaiian or Pacific Islander	0	147	571
Some other race	0	1,056	5,492
Total Housing Units	1,823	63,943	482,825
Occupied Units	1,766	60,672	409,607
Vacant Units	57	3,271	73,218

Source: U.S. Census Bureau, 2010; U.S. Census Bureau, American Community Survey (ACS) 2013-2017 5-Yr Estimate, 2019.



**Figure 4-1. Project Area and Census Tract 8**



## 4.1 Environmental Justice

Title VI of the United States Civil Rights Act of 1964, as amended (USC 2000(d)) and Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, require that no minority or low-income person shall be disproportionately adversely impacted by any federally-funded project. As it relates to transportation projects, this means that no particular minority or low-income person may be disproportionately isolated, displaced, or otherwise subjected to adverse effects.

Information obtained from the ACS 2013-2017 5-Year Estimates on poverty levels and race and ethnicity for Census Tract 8 were compared to similar statistics for Yellowstone County and the State of Montana and is presented in Table 4-2.

According to the ACS, Tract 8 contains a higher percentage of low-income populations (13.1 percent) living at or below the poverty line as compared to Yellowstone County (10.1 percent) but lower than the state average (14.4 percent). Tract 8 has a lower percentage of minority populations (8.9 percent) as compared to Yellowstone County (9.1 percent) and the State of Montana (11.0 percent).

**Table 4-2. Low-Income and Minority Percentages  
 For the Project Area, County and State, 2013-2017**

Geography	Percentage (%) of People Whose Income in the Past 12 Months is Below the Poverty Level	Percentage (%) of Minority Population (Non-White)
Census Tract 8	13.1	8.9
Yellowstone County	10.1	9.1
State of Montana	14.4	11.0

*Source: U.S. Census Bureau, American Community Survey (ACS) 2013-2017 5-Yr Estimate, 2019.*

### 4.1.1 Potential Impact, Avoidance, Minimization, and Proposed Mitigation

Based on a review of available information, Tract 8 and the project area contains a higher percentage of low-income populations than the county average but lower than the statewide average. The percentage of minority populations is lower within Tract 8 than both the county and state. New right-of-way is anticipated for the project; however, the proposed project is not anticipated to result in the displacement or relocation of any businesses or residents. Because of these reasons, the proposed project is not anticipated to result in disproportionately high or adverse human health and environmental effects on low-income or minority populations.

## 4.2 Economic

Yellowstone County is Montana’s most populous county and includes Billings, the state’s largest city. Billings benefits from having a diverse economy, including oil and gas, health care, agricultural, and institutional. The city has three colleges: MSU-Billings, City College-MSU, and Rocky Mountain College. Additionally, the city is a transportation hub with I-90 and railroad passing through town as well as the Billings Logan International Airport.

According to the Montana Department of Labor and Industry, the unemployment rate for Yellowstone County as of August 2019 was 2.9 percent, which is ranked 33<sup>rd</sup> in the state (DLI 2019). Figure 4-2 shows the total number of businesses, average employed, and annual average wage for Yellowstone County (DLI 2019).

Industry Name	‡	Establishments	Avg Employed	Annual Avg, Wage
Total		6,785	81,635	\$48,008
Total Govt		104	8,819	\$54,223
Federal Govt		57	1,757	\$79,110
State Govt		18	1,610	\$44,190
Local Govt		29	5,453	\$49,157
Private		6,680	72,816	\$47,255

Source: Quarterly Census of Employment and Wages. QCEW does not include self-employed and some agricultural workers.

**Figure 4-2. Employment by Ownership for Yellowstone County, 2018**

Table 4-3 provides information on employment by sector for the project area vicinity (Census Tract 8) and the county and state. The following are observations from a review of the ACS data:

- Census Tract 8 has a higher percentage of employment in the fields of construction; manufacturing; wholesale trade; retail trade; and arts, entertainment, and recreation, and accommodation and food services; and other services, except public administration than the county and state.
- Census Tract 8 has a lower percentage of employment in the fields of agriculture, forestry, fishing and hunting, and mining; transportation and warehousing, and utilities; information; finance and insurance, and real estate/rental/leasing; professional, scientific, and management, and administrative and waste management services; educational services, and health care and social assistance; and public administration than the county and state.

**Table 4-3. Percent of Population Employed by Industry (%) For the Project Area, County and State, 2013-2017**

Industry	Number Employed and Percent of Population by Industry (%)		
	Census Tract 8	Yellowstone County	State of Montana
Agriculture, forestry, fishing and hunting, and mining	43 (1.7)	2,486 (3.1)	34,930 (7.0)
Construction	251 (10.0)	7,069 (8.8)	40,942 (8.2)
Manufacturing	183 (7.3)	4,001 (5.0)	23,204 (4.7)
Wholesale Trade	172 (6.8)	3,122 (3.9)	11,932 (2.4)
Retail Trade	430 (17.1)	10,247 (12.8)	59,171 (11.9)
Transportation and warehousing, and utilities	122 (4.8)	4,827 (6.0)	24,692 (5.0)
Information	22 (0.9)	1,584 (2.0)	8,468 (1.7)
Finance and insurance, and real estate/rental/leasing	61 (2.4)	5,108 (6.4)	27,881 (5.6)
Professional, scientific, and management, and administrative and waste management services	133 (5.3)	6,841 (8.5)	41,195 (8.3)
Educational services, and health care and social assistance	473 (18.8)	18,335 (22.9)	116,588 (23.4)
Arts, entertainment, and recreation, and accommodation and food services	375 (14.9)	8,927 (11.1)	54,080 (10.9)
Other services, except public administration	188 (7.5)	4,797 (6.0)	24,608 (4.9)
Public administration	63 (2.5)	2,894 (3.6)	30,304 (6.1)
<b>TOTAL EMPLOYMENT</b>	<b>2,516</b>	<b>80,238</b>	<b>497,995</b>

*Source: U.S. Census Bureau, American Community Survey (ACS) 2013-2017 5-Yr Estimate, 2019.*

Table 4-4 presents information on the median household incomes reported by ACS for the project area vicinity and the county and state. As shown, the median household income for Census Tract 8 is substantially below the median household incomes for the county and state.

**Table 4-4. Median Household Income (\$) For the Project Area, County and State, 2013-2017**

Geography	Median Household Income (\$)
Census Tract 8	52,136
Yellowstone County	72,370
State of Montana	65,843

*Source: U.S. Census Bureau, American Community Survey (ACS) 2013-2017 5-Yr Estimate, 2019.*



## 4.2.1 Potential Impact, Avoidance, Minimization, and Proposed Mitigation

No long-term adverse economic effects are anticipated due to implementation of the proposed project. Minor disruption of traffic patterns is likely during construction; however, traffic and access will be maintained throughout the project during construction. Work on the I-90 portion and overpass structure may require median crossovers and temporary lane closures. Lane shifting and reductions during construction will likely be required on US-87 and the on and off ramps for interchange improvements. Innovative traffic control and construction sequencing techniques will be considered to maintain mobility throughout the project corridor and to minimize effects on the adjacent businesses located at the Lockwood and Johnson interchanges. No relocations of businesses are anticipated due to the proposed project.

The proposed project is likely to have minor, short-term beneficial impact on the local economy and income. Reconstruction of the highway may result in direct and indirect temporary employment opportunities for local and regional workers and short-term increased spending benefiting the local economy. Economic benefits could also occur through the purchase of construction materials, some of which, such as concrete and paving materials, would be locally available in Yellowstone County.

## 4.3 Social

The population of the City of Billings is estimated at 109,550 (in 2018) (USCB 2019). From 2000 through 2016, Billings grew at a rate of 1.2 percent annually adding almost 20,000 new residents. Yellowstone County as a whole grew by more than 30,000 residents over the same time period (1.3 percent annually). The census-designated place of Lockwood has grown at an average annual rate of 1.0 percent, increasing from a population of 6,797 in 2010 to approximately 7,312 in 2016 (EPS 2017). The Billings-Yellowstone County Metropolitan Planning Organization (MPO) projects the population of the Billings urban area to grow from 135,038 in 2017 to 177,687 in 2040, a +33.6 percent population change over the 23-year planning horizon (MPO 2019). The housing demand within the Billings urban area is projected to grow similarly: the urban area is projected to add approximately 18,174 new dwelling units by 2040. Accordingly, employment is also expected to grow from the total employment of 73,347 in 2017 to 100,034 in 2040.

I-90 between approximately the 27<sup>th</sup> Street Interchange and the Johnson Interchange has a present annual average daily traffic (AADT) of 28,570 (2019). This segment of interstate is projected to grow at an annual growth rate of 2.9 percent and is projected to have an AADT of 58,380 in 2044. Currently, pedestrian facilities are located on the east side of the Lockwood Interchange structure over I-90. No other pedestrian facilities exist within the project limits. The *Billings Area Bikeways and Trail Master Plan* includes a recommendation for a proposed shared used path along US-87.

No churches or other community facilities are located within the project area. No public schools are located within the project area limits; however, Lockwood Middle School is located just east of the project area on Hardin Road. Two public parks are located south of the project area along Old Hardin Road at Woodland Road outside of the project area. These include the Exxon Mobile Lockwood Complex baseball fields and the adjacent Brooksdale Park (also baseball fields).

### 4.3.1 Potential Impact, Avoidance, Minimization, and Proposed Mitigation

No long-term adverse social impacts are anticipated due to implementation of the proposed project. Because of the project area's commercial and industrial setting, the proposed project would not adversely affect neighborhood character or community cohesion. New right-of-way will likely be required; however, no relocations of residential structures or businesses are anticipated due to the proposed project. Depending on the preferred alternative selected, there is potential to improve the bicycle and pedestrian connections and safety along US-87 in accordance with the *Billings Area Bikeways and Trail Master Plan*.

## 5 Visual Quality and Aesthetics

The project area is located within level to rolling terrain within an urbanized commercial and industrial setting along the interstate. Views are generally dominated by adjacent businesses and some vacant commercial lots and intermittent residential lots fringing I-90. Industrial development is more concentrated on the north side of the interstate, and particularly Exxon Mobile. The immediate roadside environment includes grassed medians and ditches and occasional advertisement billboards. Commercial activity is concentrated at the project area interchanges. Views of the surrounding rock outcroppings along the Yellowstone River or the Rimrocks are infrequent.

### 5.1 Potential Impact, Avoidance, Minimization, and Proposed Mitigation

No adverse visual impacts are anticipated due to the proposed project and reconstruction of the interstate or the interchanges. Depending on the preferred alternative selected, reconstruction may affect the immediate visual character of the highway corridor. Adverse visual effects are anticipated to be temporary and limited to the time required to construct the project. Some existing vegetation and trees immediately adjacent to the highway interchanges may need to be removed to accommodate the preferred alternative once selected. The proposed project would not impact any aesthetically valuable visual resources such as geologic features, parks or recreation areas, water bodies, or public facilities.

## 6 Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966 was enacted to protect publically owned parks, recreation areas, wildlife and waterfowl refuges, and public and private historic sites of local, state, and national significance. Federally funded transportation projects cannot impact Section 4(f)-protected properties unless there are no feasible and prudent avoidance alternatives and all possible planning to minimize harm has occurred. The following sections describe the historic and recreational features and properties located within the project area that are likely protected under Section 4(f).

## 6.1 Historic Sites

Section 106 of the National Historic Preservation Act 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 and archaeological 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. These historic resources properties, if either listed on or eligible for the National Register of Historic Places (NRHP), are also generally afforded protection under Section 4(f).

A cultural resources investigation was conducted by cultural resource consultants, Ethnoscience, in 2018 for the adjacent I-90 Yellowstone R – Billings project that included an inventory of the area surrounding the Lockwood Interchange. A cultural resources inventory of the remaining project area between the Lockwood and Johnson interchanges was completed in fall/winter of 2019.

Six historic sites were recorded by Ethnoscience during the cultural resources inventory. Two sites were previously recorded and four sites were newly identified. The two previously recorded sites are the Lockwood Irrigation District (24YL0271) and the Custer Battlefield Highway (24YL1672). The newly identified sites are two residences (24YL2232 and 24YL2233), a store/auto dealership (24YL2234) and an RV dealership (24YL2235). Figure 6-1 and Figure 6-2 show the topographic map displaying previous and newly identified sites within the project area vicinity. The cultural resources survey area is shown as a red outline. The results of the cultural resource survey are listed in Table 6-1 including the site number, type, address, and NRHP recommendation.

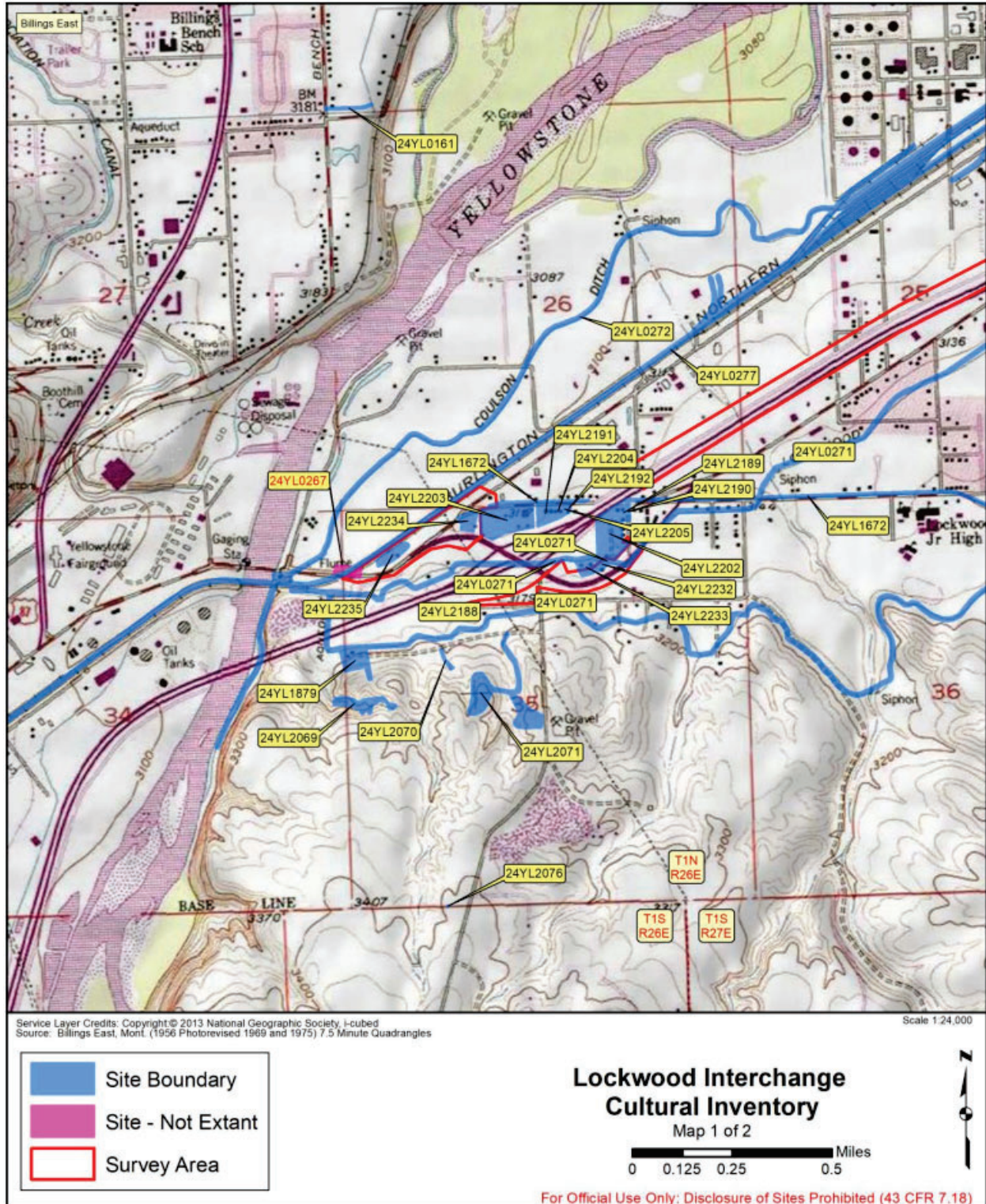


Figure 6-1. Previously Identified Sites within Section 26 and 35, T1N R26E

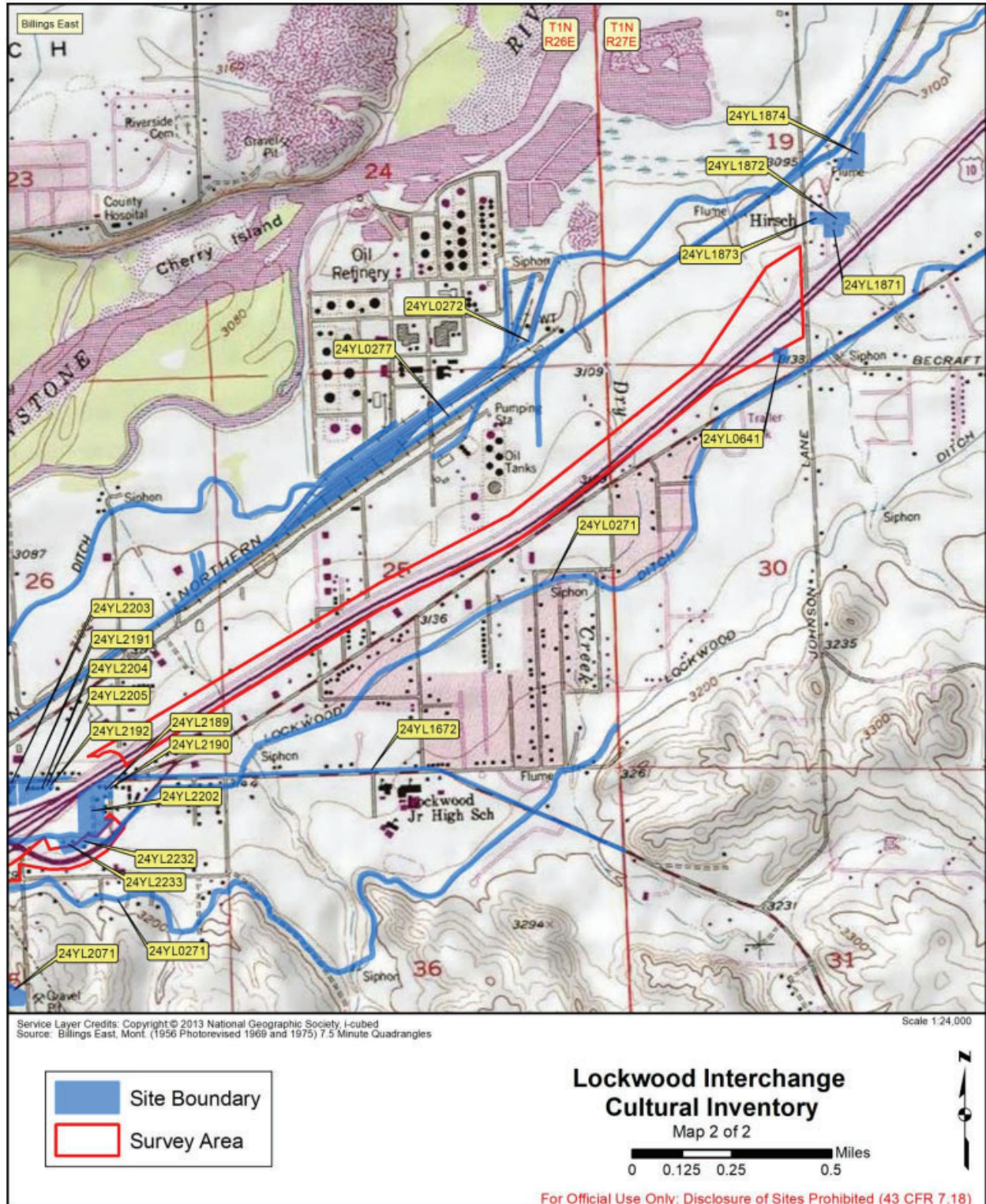


Figure 6-2. Previously Identified Sites within Section 25, T1N R26E, and Sections 19 and 30, T1N R27E

**Table 6-1. Cultural Resources Located within the Area of Potential Effect**

Site Number	Site Type (Name)	Site Address	NRHP Eligibility Recommendation
24YL0271 Update	Irrigation Ditch (Lockwood Irrigation District)	NA	Determined Not Eligible
24YL1672 Update	Road (Custer Battlefield Highway/US Highway 87)	NA	Non-contributing portion of the site
24YL2232	Historic Residence	1305 US Highway 87 East	Eligible (Criterion C)
24YL2233	Historic Residence	1249 US Highway 87 East	Not Eligible
24YL2234	Historic Commercial	1031 US Highway 87 East	Not Eligible
24YL2235	Historic Commercial	923 US Highway 87 East	Not Eligible

*Source: Ethnoscience, 2019.*

### 6.1.1 Potential Impact, Avoidance, Minimization, and Proposed Mitigation

Of the six sites identified during the survey and listed in Table 6-1, only one site, 24YL2232, is being recommended as eligible for the NRHP. This recommendation has not yet been reviewed or received concurrence by the Montana State Historic Preservation Office. Ethnoscience has made the recommendation that the proposed project avoid the historic features of 24YL2232 located at 1305 US Highway 87 East. These features are located outside of existing right-of-way and beyond the potential area of highway improvements and no impact to this site is anticipated.

The project may impact the Lockwood Irrigation District ditch (24YL0271) by affecting the existing ditch configuration or placing a portion of the ditch into a pipe. Potential impact to the ditch will depend on the preferred alternative selected and extent of improvements at the Lockwood Interchange, which will be determined at a later phase of project development. The ditch has been determined as not eligible for the NRHP.

The segment of Site 24YL1672 (US Highway 87) within the survey area is recommended as a non-contributing portion of the site because it has lost integrity and is unable to convey its historic character and, therefore, Section 4(f) is not applicable.

## 6.2 Public Park, Recreation Lands, and Wildlife and Waterfowl Refuges

Section 4(f) applies to publicly-owned public parks, recreation areas, and wildlife or waterfowl refuges. Within the vicinity of the project area, there are two parks that would likely be subject to protection under Section 4(f). The Four Dances Natural Area managed by the Bureau of Land Management is located south of the Lockwood Interchange and accessed from Coburn Road. Two Yellowstone County-owned public parks are located south of the project area along Old Hardin Road at Woodland Road outside of the project area. These include the Exxon Mobile Lockwood Complex baseball fields and the adjacent Brooksdale Park (also baseball fields). There are no publicly-owned parks or recreational resources within the immediate project area that would be subject to protection under the provisions of Section 4(f).

## 6.2.1 Potential Impact, Avoidance, Minimization, and Proposed Mitigation

The proposed project is not anticipated to impact any public park, recreation lands, or wildlife and waterfowl refuges protected under Section 4(f).

# 7 Land and Water Conservation Fund Section 6(f)

The National Land and Water Conservation Fund Act (LWCF) was enacted to preserve, develop, and assure the quality and quantity of outdoor recreation resources. Section 6(f) of the LWCF provides funding through grants to local and state governments for buying or developing public use recreational lands. Section 6(f)(3) of the Act provides that:

*“...No property acquired or developed with assistance under this section shall, without prior approval of the Secretary [of the Interior], be converted to other than public outdoor recreation uses. The Secretary shall approve such conversion only if he finds it to be in accord with the then existing comprehensive Statewide outdoor recreation plan and only upon such conditions as he deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location.”*

Where MDT projects result in conversion of land acquired or developed using LWCF funding, they must comply with the requirements of Section 6(f) that require replacement property of equal or greater value and similar usefulness and location as the converted property in accordance with 36 CFR 59.3.

## 7.1 Section 6(f) Properties in the Project Area

The Montana Fish, Wildlife & Parks (FWP) LWCF Sites by County (FWP 2019) was reviewed to identify projects receiving LWCF funding located within the project area vicinity. No properties or parks having received LWCF funding are located within the immediate project vicinity.

### 7.1.1 Potential Impact, Avoidance, Minimization, and Proposed Mitigation

Because there are no Section 6(f) properties within the project limits, the project as currently proposed is not anticipated to result in the permanent conversion of any LWCF properties.

# 8 Surface Waters and Wetlands

The Clean Water Act (CWA) establishes the framework for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The U.S. Army Corps of Engineers (USACE), Montana Regulatory Offices, administer and enforce Section 404 of the CWA in Montana for the Omaha District. Under CWA Section 404, a permit is required for the discharge of dredged or fill material into waters of the United States including wetlands.

Surface water resources, including wetlands, were investigated through a combination of literature and database review and on-site field investigation. HDR staff conducted a field investigations in the project area on October 24, 2019.

## 8.1 Surface Waters and Irrigation

Surface waters and irrigation features for the project area were identified through review of the USGS National Hydrography Dataset (NHD). Three intermittent streams are located within the project area and, described west to east, they include:

- Unnamed Intermittent Stream at RP 453.5:
- Dry Creek at RP 454.7
- Unnamed Intermittent Stream at RP 455.3 (Johnson Interchange)

One irrigation ditch, the Lockwood Ditch, is located within the project area and is further described below. These features are depicted in Figure 8-1.

### **Unnamed Intermittent Stream at RP 453.5**

This unnamed intermittent stream originates south and outside of the project area and flows in a northerly direction within a manipulated open ditch. It flows under I-90 at approximately RP 453.5 through a double culvert approximately 275 feet in length. As the stream daylights on the north side of I-90, it flows to the north in an open ditch, passes under Lockwood Road, MRL railroad, and Cerise Road and flows into the Yellowstone River. There is a delineated regulatory floodway and floodplain associated with this stream.

### **Dry Creek at RP 454.7**

Dry Creek is an intermittent stream that originates approximately 5 miles southeast of the project area. It flows in a northwesterly direction, roughly paralleling Highway 87 on the south side of the highway. As it approaches Lockwood, Dry Creek is a manipulated channel and flows under I-90 at approximately RP 454.7 through an approximately 260-foot-long culvert. Dry Creek then flows in an open, narrow ditch northward toward and under the railroad and industrial development, at which point the stream channel and terminus become indecipherable using aerial imagery. Dry Creek may contribute to several constructed detention ponds located adjacent to the Exxon Mobile refinery. The creek does not appear to have a direct downstream surface connection with the Yellowstone River.

There is a delineated regulatory floodway and floodplain associated with Dry Creek adjacent to the project area on both the north and south sides of I-90. Dry Creek has not been assessed by DEQ and is not identified as impaired per the 303(d) list.

### **Unnamed Intermittent Stream at RP 455.3**

An unnamed intermittent stream flows in a northwesterly direction through the Johnson Interchange. This stream originates east and south of the project area and flows through an approximately 165-foot-long culvert under Johnson Lane and the eastbound I-90 off-ramp. This stream ponds within a depressional area in the southwest quadrant of the interchange, then flows through a series of open ditch channels and culverts before entering a box culvert that carries the stream under the Town Pump property. This stream appears to eventually flow into the Yellowstone River floodplain. There is no floodplain associated with this stream within the project area vicinity.



## Lockwood Irrigation District Ditch

The Lockwood Irrigation District was created in 1913 and supplies irrigation water to agricultural areas to the east of Billings. The irrigation canal is created by an approximately 3,500-foot-long constructed diversion berm that diverts flows from the main channel of the Yellowstone River to a pump house located adjacent to the river. From the pump house, water is pumped to two irrigation ditches, one of which is located in the project area and flows underneath the Lockwood Interchange in a west to east direction. Open ditch segments exist within the project area on both the east and west sides of the interchange. No water was flowing in this ditch during the October 2019 site visit.

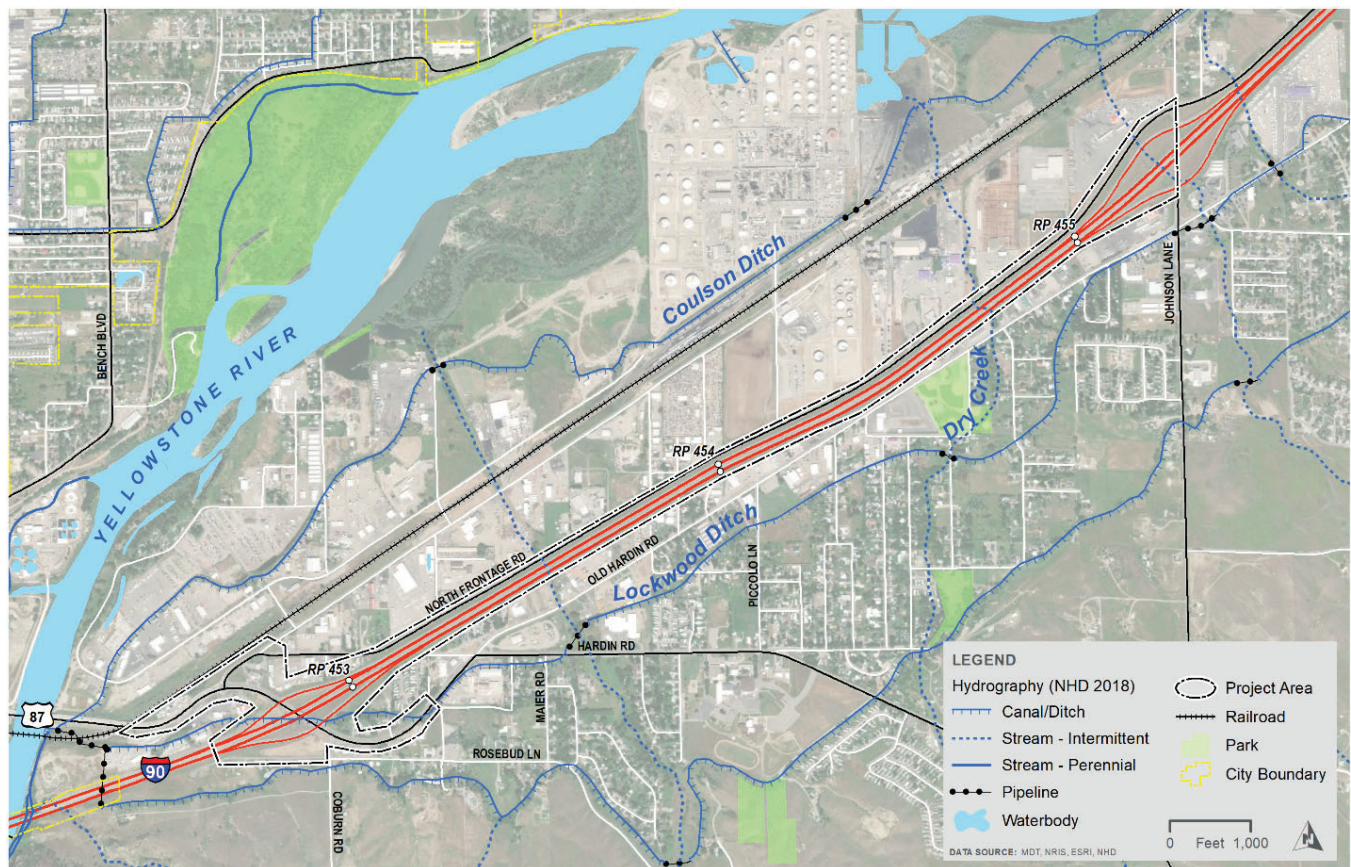


Figure 8-1. Surface Waters in the Project Area Vicinity

## 8.2 Wetlands

Wetlands were investigated using the Routine Method as described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), as updated by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (USACE 2010). The project area was surveyed for wetlands on October 24, 2019, as described above. To be considered a wetland, an area must have hydrophytic vegetation (vegetation adapted to wetland conditions), hydric soils, and wetland hydrology.

A single wetland was delineated within the project area located between the eastbound off-ramp and interstate at the Johnson Interchange. Figure 8-2 shows the results of the wetland delineation and Table 8-1 below lists the characteristics of the wetland along with its classification, type, and area.



Figure 8-2. Wetland Delineation Results

Table 8-1. Project Area Wetland Characteristics

Wetland Characteristic	Description
Wetland Number (WL)	WL-1
Reference Post (approx.)	455.3
HGM <sup>1</sup>	Depressional
Cowardin Classification <sup>2</sup>	PEM
MDT Wetland Category	IV
Wetland Area with Project Area (acres)	0.24
Primary Source and Destination of Wetland Hydrology	Intermittent surface flows from unnamed stream; runoff from I-90, off-ramp, and Johnson Lane; upland surface flow.
Narrative Description	This is a depressional, emergent wetland located on the south side of I-90, between highway embankments. Dominant vegetation is field reed canary grass ( <i>Phalaris arundinacea</i> ).

<sup>1</sup> MDT 2008; <sup>2</sup> Cowardin et al., 1979;

### 8.2.1 Potential Impact, Avoidance, Minimization, and Proposed Mitigation

A preferred alternative has not been identified and, as such, a proposed design and associated construction limits have not been established. The extent of impact to Wetland 1 or the project area waterways will be identified as design progresses and will depend on the established construction limits. The project team will avoid and minimize impact on wetlands and water bodies in the project

area to the greatest extent practicable. Once the preferred alternative has been selected and construction limits established, impact on Wetland 1 would be quantified and described in greater detail in the Aquatic Resource Findings Report (AFR) and Section 404 permit application.

The proposed project may require modification or replacement of the culverts conveying Dry Creek and/or the unnamed intermittent streams as well as potential modification to the Lockwood Irrigation District ditch. Efforts would be made during the design phase to minimize impact on these waterways and irrigation features. Work would likely occur outside of the irrigation season to avoid impact on irrigation users. Work would also likely occur during periods of lower flows to the extent possible to allow for work to occur “in the dry” within the intermittently flowing streams.

Compensatory mitigation requirements are also currently unknown. Appropriate stream mitigation, if required, will be determined in accordance with the Montana Stream Mitigation Procedure (MTSMP) (USACE 2013) and through coordination with the USACE and MDT when stream impacts are further quantified during final design of the proposed project. Per the MTSMP projects that result in more than 300 linear feet of new impact on streams will usually require compensatory mitigation. Wetland mitigation, if required, will be developed in consultation with the MDT District Biologist and/or MDT Aquatic Mitigation Engineer in accordance to the USACE Wetland Compensatory Mitigation Ratios, Montana Regulatory Program (April 2005). All mitigation proposals will be included in the AFR Report at a later phase of the project.

### 8.3 Water Quality Permitting

The following section identifies potential various Federal, State, and local water quality permits applicable to the proposed project. Table 8-2 summarizes the anticipated permits and the responsible agency. These determinations are subject to change as the design progresses and a preferred alternative is selected. The project area is not located on an Indian reservation and therefore a tribal water quality permit is not applicable.



**Table 8-2. Potential Water Quality Permit Requirements for the Project**

Required Permits (Responsible Agency)	Is a Permit Necessary?		
	Yes	No	To-Be-Determined
<i>Federal Permits</i>			
Clean Water Act, Section 404 permit (US Army Corps of Engineers)			X
Clean Water Act, Section 402 NPDES permit <sup>1</sup> (Environmental Protection Agency)		X	
Clean Water Act, Section 401 Water Quality Certification (Montana Department of Environmental Quality)			X
<i>State Permits</i>			
Montana Stream Protection Act, SPA 124 Notification (Montana Fish, Wildlife & Parks)			X
Montana Water Quality Act, 318 Authorization (Montana Department of Environmental Quality)			X
Montana Water Quality Act, Montana Pollutant Discharge Elimination System (MPDES) permits (Montana Department of Environmental Quality)	X		
<i>Local Permits</i>			
MS4 Permit	X		
<sup>1</sup> Section 402 compliance obtained through MPDES permit. Note: The project is not located on an Indian reservation and no tribal permits apply.			

Section 404 of the Clean Water Act (CWA) requires approval prior to discharging dredged or fill material into waters of the United States, including wetlands. Potential impacts on jurisdictional waters of the U.S., including wetlands, are currently not known at this time. If the preferred alternative results in impact on Wetland 1 or the intermittent streams identified within the project area, then a CWA Section 404 permit would be anticipated.

Relatively permanent waters, or RPWs, are tributaries that flow year round or have continuous flow at least seasonally, and that flow directly or indirectly into a Traditional Navigable Waters, or TNW. Dry Creek, because of its seasonal flows and direct downstream connection to the Yellowstone River, a TNW, is considered a RPW. Because of the significant nexus to a TNW, Dry Creek meets the criteria of a waters of the U.S., thus falling under the jurisdiction of the USACE under Section 404 of the CWA.

The proposed project may require modification to the Lockwood Irrigation District ditch depending on the preferred alternative selected. Based on the Ninth Circuit Court of Appeals 2001 *Headwaters, Inc. v. Talent Irrigation District* decision, the USACE considers irrigation ditches as jurisdictional waters of the U.S. under Section 404 if they have a downstream surface connection to other waters of the U.S. and/or jurisdictional wetlands. This only applies to ditches that drain into a water of the United States, and which have an ordinary high water mark and/or a continuum of wetlands along the channel. Preliminary investigations suggest the irrigation ditch does not have a downstream

surface connection to a Waters of the U.S. and is therefore likely to not be considered jurisdictional under Section 404. The USACE is ultimately responsible for all jurisdictional determinations.

Highway reconstruction projects are commonly permitted under Nationwide Permit (NWP) No. 14 – Linear Transportation Projects, which pertains to activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, etc.) in waters of the U.S. Project authorization under NWP 14 can occur only if the impacts to waters of the U.S. are less than 0.5 acre, beyond which an Individual Permit is required. Pursuant to NWP General Condition 31, the proposed project would require pre-construction notification if (1) the loss of waters of the U.S. exceeds 0.10-acre, or (2) there is a discharge in a special aquatic site, including wetlands. As the project progresses, potential impacts to waters of the U.S., including wetlands, will be quantified to ascertain the appropriate level of permitting requirements under the CWA. If a Section 404 permit is required then the project would trigger requirements for 401 Certification under the authority of DEQ.

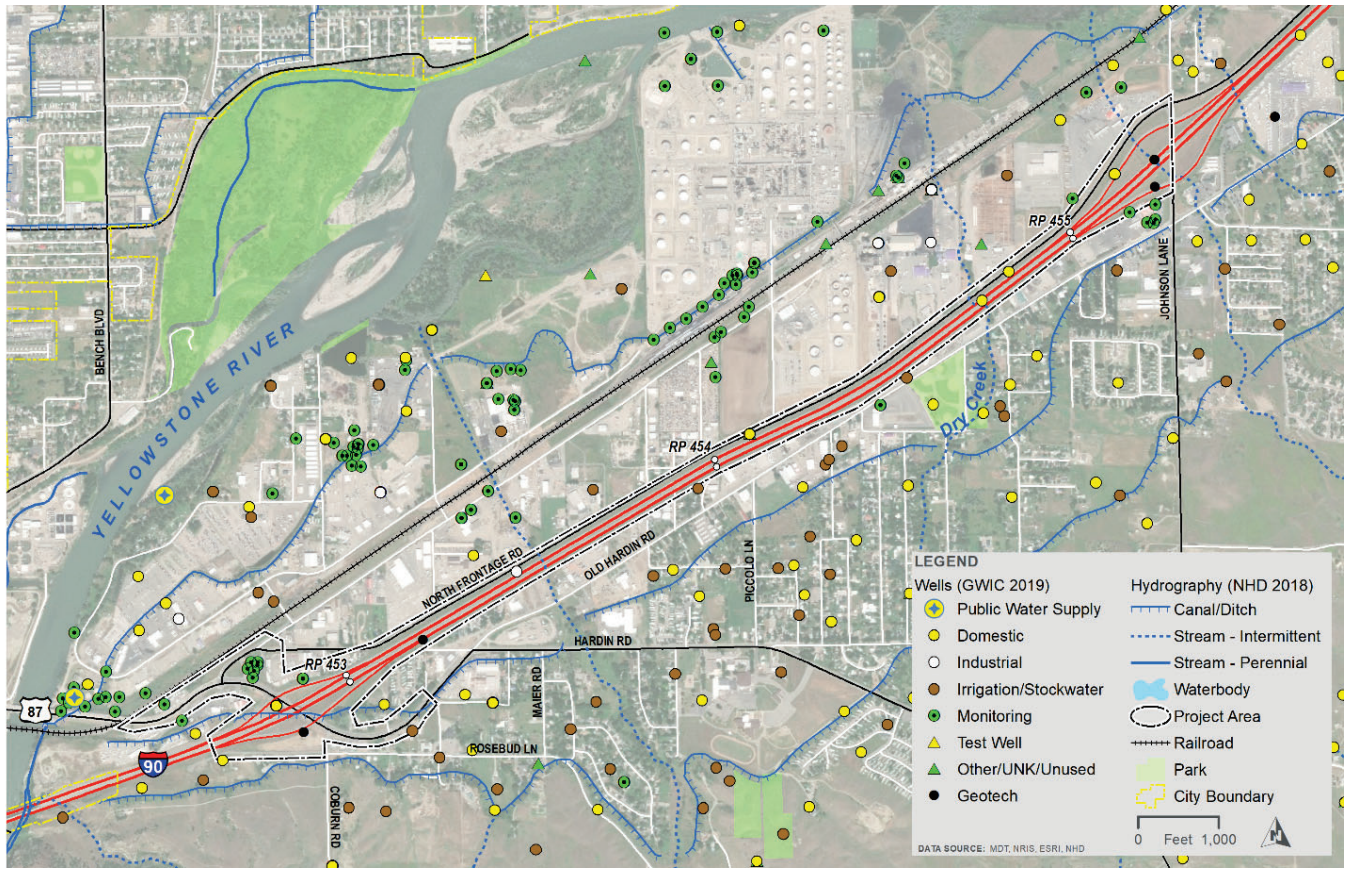
A Montana Stream Protection Act Notification (SPA 124) may be required. As design progresses and impacts determined, preliminary design concepts will be shared with the FWP to identify SPA 124 applicability. The proposed project is located within the Billings Urbanized Area and is subject to MS4 requirements. See Section 10.2 for more information on the permitting requirements under the MPDES.

## 9 Drinking Water Sources

The Montana Department of Environmental Quality (DEQ) Public Water Supply Program Montana Drinking Water Watch database (DEQ 2019) was reviewed to identify drinking water sources located within the project area. The database identifies a total of 104 sources within Yellowstone County, 39 of which are community sources, or wells that serve at least 15 service connections used by year-round residents or regularly serves 25 year-round residents. The database lacks sufficient geographical information to locate individual sources.

### 9.1 Wells

The Montana Groundwater Information Center (GWIC) well data maintained by the Montana Bureau of Mines and Geology was also reviewed. Well geographic information system (GIS) data was downloaded from the GWIC and overlain on the project area map. GWIC wells in the general vicinity of the project area are shown in Figure 9-1 and symbolized by well type. There are a total of 44 wells and six boreholes identified within the project area limits. Of these 44 wells, the well use types include: ten domestic, one industrial, five irrigation, 25 monitoring, one stockwater, and two unknown. Two wells are identified as public water supply wells that are located northwest and outside of the project area limits along the Yellowstone River. Several wells located within the project area are identified as being within or in very close proximity to the interstate right-of-way as shown in Figure 9-1; however, there is likely some margin of error in some of the latitude/longitude coordinates within the GWIC database.



**Figure 9-1. Wells Located in the Project Area Vicinity**

### 9.1.1 Potential Impact, Avoidance, Minimization, and Proposed Mitigation

No impact on any public water supply well is anticipated as a result of the project. A preferred alternative has not yet been identified and, as such, construction limits for improvements have not been established. There is potential for new right-of-way to be required depending on the preferred alternative selected for the project and, as a result, there is potential for the project to impact an existing well. Several domestic wells are identified within existing highway right-of-way. The locations for wells identified within the interchanges and along the interstate are likely erroneous due to inaccurate coordinates. A utility survey will be performed for the project area and any wells located within the survey limits will be accurately located, placed on project plans, and avoided to the extent practicable.

## 10 Stormwater Management Considerations

### 10.1 MPDES Construction Storm Water General Permit

In 1974, the EPA delegated Montana authority to implement many CWA programs within the state under the Montana Water Quality Act. Under agencies and laws, Montana executes federal water quality guidelines including CWA Section 401 that is currently administered by Montana DEQ through the Montana Pollutant Discharge Elimination System (MPDES). The goal of the MPDES

program is to control point source discharges of wastewater that includes discharges associated with construction activity such that surface water quality of state waters is protected.

The EPA administers the National Pollutant Discharge Elimination System (NPDES) stormwater permitting program for Indian Country (i.e., Indian reservations) within the state of Montana. The proposed project is not located on an Indian reservation and therefore the NPDES is not applicable.

Under the MPDES General Permit for Storm Water Discharges Associated with Construction Activity, permittees are authorized to discharge stormwater in accordance with requirements identified in the permit. MPDES permit coverage is required for construction activities that include clearing, grading, grubbing, excavation, or other earth disturbing activities that disturb one or more acres and discharge stormwater to state surface waters or to a storm sewer system that discharges to a state surface water. Projects requiring coverage under the MPDES program must develop and submit a Stormwater Pollution Prevention Plan (SWPPP) that identifies pollutant sources and site-specific Best Management Practices (BMPs) to prevent and minimize the potential for pollutants leaving the construction site.

### 10.1.1 Potential Impact, Avoidance, Minimization, and Proposed Mitigation

The areal extent of ground disturbance associated with the proposed project is currently unknown; however, the scope of the proposed reconstruction would suggest that the area of disturbance will easily exceed the one acre threshold requiring an MPDES Construction Storm Water General Permit.

In addition to the stormwater requirements of the MPDES, the construction contractor would be required to follow MDT standard specifications for environmental protection to adhere to applicable water quality rules, regulations, and permit conditions for the project. This includes implementation, maintenance, and monitoring of erosion and sediment control BMPs as well as the requirement to re-vegetate disturbed areas upon completion of the project to minimize and abate pollution of surface and ground water resources in accordance with MDT's Erosion and Sediment Control Best Management Practices Manual.

## 10.2 Municipal Separate Storm Sewer System (MS4)

The DEQ is responsible for administering the Small Municipal Separate Storm Sewer System (MS4) program that regulates stormwater discharges associated urban areas. The MPDES General Permit for Storm Water Discharge Associated with Small Municipal Separate Storm Sewer System (MS4) was reissued late 2016 and became effective on January 1, 2017. Under the renewed authorization, permittees are authorized to discharge stormwater resulting only from MS4s in accordance with effluent limitations, monitoring requirements, and other conditions set forth in the permit. Permittees are required under the permit to develop, implement, and enforce a Storm Water Management Program (SWMP) to reduce the discharge of pollutants to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the Montana Water Quality Act.

Areas included in the permit are Billings, Bozeman, Butte, Great Falls, Helena, Kalispell, and Missoula. Additionally, the urbanized areas of Cascade, Missoula, and Yellowstone counties; Malmstrom Air Force Base, Montana State University, and the University of Montana are other entities required to obtain coverage under the permit. Within the permitted areas, storm sewer

systems associated with MDT highways are included in the facilities subject to the MS4 permit requirements.

### 10.2.1 Potential Impact, Avoidance, Minimization, and Proposed Mitigation

The proposed project is located within the Billings Urbanized Area and current MS4 boundary. As such, the project will be subject to local MS4 requirements including the performance standard described in Part II.A.5.b.iii. of the current MS4 permit, which requires all regulated projects to implement post-construction storm water controls that are designed to infiltrate, evapotranspire, and/or capture for reuse the post-construction runoff generated from the first 0.5 inch of rainfall from a 24-hour storm preceded by 48 hours of no measurable precipitation. Coordination with the local MS4 will be necessary as the project progresses.

### 10.3 Low Impact Development (LID) Practices

Projects implementing Low Impact Development (LID) practices involve systems and practices that use or mimic natural processes that result in the infiltration, evapotranspiration or use of stormwater in order to protect water quality and associated aquatic habitat. LID practices must be evaluated for development or redevelopment projects that disturb one or more acres of land area or projects disturbing less than one acre of land that are part of a larger common plan of development and that discharge into a regulated Small MS4 area.

Because the proposed project is located within the regulated Billings MS4 Area, it will be a requirement to evaluate the applicability of incorporating LID practices into the design.

### 10.4 Permanent Erosion and Sediment Control Measures

Incorporation of Permanent Erosion and Sediment Control (PESC) measures should be considered with projects disturbing one acre or more, or projects having the potential to adversely affect water quality. Incorporation of PESC measures will typically be limited to projects with scopes related to rehabilitation or reconstruction and locations in proximity to sensitive resources such as impaired waterways or high quality aquatic habitat and spawning areas. PESC measures can also provide solutions for areas with a history of erosion or sedimentation problems.

As documented in the Preliminary Field Review Report (currently in draft form), disturbed areas will be replanted with native grasses. Permanent erosion control measures may be required to accommodate bridge drainage depending on the preferred alternative identified. No other permanent erosion control features beyond seeding are anticipated for the project.

## 11 Wild and Scenic Rivers

The National Wild and Scenic Rivers Act was passed by Congress in 1968 to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. In Montana, portions of the Flathead River and the Missouri River (368 miles total) are designated as Wild and Scenic under the Act.



## 11.1 Potential Impact, Avoidance, Minimization, and Proposed Mitigation

There are no designated Wild and Scenic Rivers in or adjacent to the project area. The proposed project would have no impact on Wild and Scenic Rivers.

## 12 Signatures

The following HDR staff were responsible for preparing the Lockwood Interchange – Billings Project Environmental Engineering Analysis Report.

### Author



Date: March 4, 2020

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**Jon Schick**  
Environmental Planner  
HDR Engineering

### Supervising Professional Engineer



Date: March 11, 2020

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**Tim Erickson, P.E.**  
Project Manager  
HDR Engineering

## 13 References

- City of Billings. 2016. 2016 City of Billings Growth Policy. August 2016.
- Cowardin, L.M., V. Carter, F.C. Golet, E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS-79/31. U.S. Fish and Wildlife Service: Washington, D.C.
- DEQ (Montana Department of Environmental Quality). 2019. Montana Drinking Water Watch. Water Systems database. Accessed at <http://sdwisdww.mt.gov:8080/DWW/JSP/WaterSystems.jsp?PointOfContactType=none&number=&name=&county=Missoula>. Accessed on November 4, 2019.
- DLI (Montana Department of Labor and Industry). 2019. Accessed at <https://lmi.mt.gov/Employment/lausCntyrank>. Accessed on Sep 20, 2019
- Environmental Laboratory. 1987. Corps of Engineers wetland delineation manual. Wetlands Research Program Technical Report Y-87-1. Department of the Army. Vicksburg, Mississippi.
- EPS (Economic & Planning Systems, Inc.). 2017. Downtown Billings Housing Strategy. December 28, 2017.
- FWP (Montana Fish, Wildlife, & Parks). 2017. Land and Water Conservation Fund (LWCF) Sites by County. Accessed at <http://stateparks.mt.gov/recreation/lwcf.html>. Accessed on October 3, 2019.
- GWIC (Montana Ground Water Information Center). 2017. Montana Bureau of Mines and Geology. GWIC Wells web mapping application. Accessed at <http://data.mbmgs.mtech.edu/mapper/mapper.asp?view=Wells&>. Accessed on October 20, 2019.
- MDT (Montana Department of Transportation). 2012. Billings Area I-90 Corridor Planning Study. Final Report. March 2012.
- MDT. 2019. Montana Traffic Data. Accessed at <https://mdt.maps.arcgis.com/home/webmap/viewer.html?webmap=8a0308abed8846b6b533781e7a96eedd>. Accessed on September 23, 2019.
- MTNHP (Montana Natural Heritage Program) 201. Environmental Summary Report for Latitude 45.78041 to 45.82866 and Longitude -108.40266 to -108.47966. Retrieved on 9/10/2019.
- MPO (Billings-Yellowstone County Metropolitan Planning Organization). 2019. 2018 Billing Urban Area Long Range Transportation Plan. January 11, 2019.
- NRCS (USDA Natural Resources Conservation Service) 2019. Custom Soil Resource Report for Yellowstone County, Montana Lockwood Interchange – Billings. Retrieved on 9/18/2019.
- Tidd, L., Sliker, L., Braitman, Lee-Roark, C., and Ballard, L. 2013. Assessing the Extent and Determinants of Induced Growth. Report No. FHWA/MT-13-004/8216. Report prepared by the Louis Berger Group, Inc. June 2013.
- USACE. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region. May 2010.
- USACE (U.S. Army Corps of Engineers). 2013. USACE Omaha District Montana Stream Mitigation Procedure. February 2013.

<http://www.nwo.usace.army.mil/Portals/23/docs/regulatory/MT/Mitigation/MTSMP-Revised-February%202013.pdf>

USCB (U.S. Census Bureau). 2010. 2010 Census Data. Accessed at <https://www.census.gov/2010census/data/>. Accessed on December 18, 2017.

USCB. 2019a. American Community Survey (ACS) 2013-2017 5-Yr Estimate. Accessed at <https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>. Accessed on September 19, 2019.

USCB. 2019b. U.S. Census Bureau Quickfacts for Billings, Montana. Accessed at <https://www.census.gov/quickfacts/fact/table/billingscitymontana/INC110217>. Accessed on September 23, 2019.

## APPENDIX A: Site Photographs



Photo 1: Town Pump located at 1028 US Highway 87 E, looking west.



Photo 2: Liberty gas station located at 1031 US Highway 87 E, looking north.



Photo 3: Cenex Zip Trip gas station located at 151 Rosebud Lane, looking south.



Photo 4: Flying J Travel Plaza located at 2775 Old Hardin Road, looking north.



Photo 5: Northwest quadrant of Johnson Interchange, unnamed intermittent stream feature, looking northwest.



Photo 6: Southwest quadrant of Johnson Interchange, overview of Wetland 1, looking northwest.



Photo 7: Wetland sample plot location in Wetland 1.



Photo 8: Typical I-90 roadside environment and right-of-way fencing.



Photo 9: Lockwood Irrigation District Ditch in Project Area.



Photo 10: Johnson Interchange area and I-90, looking northwest.