

3.13 Wilderness

In 1964, Congress established the National Wilderness Preservation System under the Wilderness Act. Federal lands qualifying as wilderness must be designated by Congress through legislation. Management agencies are charged with preserving the natural condition of these lands and provide opportunities for primitive and unconfined wilderness experiences (National Atlas 2004).

The nearest designated wilderness area to the Project area is the Theodore Roosevelt Wilderness, approximately 1 mile west of the Project area in McKenzie County (**Figure 3.11-1**). Theodore Roosevelt Wilderness was established in 1978 and totals 29,920 acres. Attractions in the wilderness area include wildlife viewing, a petrified forest, unique geology, and mixed-grass prairie. Wildlife viewing includes bison, elk, mule deer, white-tailed deer, pronghorn, and bighorn sheep. This wilderness area lies within the boundary of Theodore Roosevelt National Park and is managed by the NPS. The presence of the national park makes this a highly visited wilderness area. Theodore Roosevelt National Park welcomed 623,748 visitors in 2010 (Wilderness.net 2004).

The Project route passes immediately east of lands suitable for wilderness, near the southeast boundary of Theodore Roosevelt National Park. Lands suitable for wilderness are lands that have been identified as being suitable for wilderness recommendations to Congress for inclusion in the National Wilderness Preservation System. Although the USFS has not recommended this area for wilderness at this time, the area is still managed to protect wilderness characteristics. Areas suitable for wilderness typically offer primitive recreation opportunities that are available with a moderate degree of solitude (USFS 2001).

3.14 Visual Resources

Scenic quality is the measure of the visual appeal of a unit of land. Section 102 (a) of the Federal Land Policy and Management Act (FLPMA) (1976), states that "...the public lands are to be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values." Section 103(c) identifies "scenic values" as one of the resources for which public land should be managed. Section 201(a) states that "the Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resources and other values (including scenic values)..." Section 505(a) requires that "each ROW shall contain terms and conditions which will...minimize damage to the scenic and esthetic values..."

Section 101 (b) of the NEPA requires that measures be taken to ensure that aesthetically pleasing surroundings be retained for all Americans.

Under FLPMA, the USFS developed standard visual assessment methodologies, known as the Scenery Management System (SMS), to inventory and manage scenic values on lands under their jurisdictions. Guidelines for applying the SMS system on USFS-administered lands are described in USFS Handbook 701. The Project crosses approximately 6.8 miles of USFS-administered lands.

Scenic integrity objectives establish limits of acceptable human alteration in form, line, color, and texture as the landscape moves toward a landscape character goal. Scenic integrity objectives (SIOs) are assigned for all USFS-administered lands through the national forest planning process and are described in **Table 3.14-1**. These objectives are based on visual inventories and management decisions made in forest plans, which must take into consideration the value of scenery. **Figure 3.14-1** illustrates the scenic integrity objectives units crossed by the Project.

The Project crosses SIO Moderate and Low areas, with approximately 24.6 acres designated as having Moderate Scenic Integrity, and approximately 19.6 acres designated as having Low Scenic Integrity (**Figure 3.14-1**). The Project would closely parallel existing landscape modifications for approximately 75 percent of its length.

The characteristic landscape of the Project area is contained within a variety of landforms, including the river valleys, plains, and topographically varied landscapes of the Missouri Plateau Region (glaciated and unglaciated sections) within the Great Plains physiographic province (Fenneman 1931). In general, the shales and clays are gray to brown, and the sandstones tend to appear yellowish orange to buff and tan. The Project crosses a mix of grassland and agricultural fields. Cottonwood-dominated riparian vegetation occurs along the crossings of the Little Missouri River. Rangeland vegetation is dominated by mixed shrub grasslands. **Figures 3.14-2** through **3.14-5** illustrate four characteristic views of the Project area landscape. Human modifications to the natural landscape are sparsely scattered, but consist mostly of roads with occasional clusters of ranch buildings and fences. There are few populated settlements.

The Interstate and U.S. and SHs that afford public viewing opportunities of the Project include I-94, U.S. Highway 85, SH 23, SH 73, SH 200, and SH 1804. The Project also is visible from less-traveled roads and homes within its viewsheds. The Project is visible from towns and villages and from designated recreation and scenic areas, including the Little Missouri River, the entryway to the Theodore Roosevelt National Park North Unit visitor center, Juniper Campground, Summit Campground, and the boating areas of Lake Sakakawea.

Table 3.14-1 USFS Scenic Integrity Objectives

Very High (Unaltered-Preservation Visual Quality Objectives [VQO])	Very high scenic integrity refers to landscapes where the valued landscape character "is" intact with only minute if any deviations. The existing landscape character and sense of place is expressed at the highest possible level.
High (Appears Unaltered-Retention VQO)	High scenic integrity refers to landscapes where the valued landscape character "appears" intact. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that they are not evident.
Moderate (Slightly Altered-Partial Retention VQO)	Moderate scenic integrity refers to landscapes where the valued landscape character "appears slightly altered." Noticeable deviations must remain visually subordinate to the landscape character being viewed.
Low (Moderately Altered-Modification VQO)	Low scenic integrity refers to landscapes where the valued landscape character "appears moderately altered." Deviations begin to dominate the valued landscape character being viewed but they borrow valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes, or architectural styles outside the landscape being viewed. They should not only appear as valued character outside the landscape being viewed, but also compatible or complimentary to the character within.
Very Low (Highly Altered-Maximum Modification VQO)	Very low scenic integrity refers to landscapes where the valued lands pears heavily altered. Deviations may strongly dominate the valued landscape character. They may not borrow from valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles within or outside landscape being viewed. However, deviations must be shaped and blended with the natural terrain (landforms) so that elements such as unnatural edges, roads, landings, and structures do not dominate the composition.

Source: USFS 1995.

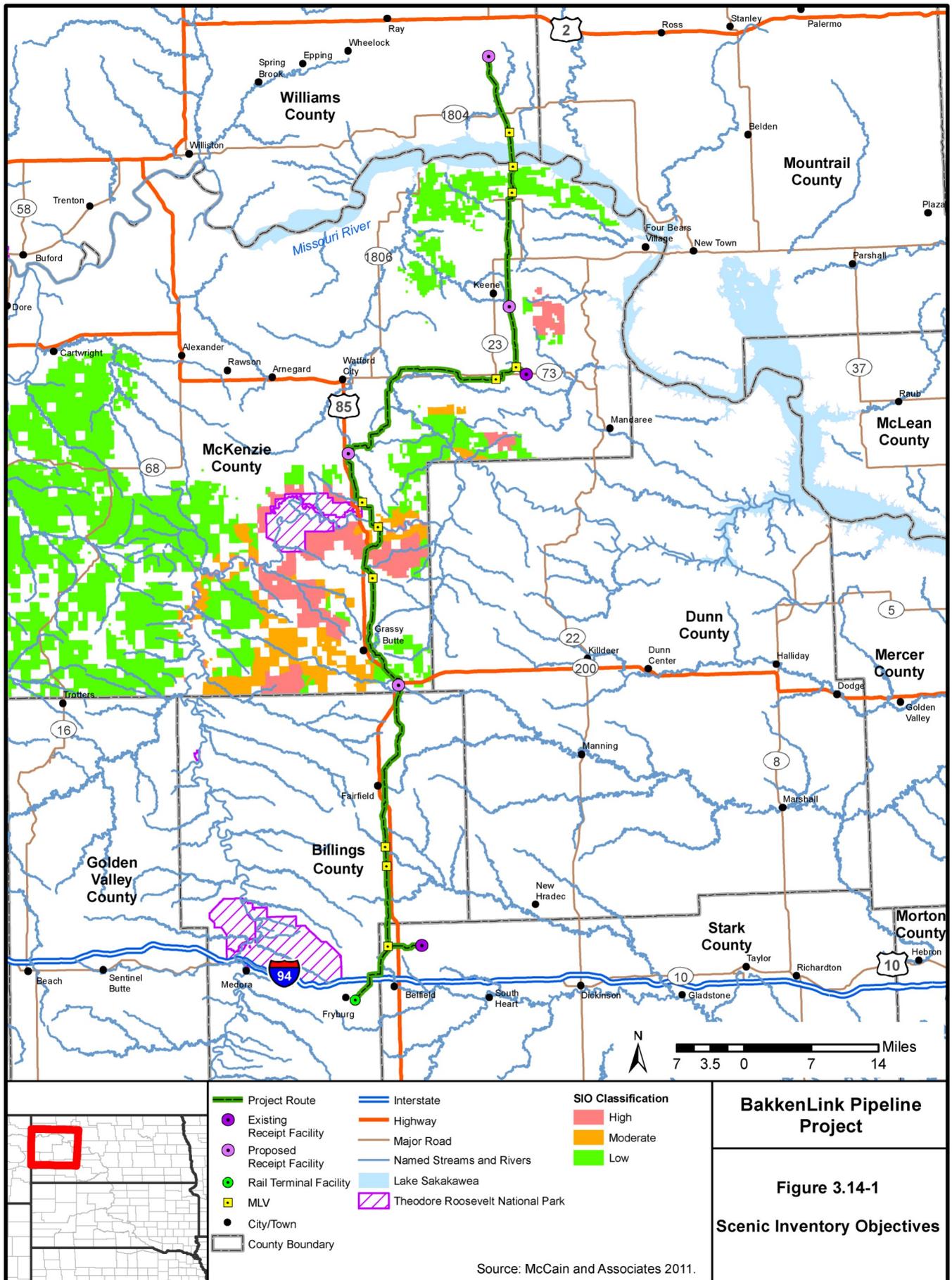




Figure 3.14-2 View Southeast from the Entry Road to Theodore Roosevelt National Park Toward the Pipeline Crossing Area of the Little Missouri River Valley



Figure 3.14-3 Typical View of Lake Sakakawea Shore Areas Crossed by the Pipeline ROW



Figure 3.14-4 Typical View of the Grassland Crossed by the Pipeline ROW



Figure 3.14-5 Typical View of the Agricultural Cropland Crossed by the Pipeline ROW

3.15 Noise

Sound intensity is measured by the decibel (dB). Audible sounds range from 0 dB (“threshold of hearing”) to about 140 dB (“threshold of pain”), and the normal audible frequency range is approximately 20 Hz to 20 kHz. The A-weighted scale, denoted as dBA, is used in most noise ordinances and standards, and approximates the range of human hearing by filtering out lower frequency noises, which are not as damaging as higher frequency noises. Breathing has a decibel level of 11 dBA; conversational speech is 60 dBA; and aircraft takeoff is 150 dBA (McCain and Associates, Inc. 2011). **Table 3.15-1** displays the OSHA permissible time limits at different sound levels.

Table 3.15-1 OSHA Noise Exposure Time Limits

dB	Exposure Time
85dB	8 hours
88dB	4 hours
91dB	2 hours
94dB	1 hour
97dB	30 minutes
100dB	15 minutes

Source: McCain and Associates, Inc. 2011.

The Project would be constructed entirely through rural areas where the nearest residences would be at least 500 feet from the ROW. Existing noise sources in rural areas are predominantly natural (i.e., wind, birds). Other sources of noise in rural and agricultural areas are roadway traffic and farm equipment on a seasonal basis. Portions of the Project area are located along major highways and truck routes, such as U.S. Highway 85, SR 200, and SR 73, as well as railroads. Generally, background noise levels in rural areas vary between 40 and 50 dBA (McCain and Associates, Inc. 2011). The background level can be affected by atmospheric conditions, wind levels, topography, vegetation, time of day, bird, and human activity.

3.16 Socioeconomics

This section summarizes historical and current socioeconomic conditions in the five counties (Billings, Dunn, McKenzie, Stark, and Williams) that would be affected by the Project. All of the affected counties are within North Dakota. Although Dunn County is not transected by the Project, its close proximity to the Project area warrants its inclusion in the analysis. The largest towns in the five-county socioeconomic Project area are Williston and Dickinson and are located at the northern and southern ends of the Project. Elements reviewed include population, economic conditions, income, employment, housing, local government facilities and services, and local government fiscal conditions.

3.16.1 Population

The socioeconomic Project area is predominantly rural and sparsely populated. The largest cities within the socioeconomic Project area are Williston (2010 population 14,716) and Dickinson (2010 population 17,787). Both of these cities have witnessed a marked increase in population, with the population of Williston increasing 18 percent from 2000 to 2010, and the population of Dickinson increasing by 11 percent during the same timeframe. As shown in **Table 3.16-1**, the population in McKenzie, Stark, and Williams counties has increased from 2000 to 2010 on a pace greater than that of the state. Population in Billings and Dunn counties declined over the same period (U.S. Census Bureau 2010).

Table 3.16-1 Local Population and Demographics

Location	Population 2000	Population 2010	2000 to 2010 Percent Change	2010 Single Person Households (%)	2010 Multiple Person Households (%)
North Dakota	642,195	672,591	5	32	61
Billings County	888	783	-12	33	62
Dunn County	3,600	3,536	-2	27	70
McKenzie County	5,737	6,360	11	25	70
Stark County	22,635	24,199	7	31	61
Williams County	19,761	22,398	13	32	62

Source: U.S. Census Bureau 2010.

Williams and Stark counties, as detailed in **Table 3.16-1**, have a higher percentage of single family households than most of the remaining counties in the Project area. This increase in population can have greater community resource effects, especially on housing and law enforcement, when it occurs over a short timeframe rather than over a period stretching out over years.

3.16.2 Economic Conditions

A primary industry for the five affected counties within the socioeconomic Project area is agricultural. The most common crop produced is wheat, followed by lentils, barley, oats, dry edible beans and peas, and sugar beets (McCain and Associates, Inc. 2011). Livestock also is a prominent industry within the socioeconomic Project area, primarily producing beef cattle and hogs. Although oil and gas exploration has been occurring in the socioeconomic Project area since 1951, the industry has played a significantly increased role in the local economy in recent years. Oil and gas production is concentrated in western North Dakota; however, the secondary effects (refining and transporting) significantly benefit the entire state's

economy (McCain and Associates, Inc. 2011). North Dakota has risen to become the fourth largest producer of crude oil in the U.S., at an estimated 350,000 barrels a day (Financial Edge 2011).

The cities that are the most significant provider of services in the socioeconomic Project area are Williston and Dickinson. Colleges and airports can often serve as local hubs of economic development. Higher education is available in Williston through Williston State College, a 2-year university under the jurisdiction of the North Dakota State Board of Higher Education. Air service in Williston is provided out of the Sloulin Field International Airport. A new terminal opened in 2005 and commercial service is supplied by Great Lakes Airline. Higher education in Dickinson is available through Dickinson State University, a 4-year college. Air service in Dickinson is provided out of the Theodore Roosevelt Regional Airport. The airport has two runways and commercial service supplied by Great Lakes Airline.

Hunting and fishing, as well as Theodore Roosevelt National Park, provide a large recreational draw that has a sizeable economic ripple effect in the socioeconomic Project area, although the economic impact has not been quantified. Hunting in the area includes big game and small game prospects on private, state, and federal lands, as well as waterfowl on Lake Sakakawea and Little Missouri River. Hunting opportunities include white-tailed deer and antelope, as well as pheasant, sharp-tailed grouse, and waterfowl (McCain and Associates, Inc. 2011). Fishing in nearby Lake Sakakawea for walleye and northern pike attract many visitors to the area.

3.16.3 Income

Table 3.16-2 details the median household and per capita income for each of the five counties in the socioeconomic Project area. All five counties show sizeable increases in income from 1999 to 2009. The smallest increase in median household income from 1999 to 2009 was in Billings County at 40 percent. The largest increase took place in Williams County at 71 percent. Both these increases were larger than experienced by the State of North Dakota during the same timeframe.

Table 3.16-2 Income Characteristics

Location	Median Household Income 1999	Median Household Income 2009	Per Capita Income 1999	Per Capita Income 2009	% Change Median Household Income 1999-2009	% Change Per Capita Income 1999-2009
North Dakota	\$34,604	\$47,898	\$17,769	\$24,978	38	41
Billings County	\$32,667	\$45,844	\$16,186	\$31,548	40	95
Dunn County	\$30,015	\$44,681	\$14,624	\$25,006	49	71
McKenzie County	\$29,342	\$49,465	\$14,732	\$26,100	67	77
Stark County	\$32,526	\$51,385	\$15,929	\$23,810	58	50
Williams County	\$31,491	\$53,958	\$16,763	\$27,293	71	63

Source: U.S. Census Bureau 2010.

Table 3.16-3 shows occupational wage data for the extreme far western portion of North Dakota, within which falls the socioeconomic Project area. The occupations selected consist of those that may be used by the Project as well as others within the socioeconomic Project area that have high employment or play a vital role in the regional economy. Average weekly wages in the mining/oil and gas extraction and transportation and warehousing sectors have increased dramatically from 2005 to 2010. Wage rates in all

selected sectors have increased through the period. Mining/oil and gas extraction is considered one of the highest paying sectors for wage and salary employment.

Table 3.16-3 2010 Occupation Annual Wage Data

Occupation	Average Weekly Wage 2005	Average Weekly Wage 2010	Average Employment 2005	Average Employment 2010	% Change Average Weekly Wage 2005-2010	% Change Average Employment 2010
Region 1 (Williams and McKenzie counties)						
Mining, Quarrying, and Oil and Gas Extraction	\$1,110	\$1,556	1,527	5,381	40	252
Construction	\$754	\$1,105	549	1,313	47	139
Transportation and Warehousing	\$843	\$1,469	438	1,276	74	191
Agriculture, Forestry, Fishing, and Hunting	--*	--*	--*	--*	NA	NA
Healthcare and Social Assistance	\$519	\$685	1,931	1,884	32	2
Public Administration	\$547	\$728	1,168	1,408	33	21
Region 8 (Billings, Dunn, and Stark counties)						
Mining, Quarrying, and Oil and Gas Extraction	\$1,027	\$1,678	600	1,764	63	194
Construction	\$615	\$1,233	865	1,476	100	71
Transportation and Warehousing	\$725	\$1,168	541	1,137	61	110
Agriculture, Forestry, Fishing, and Hunting	\$412	\$553	101	162	34	60
Healthcare and Social Assistance	\$480	\$599	2,711	2,762	25	2
Public Administration	\$524	\$651	1,090	1,145	24	5

* Denotes non-disclosable data.

Source: North Dakota Workforce Intelligence Network 2011.

3.16.4 Employment

As detailed in **Table 3.16-4**, despite the current economic downturn, total employment throughout the area has increased noticeably from 2001 through 2011, with Williams and McKenzie counties showing the largest increase in employment. The largest labor forces are claimed by Williams and Stark counties. The highest unemployment rate, as of August 2011, was in Billings County; however, at 2.7 percent, it was still over half a percent lower than the North Dakota state average. The remainder of the counties in the socioeconomic Project area recorded August 2011 unemployment rates lower than 2 percent, which is indicative of the extremely tight local labor market. As shown in **Table 3.16-3**, the mining/oil and gas extraction sector, as

well as supporting sectors such as construction and transportation and warehousing, were a few of the largest in terms of average employment within the socioeconomic Project area, recording significant increases from 2005 to 2010. Healthcare and social assistance, as well as public administration, also are significant occupations in terms of annual employment within the socioeconomic Project area.

Table 3.16-4 Socioeconomic Project Area Labor Force Statistics

	2001	2005	2009	2011 August (Preliminary)	Change 2001-2011 (%)
Billings County					
Labor Force	503	504	528	663	32
Employment	492	490	515	645	31
Unemployment	11	14	13	18	64
Unemployment Rate	2.2	2.8	2.5	2.7	23
Dunn County					
Labor Force	1,739	1,732	1,780	2,799	61
Employment	1,684	1,673	1,703	2,751	63
Unemployment	55	59	77	48	-13
Unemployment Rate	3.2	3.4	4.3	1.7	-47
McKenzie County					
Labor Force	2,708	2,694	2,910	4,540	68
Employment	2,637	2,593	2,812	4,474	70
Unemployment	71	101	98	66	-7
Unemployment Rate	2.6	3.7	3.4	1.5	-42
Stark County					
Labor Force	12,471	13,438	14,406	17,766	42
Employment	12,151	13,038	13,932	17,456	44
Unemployment	320	400	474	310	-3
Unemployment Rate	2.6	3.0	3.3	1.7	-35
Williams County					
Labor Force	10,939	11,715	14,751	23,881	118
Employment	10,692	11,443	14,369	23,640	121
Unemployment	247	272	382	241	-2
Unemployment Rate	2.3	2.3	2.6	1.0	-57

Source: U.S. Bureau of Labor Statistics 2011.

3.16.5 Housing

The current western North Dakota boom in oil and gas development has stretched existing housing resources in the Project vicinity. Williams County has approximately 9,400 man camp beds approved due to the lack of housing (The Republic 2011). Additionally, the tight housing market is evidenced by the noticeable increase in residential building permits from 2005 to 2010, as shown in **Table 3.16-5**. Four of the five counties in the socioeconomic Project area more than doubled the amount of residential building permits issued in 2010 compared to 2005.

Table 3.16-5 Socioeconomic Project Area Residential Building Permits

County	Residential Building Permits 2005	Residential Building Permits 2010	Change 2005 – 2010 (%)
Billings County	1	4	300
Dunn County	4	5	25
McKenzie County	1	22	2,100
Stark County	79	175	122
Williams County	53	242	357

Source: North Dakota Workforce Intelligence Network 2011.

3.16.6 Local Government Facilities and Services

Billings, Dunn, McKenzie, Stark, and Williams county governments all provide an array of governmental services including general county government, law enforcement, fire protection, road and bridge infrastructure, solid waste disposal, and education. Fire protection typically is in the form of rural volunteer fire departments. The larger cities, such as Dickinson and Williston, are mostly served by volunteer fire departments. Medical care also can be found in Dickinson and Williston.

There are multiple school districts within the socioeconomic Project area. Enrollment data for school districts within Williston and Dickinson are shown in **Table 3.16-6**. Enrollment dropped 9.2 percent in Dickinson from 2000 to 2011, and increased 1.4 percent in Williston during the same time period, although it should be noted that projections made in 2004 anticipated steep drops for both school districts by 2011. The Dickinson #1 School District is home to four elementary schools, two junior high schools, and two high schools. Class sizes have stayed stable at 19 to 21 students per class room. The district is not at capacity and is confident in its ability to accommodate new students (Ennis 2011). The Williston #1 School District is home to four elementary schools, one middle school, and one high school. Class sizes range from 17 to 25 students. The district is attempting to cap classroom sizes at 25 students. While enrollment has increased recently, the majority of workers do not bring their children and some that do choose to home school. The district is not at capacity and is confident in its ability to accommodate new students (Lambert 2011).

Table 3.16-6 Local School District Enrollment

School District	2000	2004	Current Enrollment October 2011	Projected Enrollment 2011 (made in 2004)	Change 2000-2011 (%)
Dickinson #1	3,012	2,670	2,736	2,128	-9.2
Williston #1	2,597	2,204	2,634	2,321	1.4

Sources: North Dakota Department of Public Instruction 2011.

Public facilities and services, especially in the larger towns of Dickinson and Williston, are stressed due to the influx of new workers into the local population. As is evidenced by the spike in building permits and the presence of man camps, local government facilities and services are having difficulties in adequately servicing the existing population. Both the Dickinson and Williston fire departments are served by mostly volunteers. A small number of staff are full-time. Calls from outside the city limits are responded to by volunteer rural fire departments. The Dickinson Fire Department indicated that emergency calls have increased 50 percent since 2009, stressing the capabilities of the mostly volunteer force. Many of the emergency calls have been related to auto crashes. Medical ambulance service is provided by a private company in Dickinson (Sivak 2011). Ambulance service also is provided out of the towns of Belfield and Killdeer (Dickinson Area Ambulance Service 2011). The Williston Fire Department also indicated a marked increase in emergency calls over the past few years. This increase has resulted in a decline in volunteers and a fire department that is at capacity. The Williston Fire Department also provides medical ambulance service, operating four ambulances (Hanson 2011).

The towns of Dickinson and Williston are served by municipal police departments. Calls outside the city limits are answered by county sheriffs or the state patrol. The Dickinson and Williston police departments number 27 and 21 sworn officers, respectively. The growth of the local population in recent years has resulted in a tripling of the call volume for the Williston Police Department (Williston Police Department 2011).

3.16.7 Local Fiscal Conditions

The State of North Dakota levies a 5 percent sales tax. Williams County is the only county within the socioeconomic Project area that levies a sales tax (0.5 percent). Sales tax revenue for the county has increased 95 percent from 2007, the first full year the tax was instituted, to 2010. This growth is indicative of the robust economy within the county. The cities of Dickinson and Williston both levy city sales tax at 1.5 percent and 1 percent, respectively. Pipelines have a true and full value determined by the state. This true and full value is then halved to determine the assessed value, after which 10 percent is taken from the assessed value to determine the taxable value. County mill rates are then applied to the taxable value to produce the property tax amount that is owed. Property taxes are a primary source of county and school district revenue. Tax revenues are allocated to county funds, school districts, special districts, and municipalities. **Table 3.16-7** details the property tax revenue for the five-county socioeconomic Project area. Billings, Stark, and Williams counties have experienced the largest growth in total property tax revenue from 2005 to 2010. McKenzie County total property tax revenue grew at only 1 percent.

Table 3.16-7 County Property Tax information

County¹	Taxes Levied on Pipelines 2005 (\$)	Taxes Levied on Pipelines 2010 (\$)	Total Property Taxes and Special Assessments 2005 (\$)	Total Property Taxes and Special Assessments 2010 (\$)	% Change Taxes Levied on Pipelines 2005 - 2010	% Change Total Property Taxes 2005 - 2010
Billings County	194,418	257,942	792,504	1,002,042	33	26
McKenzie County	1,144,329	1,068,321	4,546,665	4,604,562	-7	1
Stark County	224,937	214,247	17,558,136	21,568,556	-5	23
Williams County	831,112	1,426,198	17,266,076	20,228,934	72	17

¹ Property tax information for Dunn County was not included, as no Project facilities would be located within the county.

Source: North Dakota Office of State Tax Commissioner 2011, 2006.

3.17 Environmental Justice

Since publication of EO 12898, *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations* in the FR on February 11, 1994 (59 FR 7629), federal agencies have been developing a strategy for implementing the EO. Currently, the federal agencies rely on the *Environmental Justice Guidance* under the NEPA prepared by the CEQ (the guidance) (CEQ 1997) in addressing EO 12898 in NEPA documents.

Pursuant to EO 12898 on Environmental Justice, federal agencies shall make the achievement of environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations, low-income populations, and Indian tribes, and allowing all portions of the population an opportunity to participate in the development of, compliance with, and enforcement of federal laws, regulations, and policies affecting human health or the environment regardless of race, color, national origin, or income. EO 12898 requires identifying whether an area potentially affected by a proposed federal action may include minority populations and low-income populations and seek input accordingly. For the purpose of this EA analysis, the “affected area” is defined as any county that the Project crosses.

3.17.1 Minority Populations

A description of the population types (i.e., races) residing within the counties that would be crossed by the Project route and laterals is presented in **Table 3.17-1**. This information is based on U.S. Census Bureau data. The table also includes the percent of the population whose income lies below the poverty level.

The guidance states that “a minority population may be present if the minority population percentage of the affected area is ‘meaningfully greater’ than the minority population percentage in the general population or other ‘appropriate unit of geographic analysis’ (CEQ 1997).”

The Project route and laterals would pass through four North Dakota counties, including Billings, McKenzie, Stark, and Williams. Dunn County is not transected by the Project route or laterals, but as a result of its close proximity to the Project area, it is included in the analysis. Most of the Project area is sparsely populated and dotted with numerous oil well fields and sprawling cattle ranches. According to 2010 U.S. Census Bureau statistics, the populations of all of the affected counties were primarily white. The largest minority population was American Indian, followed by those of Hispanic or Latino origin. Dunn and McKenzie counties both recorded American Indian populations that were well above the North Dakota state average. This large American Indian population can be attributed to the Fort Berthold Indian Reservation, of which portions are within both Dunn and McKenzie counties. The Project is not located within the boundaries of the Reservation. At its closest, the Reservation is approximately 5 miles east of the Project route and laterals.

3.17.2 Low-income Populations

The EO guidance recommends that low-income populations in an affected area be identified using the annual statistical poverty thresholds from the U.S. Census Bureau. In identifying low-income populations, agencies may consider a community as either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure.

As stated previously, the Project route and laterals would pass through a rural and sparsely populated area. Median household incomes for all the affected counties were slightly above or below the state average. The poverty threshold was based on a 3-person household. The U.S. Census Bureau 2009 poverty threshold definition for a 3-person household was \$17,098 (U.S. Census Bureau 2010). The 2009 median household income for all of the affected counties indicates a general level of income that was well above the poverty threshold.

Table 3.17-1 Race and Poverty Characteristics of Affected Counties in the Project Area

State/County	Race as a Percent of Total Population (estimated) ^{1,2}						Population at or Below Poverty Level, 2009 ² (%)	Median Household Income, 2009 ² (\$)
	White 2010	Black or African American 2010	American Indian and Alaska Native 2010	Asian 2010	Two or More Races 2010	Hispanic or Latino Origin 2010 ¹		
North Dakota								
Billings County	98.6	0.3	0.4	0.5	0.1	0.5	10.4	45,844
Dunn County	84.9	0.2	12.7	0.3	1.7	1.1	11.2	44,681
McKenzie County	75.3	0.1	22.2	0.3	1.6	2.2	12.8	49,465
Stark County	95.2	0.8	1.0	1.2	1.3	1.9	9.6	51,385
Williams County	92.1	0.3	4.0	0.4	2.9	1.9	8.6	53,958
Average for Entire State	90.0	1.2	5.4	1.0	1.8	2.0	11.7	47,898

¹ People who identify their origin as Hispanic or Latino may be of any race. Thus, the percent Hispanic or Latino should not be added to the race as percentage of population categories.

² Source: U.S. Census Bureau 2010.

3.18 Transportation

The Project route and laterals would intersect a total of seven major roads. **Table 3.18-1** lists these roads and highways, as well as traffic flow near the approximate intersections with the Project route and laterals. I-94 would be crossed by the Project route at approximately MP 121. I-94 is a four-lane interstate highway that runs the entire width of North Dakota and connects west to Billings, Montana, and east to Bismarck, North Dakota. U.S. Highway 85 is a two-lane highway that travels north-south through the Project area and parallels the Project route for 36 miles. The Project route and laterals intersect U.S. Highway 85 four times. State Route (SR) 200 is a two-lane highway that intersects the Trunk line near MP 90.6. SR 23 is a two-lane paved major road that runs east from U.S. Highway 85 until Johnson's Corner where it turns north to connect with SR 1806. SR 73 is a two-lane paved major road that continues east once SR 23 turns north until it meets the floodplain of Lake Sakakawea. Areas between the major highways are served by an irregular, complex network of unpaved roads ranging from unmaintained 4-wheel drive trails to gravel-surfaced county roads. Traffic volumes have increased dramatically as a result of the oil and gas production in the Bakken Formation.

Table 3.18-1 Traffic Levels for Major Highways Crossed by the Project Route and Laterals

Highway/Route	Location	2010 Traffic Counts			
		AADT ¹		Total Annual Traffic ²	
		Total Traffic	Trucks	Total Traffic	Trucks
I-94	Two miles west of Belfield (MP 121)	4,085	1,120	1,491,025	408,800
U.S. Highway 85	South of 85 and 73 intersection (MP 71)	3,205	715	1,169,825	260,975
U.S. Highway 85	South of 85 and 73 intersection (MP 73)	3,205	715	1,169,825	260,975
U.S. Highway 85	South of Fairfield (MP 101)	1,530	600	558,450	219,000
U.S. Highway 85	(Belfield MP 2.5)	2,760	675	1,007,400	246,375
SR 200	Near 85/200 intersection (MP 87.5)	1,530	600	558,450	219,000
SR 200	Near Killdeer (Dunn MP 0)	1,340	495	489,100	180,675
SR 23	West of 23 and 73 intersection (MP 23)	2,980	1,125	1,087,700	410,625
SR 23	East/west bend north of Keene (MP 39)	1,795	230	655,175	83,950
SR 73	East of 23 and 73 intersection (AMS MP 0)	1,605	780	585,825	284,700
SR 1804	North of Keene (MP 7)	610	200	222,650	73,000
SR 1806	North of 23 east/west bend (MP 16)	110	80	40,150	29,200

¹ Annual Average Daily Traffic.

² Extrapolated from AADT.

Source: North Dakota Department of Transportation 2010.

In addition to highway traffic, Sloulin Field International Airport in Williston, North Dakota, the Watford City Municipal Airport in Watford City, North Dakota, and Theodore Roosevelt Regional Airport in Dickinson, North Dakota, allow for air travel directly to the Project area. The BNSF operates a rail line in Section 10, T139N, R100W near the terminus of the Project route (McCain and Associates 2011).

3.19 Public Safety

The primary concern for public health and safety in the Project area is the increased traffic and potential traffic incidences related to oil and gas production in the Bakken Formation.

The presence of heavy traffic was acknowledged by the Theodore Roosevelt Expressway Association (TRE) to be an escalating problem. Presently, the North Dakota Department of Transportation is in the process of researching traffic reliever routes for the impacted cities of Williston, Alexander, Dickinson, and potentially Watford City and New Town. “Interim traffic signals for the bypass loop and the North Dakota U.S. Highway 85 west turn at Watford City also have recently met federal code and are expected to be installed by the end of the year” (TRE 2011).

Traffic levels for interstate and U.S. highways and state routes are described in Section 3.18, Transportation. Additional truck traffic on narrow state collector highways also warrants expanding narrow lanes and shoulders to ensure the safety of highway travelers (North Dakota State University [NDSU] 2010). Increased traffic also exposes the public to more ambient dust. The most impacted areas are employing dust suppressants to mitigate against dust-related health and safety impacts (NDSU 2010).

3.20 Hazardous Materials and Solid Waste

3.20.1 Hazardous Materials

3.20.1.1 Regulatory Framework

"Hazardous materials," which are defined in various ways under a number of regulatory programs, can represent potential risks to both human health and the environment when not properly managed. The term hazardous materials include the following materials that may be utilized or disposed of during construction and operation:

- Substances covered under OSHA Hazard Communication Standards (29 CFR 1910.1200 and 30 CFR 42): The types of materials that may be used in pipeline construction and operational activities and that would be subject to these regulations would include almost all of the materials listed in **Table 3.20-1**.

Table 3.20-1 Hazardous Materials Typically Used in Pipeline Construction and Operation

Canned spray paint
Compressed gases (flammable and nonflammable)
Diesel deicer
Drilling fluid
Fire extinguishers
Gasoline treatment
Glycols (ethylene glycol, propylene glycol, triethylene glycol)
Herbicides
Lead acid batteries
Methanol
Penetrating oil
Pesticides
Petroleum-based lubricants and fluids (motor oil, grease, hydraulic fluid, transmission oil)
Petroleum fuels (gasoline, diesel)
Pipe coating resin
Solvents/solvent containing products
Starter fluid

Source: BLM 2005; Folga 2007; Pharris and Kolpa 2007.

- “Hazardous materials” as defined under USDOT regulations at 49 CFR, Parts 170-177: The types of materials that may be used in construction and operational activities and that would be subject to these regulations would include sodium cyanide, explosives, cement, fuels, some paints and coatings, and other chemical products.
- “Hazardous substances” as defined by Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and listed in 40 CFR Table 302.4: The types of materials that may contain hazardous substances that would be subject to these requirements would include solvent-containing materials (e.g., paints, coatings, degreasers), acids, and other chemical products.
- “Hazardous wastes” as defined in the Resource Conservation and Recovery Act (RCRA): Procedures in 40 CFR 262 are used to determine whether a waste is a hazardous waste. Hazardous wastes are regulated under Subtitle C of RCRA.
- Any “hazardous substances” and “extremely hazardous substances” as well as petroleum products such as gasoline, diesel, or propane, that are subject to reporting requirements if volumes on-hand exceed threshold planning quantities under Sections 311 and 312 of SARA: The types of materials that may be used in construction and operational activities and that could be subject to these requirements would include fuels, coolants, acids, and solvent-containing products such as paints and coatings.
- Petroleum products defined as “oil” in the Oil Pollution Act of 1990: The types of materials that would be subject to these requirements include fuels, lubricants, hydraulic oil, and transmission fluids.

In conjunction with the definitions noted above, the following lists provide information regarding management requirements during transportation, storage, and use of particular hazardous chemicals, substances, or materials:

- The Superfund Amendments and Reauthorization Act Title III List of Lists or the Consolidated List of Chemicals Subject to Emergency Planning and Community Right-to-Know Act and Section 112(r) of the CAA.
- The USDOT listing of hazardous materials in 49 CFR 172.101.

Certain types of materials, while they may contain potentially hazardous constituents, are specifically exempt from regulation as hazardous wastes. Used oil, for example, may contain toxic metals, but would not be considered a hazardous waste unless it meets certain criteria. Other wastes that might otherwise be classified as hazardous are managed as “universal wastes” and are exempted from hazardous waste regulation as long as those materials are handled in ways specifically defined by regulation. An example of a material that could be managed as a universal waste is lead-acid batteries. As long as lead-acid batteries are recycled appropriately, requirements for hazardous waste do not apply.

3.20.1.2 Hazardous Materials Use

A number of hazardous substances are used in the construction, operation, and maintenance of pipelines. **Table 3.20-1** lists common types of hazardous materials that could be used, but it is not a comprehensive list.

3.20.2 Solid Waste

3.20.2.1 Regulatory Definition of Solid Waste

Solid waste consists of a broad range of materials that include garbage, refuse, wastewater treatment plant sludge, non-hazardous industrial waste, and other materials (solid, liquid, or contained gaseous substances) resulting from industrial, commercial, mining, agricultural, and community activities (USEPA 2006). Solid

wastes are regulated under different subtitles of RCRA and include hazardous waste (discussed in the previous section) and non-hazardous waste. Non-hazardous wastes are regulated under RCRA Subtitle D.

3.20.2.2 Solid Waste Generation

Solid waste generated from pipeline construction is minimal when compared to other types of industrial and commercial construction projects. Solid waste generated from construction and operation of the proposed pipeline and associated facilities generally would consist of construction rubble (e.g., excess or off-spec concrete, soil, and rock), paper, cardboard and packing material, brush, other vegetation, scrap metal, discarded food, trash, garbage, general refuse, equipment maintenance waste (filters, used oil), and regulation-defined empty containers. The generation of hazardous waste during construction is not anticipated and most likely would occur as result of spill cleanup and remediation.

Pipeline operations may generate solid wastes similar to construction activities, but maintenance of the pipeline has the potential to produce waste in the form of sludge and other liquid (including hydrostatic test water) or solid waste generated during cleaning and repair of the pipeline and pumping facilities. These materials may be hazardous wastes depending upon the outcome of analytical testing or knowledge of process generating the materials.

3.20.2.3 Contaminated Sites

In spite of the generally rural areas crossed by the Project route and laterals, there is always the potential that contaminated sites are present, given that Project routes often parallel or are within existing utility and transportation corridors. Contaminated sites can result from industrial activities (mineral extraction, mineral processing, and manufacturing) or from commercial activities (fuel storage for retail outlets, vehicle maintenance). Active or closed landfills or unauthorized dumps also may present potential contamination concerns.

3.21 Cultural Resources/Native American Concerns

3.21.1 Cultural Resources

3.21.1.1 Types of Cultural Resources

“Cultural Resources” are defined as the tangible remains and material evidence resulting from, or associated with, past human activity. Cultural resources generally must be at least 50 years old, and encompass a diverse array of property types including buildings, structures (e.g., bridges, canals, railroads), sites, objects, and districts. In addition, certain cultural resources may be defined as cultural landscapes, which are classified either as historic sites, historic designed landscapes, historic vernacular landscapes, or ethnographic landscapes (NPS 1998). Finally, certain areas that are associated with the cultural practices or beliefs of a living community or cultural group may qualify for consideration as traditional cultural properties (Parker and King 1998).

3.21.1.2 Applicable Federal Laws and Regulations

Federal historic preservation laws provide a mandate and procedures for the identification, documentation, evaluation, and protection of cultural resources that may be affected by federal undertakings, which can include private undertakings operating under federal license, or on federally managed lands. The NEPA requires federal agencies involved in undertakings to consider the potential effects to the “human environment”—an all-encompassing term that has been interpreted to include historical and archaeological resources.

The NHPA requires federal agencies to consider an undertaking’s effects on “historic properties,” which are defined as cultural resources listed or determined eligible for listing on the NRHP. Section 106 of the NHPA and accompanying implementing regulations specified in 36 CFR 800 (“Protection of Historic Properties”) establish a collaborative consultation/review process and specific sequential procedures that enable federal agencies to identify historic properties that may be directly or indirectly affected by a proposed federal undertaking.

3.21.2 The NRHP Eligibility Criteria

The NRHP is the nation’s inventory of historic properties. Resources determined officially NRHP-eligible through consultation, as well as those already listed on the NRHP, warrant impact assessment under Section 106 of the NHPA. To qualify as a historic property, a property generally must be at least 50 years old, and must meet the NRHP Criteria for Evaluation (36 CFR 800.4):

“The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet at least one of the following criteria:

Criterion A – are associated with events that have made a significant contribution to the broad patterns of our history; or

Criterion B – are associated with the lives of persons significant in our past; or

Criterion C – embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

Criterion D – have yielded, or may be likely to yield, information important in prehistory or history.”

3.21.3 Area of Potential Effects

The area of potential effects (APE) is defined in 36 CFR 800.16(d) as “the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.”

The APE should include the following:

- All alternative locations for all elements of the Project;
- All locations potentially subject to ground disturbance resulting from construction activities;
- All locations from which elements of the Project (e.g., aboveground facilities; a pipeline trench scar on the landscape) might be visible;
- All locations in which the Project might cause permanent changes to traffic patterns, land use, and public access.

The Project APE for cultural resources encompasses the 50- to 100-foot-wide construction ROW, authorized ATWS, the proposed oil receipt facilities, construction equipment and pipe storage yards, and access roads created or upgraded for pipeline construction and maintenance. Where applicable, the APE for visual impacts includes those aboveground ancillary facilities or other Project elements that are visible from historic properties in which setting contributes to their NRHP-eligibility.

3.21.4 Cultural Resources Investigations

In 2011, a Class I file search and Class III field survey of the APE were completed by Metcalf Archaeological Consultants, Inc. (Metcalf) to identify and evaluate the NRHP-eligibility of all cultural resources that could be subject to impacts associated with Project construction. The Class I file search involved a review of site files and survey reports maintained by the SHPO for a 3-mile-wide corridor centered on the proposed pipeline centerline. The file search revealed a total of 979 previously recorded cultural resources, including 741 archaeological sites, 81 architectural and historic resources, 157 multi-component sites containing both prehistoric and historic artifacts and/or features, and an unknown number of isolated finds (IFs) (Metcalf 2011a,b).

The Class III cultural resources field survey involved an intensive-level pedestrian survey of the proposed pipeline route, along with an approximately 10-acre extra work space on the south side of Lake Sakakawea (Metcalf 2012a). A total of approximately 3,945 acres was intensively inventoried, resulting in the identification of 62 cultural resources. These include 29 prehistoric sites, 9 historic sites, and 24 prehistoric IFs. All of the IFs were recommended not eligible for inclusion in the NRHP. The NRHP-eligibility of the prehistoric sites is undetermined pending further investigation (e.g., testing for subsurface cultural deposits). Of the 9 historic sites, 7 were recommended not eligible for the NRHP, and 2 were recommended eligible under Criterion A.

In early 2012, another Class III cultural resources inventory was completed for reroutes designed to avoid and minimize impacts to cultural resources (Metcalf 2012b). A total of 78 cultural resources were recorded, including 40 prehistoric isolated finds which were recommended not eligible for the NRHP. Of the 38 cultural resources, 27 are prehistoric sites and 11 are historic sites. The prehistoric sites include 14 sites described as cultural material scatters, lithic scatters, or chipped stone sites; the remaining sites include 8 stone circle sites, 2 stone features, 2 stone cairns, and 1 eagle trapping pit site. Only 2 of the prehistoric sites are recommended eligible for the NRHP, while the remaining 25 are currently of undetermined eligibility.

The 11 historic sites identified during the 2012 inventory include 3 segments of an abandoned alignment of U.S. Highway 85, 1 wagon trail, 5 sites with depressions, 1 farmstead, and 1 stone feature site. Of the 11 sites, 2 segments of the abandoned U.S. Highway 85 roadbed are recommended NRHP-eligible, 8 are recommended not eligible for the NRHP, and the NRHP-eligibility of the wagon trail is currently undetermined.

Table 3.21-1 lists the sites identified within or adjacent to the APE, as well as their site type and NRHP eligibility.

Table 3.21-1 Cultural Resource Sites Identified Within or Adjacent the APE

Site Number	Site Type	Site Description	NRHP Evaluation
32WI124	Historic	Depression	Not Eligible
32WI1241	Prehistoric	Stone circle	Undetermined
32WI1242	Prehistoric	Stone features	Undetermined
32WI1243	Prehistoric	Stone circles	Undetermined
32WI1245	Prehistoric	Stone circles	Undetermined
32WI1237	Prehistoric	Stone features	Undetermined
32WI1244	Historic	Farmstead	Not Eligible
32WI1215	Historic	Depression, cultural material scatter	Not Eligible
32WI132	Prehistoric	Stone circle, cultural material scatter	Undetermined
32WI338	Prehistoric	Stone circle	Undetermined
32WI1238	Prehistoric	Stone circle	Undetermined
32WI1246	Prehistoric	Stone circle	Undetermined
32MZ2308	Historic	Stone feature	Not Eligible
MAC-BLAK48 ¹	Historic	Depressions/foundations	Not Eligible
MAC-BLAK49 ¹	Prehistoric	Stone circles	Undetermined
MAC-BLAK54 ¹	Prehistoric	Cairn	Undetermined
MAC-BLAK57 ¹	Historic	Depression	Not Eligible
32MZ2313	Prehistoric	Cultural material scatter	Undetermined
32MZ1560	Historic	Old US 85 road bed	Eligible
32WI1560	Historic	Old US 85 road bed	Potentially Eligible
MAC-BLAK59 ¹	Prehistoric	Cultural material scatter	Undetermined
32MZ1314		Wagon trail	Undetermined
32MZ1312	Prehistoric	Cultural material scatter	Undetermined
32MZ1311	Prehistoric	Cultural material scatter	Undetermined
MAC-BLAK90 ¹	Prehistoric	Eagle trapping pits	Undetermined

Table 3.21-1 Cultural Resource Sites Identified Within or Adjacent the APE

Site Number	Site Type	Site Description	NRHP Evaluation
32MZ1473	Prehistoric	Cultural material scatter, chipped stone	Undetermined
32MZ1484	Prehistoric	Cultural material scatter	Eligible
32MZ2311	Prehistoric	Cultural material scatter	Undetermined
MAC-BLAK73 ¹	Prehistoric	Cultural material scatter	Undetermined
MAC-BLAK74 ¹	Prehistoric	Cultural material scatter	Undetermined
MAC-BLAK75 ¹	Prehistoric	Cultural material scatter	Undetermined
32MZ1647	Prehistoric	Cultural material scatter	Eligible
32MZ2307	Prehistoric	Lithic scatter	Undetermined
MAC-BLDG4 ¹	Historic	Old Highway 85 road bed	Not Eligible
MAC-BLAK45 ¹	Prehistoric	Cultural material scatter	Undetermined
MAC-BLAK63 ¹	Prehistoric	Cairn	Undetermined
32BI1098	Historic	Depression, well	Not Eligible
32BI453	Prehistoric	Cultural material scatter	Undetermined

¹ Temporary field number.

Source: Metcalf 2012a,b.

3.21.5 Native American Concerns

Native American concerns may include resources associated with their traditional lifeways, religious beliefs, and heritage/tribal history. Some examples of such resources include natural landmarks, burial sites, contemporary ceremonial sites, traditional hunting areas and places where edible and medicinal plants have traditionally been collected; lithic tool-making material quarries; and prehistoric archaeological sites and features including stone circle sites, artifact scatters, and features such as cairns.

As part of the Section 106 process for proposed federal undertakings, federal agencies are required to consult with Native American groups or other interested parties. Consultation is defined in 36 CFR 800.16(f) as “the process of seeking, discussing, and considering the views of other participants, and, where feasible, seeking agreement with them regarding matters arising in the Section 106 process.”

As lead federal agency, the BLM initiated consultation with Native American groups who have interests in, and traditional connections to, western North Dakota. On October 19, 2011, BLM sent letters of invitation to participate in consultation to 14 federally recognized tribes listed in **Table 3.21-2**.

Table 3.21-2 Federally Recognized Tribes

Native American Tribe(s)	
Fort Peck Tribes (Sioux and Assiniboine)	Crow Creek Sioux Tribe
Northern Cheyenne Tribe	Flandreau Santee Sioux tribe

Table 3.21-2 Federally Recognized Tribes

Native American Tribe(s)	
Mandan, Hidatsa, and Arikara Nation	Lower Brule Sioux Tribe
Spirit Lake Sioux Tribe	Rosebud Sioux Tribe of Indians
Standing Rock Sioux Tribe	Oglala Sioux Tribe
Turtle Mountain Band of Chippewa	Sisseton-Wahpeton Oyate Tribes
Cheyenne River Sioux Tribe	Yankton Sioux Tribe

To date, the BLM has received responses from the Standing Rock Sioux Tribe, and the Mandan, Hidatsa, and Arikara Nation. Tribal Historic Preservation Offices (THPOs) of both tribal groups requested to be included in the Section 106 review process, including being provided with relevant cultural resources survey information collected for the Project. Copies of the cultural resources inventory report would be submitted to the 14 tribes listed above for review and comment.